

# PD41 | PD42

## Commercial Printer



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**User's Manual**

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit ([www.openssl.org](http://www.openssl.org)).

This product includes cryptographic software written by Eric Young ([EAY@cryptsoft.com](mailto:EAY@cryptsoft.com)).

## Document Change Record

This page records changes to this document.

Version Number	Date	Description of Change
003	1/2014	Updated Global Services and Support information.
002	11/2010	<ul style="list-style-type: none"><li>• Added methods to verify a USB mass storage device is supported by the printer.</li><li>• Expanded the Upgrading Firmware procedure.</li></ul>





# Contents

Before You Begin.....	xi
Safety Information.....	xi
Global Services and Support .....	xi
Warranty Information.....	xi
Web Support .....	xii
Send Feedback.....	xii
Telephone Support .....	xii
Who Should Read This Manual .....	xii
Related Documents .....	xiii

## 1 Using the Printer ..... 1

Learning About the Printers .....	2
Identifying the Parts of the Printer .....	2
Selecting the Printer Command Language .....	3
Understanding the Front Panel .....	5
Understanding the Print Button and LEDs.....	6
Understanding the PD42 Screen and Soft Keys .....	7
Understanding Printer States .....	9
Loading Media.....	11
Loading Media for Tear-Off Printing .....	11
Loading Media for Peel-Off (Self-Strip) Printing .....	12
Loading Thermal Transfer Ribbon.....	16
Printing a Test Label .....	19
Creating and Printing Labels.....	20

## 2 Connecting the Printer ..... 21

Connecting the Printer to Your PC .....	22
Connecting the Printer to a PC Through the USB Device Port .....	22
Connecting the Printer to a PC Through the Serial Port .....	22
Connecting the Printer to a PC Through the IEEE 1284 Port .....	23

Connecting the Printer to Your Network .....	24
Setting Up Ethernet Communications .....	24
Manually Configuring IP Settings .....	25
Setting Up 802.11 Radio Communications .....	27
Configuring 802.11 Wireless Security Using IPL .....	29
Configuring 802.11 Wireless Security Using Fingerprint .....	32
Connecting Peripherals to the USB Host Port .....	35
Using a USB Mass Storage Device .....	36
Connecting a Keyboard to the USB Host Port .....	36
Connecting a Bar Code Scanner to the USB Host Port .....	37
Connecting a USB Hub to the USB Host Port .....	38

## **3 Configuring the Printer** .....

### **39**

Configuring the Printer .....	40
Configuring the PD42 Printer from the Screen .....	40
Configuring the Printer From the Home Page .....	42
Configuring Communications Settings .....	43
Configuring Media Settings .....	43
Configuring Print Engine Settings (Fingerprint only) .....	44
Configuring Web Shell Settings .....	44
Configuring Alerts .....	45
Configuring General Network Settings .....	47
Configuring Mail Settings .....	48
Configuring SNMP Settings .....	49
Configuring TCP/IP Settings .....	50
Configuring the Network Type .....	52
Configuring Avalanche Settings .....	52
Configuring Wireless LAN Settings .....	53
Configuring 802.1x Settings .....	54
Configuring SmartSystems Settings .....	56
Configuring the Printer Using PrintSet .....	56
Configuring the Printer Using Commands Sent From Your PC .....	57
Configuring the Printer Using SmartSystems Foundation .....	57
Choosing an Ethernet or Wireless Network .....	58
Using the PD42 Screen to Choose the Network Type .....	58
Using Printer Commands to Choose the Network Type .....	58
Upgrading the Firmware .....	59
Downloading Fonts and Graphics .....	62

<b>4</b>	<b>Troubleshooting and Maintaining the Printer</b>	<b>65</b>
	Troubleshooting the Printer	66
	Contacting Product Support	66
	Understanding Error Messages on the PD42	67
	Troubleshooting Printer Problems and Finding Solutions	69
	Troubleshooting Communication Problems	72
	Using the Line Analyzer in Fingerprint	72
	Using Dump Mode	73
	Using Testmode and Extended Testmode to Troubleshoot	74
	Using Testmode	74
	Using Extended Testmode	75
	Adjusting the Printer	77
	Preventing Ribbon Wrinkling	77
	Clearing Media Jams	78
	Adjusting the Printhead	79
	Adjusting Printhead Balance	79
	Adjusting Printhead Pressure	81
	Adjusting Printhead Dot Line	82
	Adjusting the Label Stop Sensor	85
	Maintaining the Printer	88
	Cleaning the Printhead	89
	Cleaning the Media Compartment	89
	Cleaning the Exterior of the Printer	90
<b>A</b>	<b>Specifications</b>	<b>91</b>
	Printer Specifications	92
	Interfaces	94
	RS-232 Serial Interface	94
	USB Interface	95
	USB Host Interface	96
	Ethernet Interface	96
	Parallel IEEE 1284 Interface	97
	Media Specifications	98
	Accessories for the Printer	107

<b>B</b>	<b>Default Settings</b>	109
	Default Configuration	110
	IPL Default Configuration	110
	Fingerprint Default Configuration	112
	ESim Default Configuration	115
<b>C</b>	<b>Fingerprint, IPL, and ESim Setup Menus</b>	119
	Fingerprint Setup Menus	120
	Fingerprint Ser-Com, UART1 Menu	120
	Fingerprint Net-Com, NET1 Menu	120
	Fingerprint Com Menu	121
	Fingerprint Network Menu	121
	Fingerprint Emulation Menu	121
	Fingerprint Feedadjust Menu	122
	Fingerprint Media Menu	122
	Fingerprint Print Defs Menu	123
	IPL Setup Menus	123
	IPL Ser-Com Menu	123
	IPL COM Menu	123
	IPL Network Menu	124
	IPL Test/Service Menu	124
	IPL Media Menu	125
	IPL Configuration Menu	125
	ESim Setup Menus	126
	ESim Serial-Com Menu	126
	ESim Net-Com, NET1 Menu	126
	ESim Com Menu	126
	ESim Network Menu	127
	ESim Feedadjust Menu	127
	ESim Media Menu	128
	ESim Print Defs Menu	128
	ESim Charset Menu	129
	ESim Date Time Menu	129

<b>D</b>	<b>Advanced Configuration</b>	131
	Printer File System (Fingerprint)	132
	Device Tree Structure	132
	Devices and Directories	132
	Customizing the Printer Home Page	134
	Web Style Guide Files	134
	Content of a Web Style Guide File	135
	Required Environment Variables	135
	Optional Environment Variables	135
	x-www-url-Encoding Syntax Rules	137
	Memory and Storage	137
	Creating a Web Style Guide File	137
<b>I</b>	<b>Index</b>	139



# Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

## Safety Information

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.



**A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.**



**Note:** Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

## Global Services and Support

### Warranty Information

To understand the warranty for your Intermec product, visit the Intermec website at [www.intermec.com](http://www.intermec.com) and click **Support > Returns and Repairs > Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided “as is with all faults.” All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

## **Web Support**

Visit the Intermec website at [www.intermec.com](http://www.intermec.com) to download our current manuals.

Visit the Intermec technical knowledge base (Knowledge Central) at [www.intermec.com](http://www.intermec.com) and click **Support > Knowledge Central** to review technical information or to request technical support for your Intermec product.

## **Send Feedback**

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## **Telephone Support**

In the U.S.A. and Canada, call **1-800-755-5505**.

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec website, click **About Us > Contact Us**.

## **Who Should Read This Manual**

This user's guide is written for the person who is responsible for installing, configuring, and maintaining the PD41 or PD42 printer.

This user's guide provides you with information about the features of the printer, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the printer, you should be familiar with your network and general networking terms, such as IP address.



## Related Documents

You can download our documents for free from the Intermec website at [www.intermec.com](http://www.intermec.com).

### To download documents

- 1** Visit the Intermec website at [www.intermec.com](http://www.intermec.com).
- 2** Click the **Products** tab.
- 3** Using the **Products** menu, navigate to your product page. For example, to find the PD41 printer product page, click **Printers and Media** > **Industrial Printers** > **PD41**.
- 4** Click the **Manuals** tab.
- 5** If your product does not have its own product page, click **Support** > **Manuals**. Use the **Product Category** field, the **Product Family** field, and the **Product** field to help you locate the documentation for your product.



# 1

## Using the Printer

In this chapter, you will find these sections:

- **Learning About the Printers**
- **Loading Media**
- **Loading Thermal Transfer Ribbon**
- **Printing a Test Label**
- **Creating and Printing Labels**

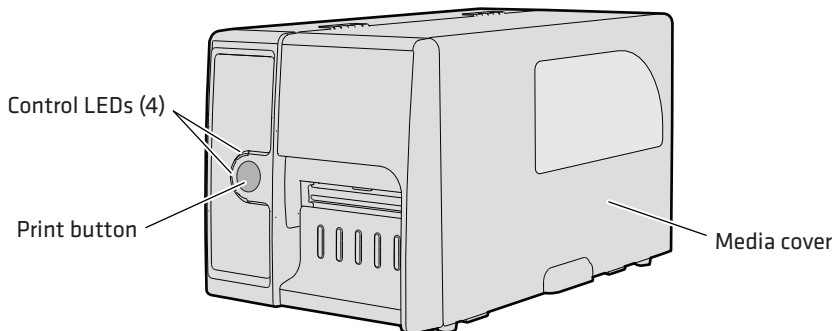
## **Learning About the Printers**

The PD41 and PD42 Commercial Printers are dependable and versatile printers suitable for medium-duty applications in manufacturing, transportation, and warehousing environments. With all-metal chassis and covers, proven printing mechanics and powerful electronics, they provide the sturdiness and performance your business depends on. The PD42 features an intuitive user interface with a large graphical screen and programmable buttons.

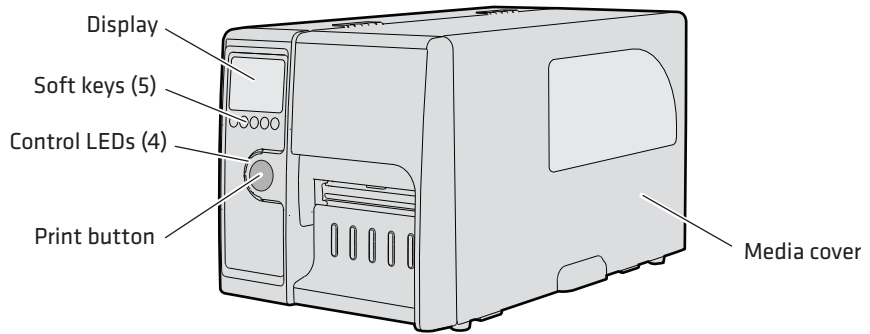
Throughout this manual, both models of the printer are referred to as “printer” unless the information is specific to one model.

## **Identifying the Parts of the Printer**

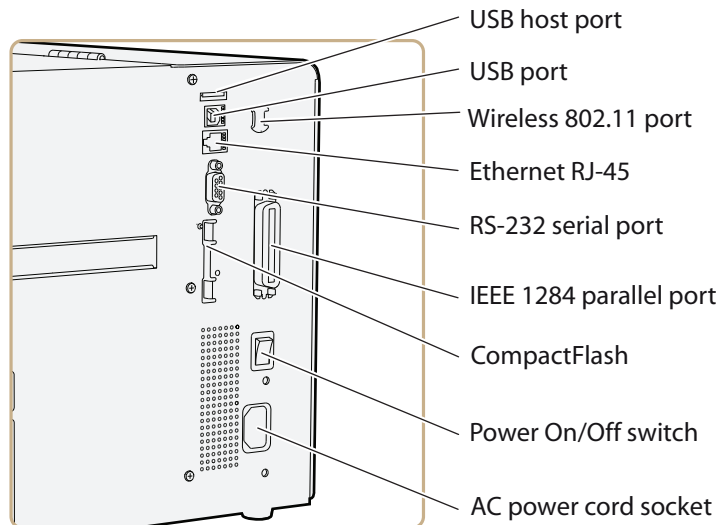
Use this section to familiarize yourself with the parts of the PD41 and PD42 printers.



***Front View of the PD41 Printer***



**Front View of the PD42 Printer**



**Rear View of the PD41 and PD42 Printers**

## **Selecting the Printer Command Language**

The PD41 and PD42 printers come loaded with five different printer command languages. On the PD42 printer, you select the command language the first time you power up the printer. For more information see the following procedure.

The PD41 printer always starts up using the Fingerprint printer language because it does not have a screen to select the command language. You will need to use the printer home page or PrintSet to choose a printer command language. For help, see [“Configuring the Printer From the Home Page” on page 42](#) or [“Configuring the Printer Using PrintSet” on page 56](#).

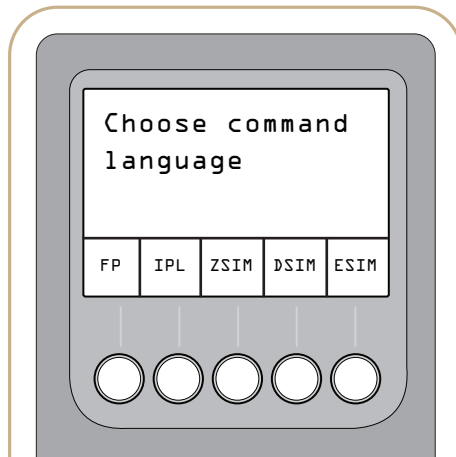
The language you select automatically runs each time you turn on your printer. The printer language you choose affects the functionality of the printer and how you interact with it.

### Printer Command Language Descriptions

<b>Command Language</b>	<b>Description</b>
Fingerprint	Intermec Fingerprint is a BASIC-inspired programming language that lets you design label formats and write custom printer application software.
IPL	Intermec Printer Language (IPL) is an easy-to-use programming language that lets you design, download, and modify formats.
ZSim	ZSim is a Zebra™ interpreter program that interprets ZPL II or later programs. To set up, configure, and use ZSim, see the <a href="#">ZSim User's Guide</a> .
DSim	DSim is a Datamax™ simulation program that runs Datamax programs. To set up, configure, and use DSim, see the <a href="#">DSim User's Guide</a> .
ESim	ESim is a built-in protocol for use with Intermec bar code label printer. To set up, configure, and use ESim, see the <a href="#">ESim Programmer's Reference Manual</a> .

### To select the printer command language on the PD42 printer

- Press the soft key that corresponds to the printer language you want to run on your printer.



**PD42 Startup Screen:** This screen appears the first time you turn on the PD42.

Once your printer is running a particular printer language, you can change the printer language from the Setup menu.

#### **To change the printer command language from the PD42 Setup menu**

- 1 Press the Setup (⚙️) button.
- 2 Press ➤ until you see PRINT DEFS and then press ↵.
- 3 Press ➤ until you see CMD LANGUAGE and then press ↵.
- 4 Press ➤ until you reach the command language you want to use, and then press ↵.
- 5 Press (⚙️) to exit the Setup menu.

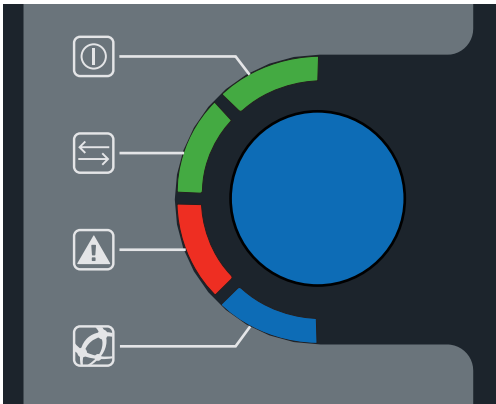
You can also use the printer home page or PrintSet to choose a printer command language. For help, see [“Configuring the Printer From the Home Page” on page 42](#) or [“Configuring the Printer Using PrintSet” on page 56](#).

## **Understanding the Front Panel**

The PD41 control panel consists of one button and four LEDs. The PD42 control panel consists of one button, four LEDs, a screen, and five soft keys. Use the next two sections to understand how to use the front panel on each printer.

## Understanding the Print Button and LEDs




The blue button on the front panel is the **Print** button. The main function of the **Print** button is to feed media and pause print jobs. When the printer is in a different state such as Testmode, the **Print** button performs other functions. For more information, see [“Understanding Printer States” on page 9](#). There are four LEDs surrounding the **Print** button.



**The Print Button and Four Surrounding LEDs**


The four LEDs can be on, off, or flashing depending on the state of the printer.

### Understanding the Printer LEDs

Symbol	LED	Color	Description
	Power	Green	The printer is powered on.
	Ready/Data	Green	The printer is ready to receive data.
		Flashing green	The printer is transferring data.
	Error	Solid or flashing red	There is an error condition with the printer. Most causes of an error condition are hardware related. For help, see <a href="#">“Printer Problems and Possible Solutions” on page 69</a> .

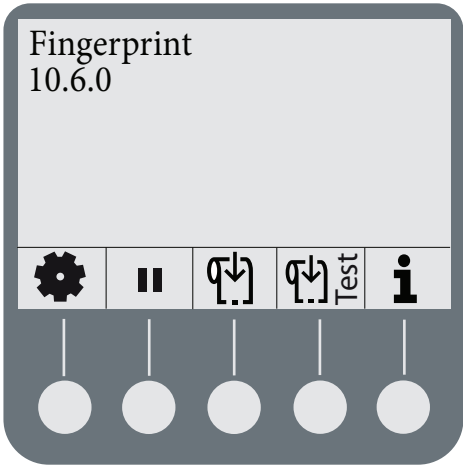


Understanding the Printer LEDs (continued)

Symbol	LED	Color	Description
	Ready-to-Work™	Blue	Turns on when the printer is operational.
		Flashing blue	The printer is not fully operational because: <ul style="list-style-type: none"><li>the printer is waiting for an IP address.</li><li>an error condition has occurred.</li><li>the printer is in Testmode or Extended Testmode. For more information, see <b>“Using Testmode and Extended Testmode to Troubleshoot” on page 74.</b></li></ul>
		Off	The printer is in Setup or Info mode.  The printhead temperature is too high.

Understanding the PD42 Screen and Soft Keys
















The PD42 screen communicates detailed information about the current state of the printer. The printer can tell you if a specific error has occurred or if it is waiting for input from you.



The PD42 Screen and Soft Keys

Below the display screen, there are five buttons that act as “soft keys.” The function of the buttons depends on the state of the printer. The function of the button is indicated with a small icon in the screen right above the associated button.

**Understanding the Soft Key Functions**

Soft Key	Function
F1 to F5	The function of these keys is defined by the Fingerprint application.
	Enters or exits Setup mode.
	Pauses the printer.
	Feeds out media.
	Performs a testfeed.
	Enters or exits Information mode.
	Moves to the left or the previous option.
	Moves to the right or the next option.
	Moves up a level in the menu system.
	Applies a setting or selects a command.
	Allows you to edit a value.
	Decreases the selected number.
	Increases the selected number.
	Exits or cancels editing, test mode, and dump mode.
	Continue.
	Saves to file.



**Note:** If the printer is running a Fingerprint application, access to Setup mode is controlled by the application.

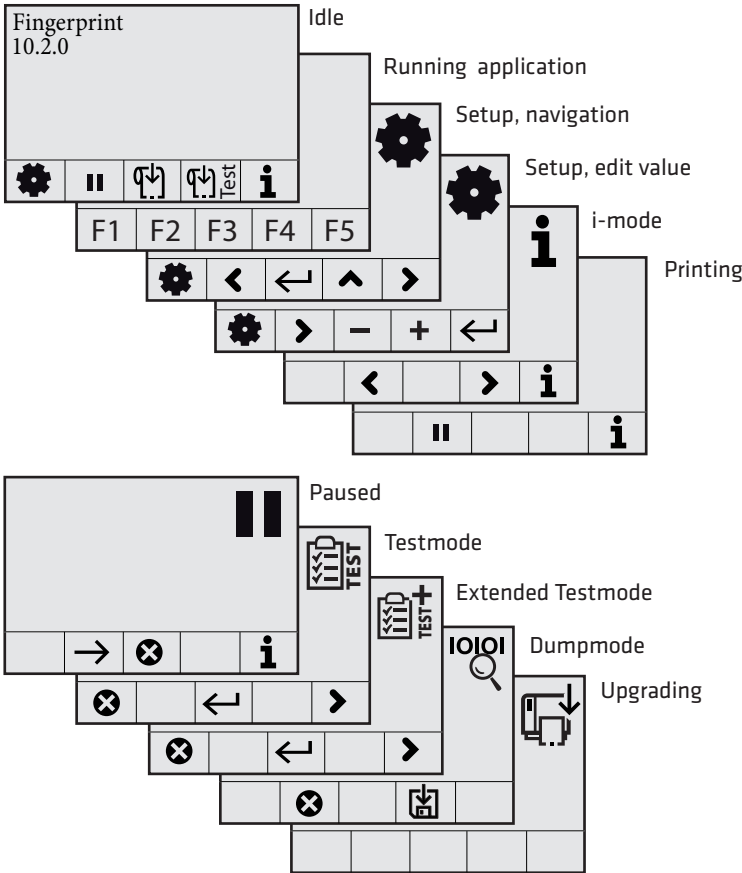
## Understanding Printer States

The printers can enter various states which indicate the current mode of operation.

### **PD41 and PD42 Printer States**

State	Explanation
PUP	Power-UP (starting up)
Power off	The printer is turned off.
Idle	The printer is operational and is waiting for print jobs.
Running application	The printer is running a Fingerprint application.
Setup mode	(PD42 only) You can access Setup mode through the soft keys associated with the screen. Use Setup mode to change some of the printer settings.
Information mode (i-mode)	(PD42 only) You can access Information mode from the soft keys when the printer is idle. In Information mode, the printer cycles through some of the interface settings in 5 second intervals.
Printing	The printer is printing labels.
Printing (wait for LTS)	The printer is waiting for the label taken sensor to indicate that a label has been taken.
Paused	The printer is paused during a print job.
Testmode	The printer is in Testmode. For more information, see <b>“Using Testmode” on page 74.</b>
Extended Testmode	The printer is in Extended Testmode. For more information, see <b>“Using Extended Testmode” on page 75.</b>
Dumpmode	The printer is in Dumpmode, which means it is listening on all communication ports and prints incoming characters.
Upgrading	Firmware is being upgraded.
Error	The printer is in an error state.

The state of the printer also determines the functions and icons that are active in the screen.



Active Soft Keys in Different Printer States

# Loading Media

The printers can print on labels, tickets, tags, and continuous stock. For more information on media types, media dimensions, and media specifications, see **“Media Specifications” on page 98.**

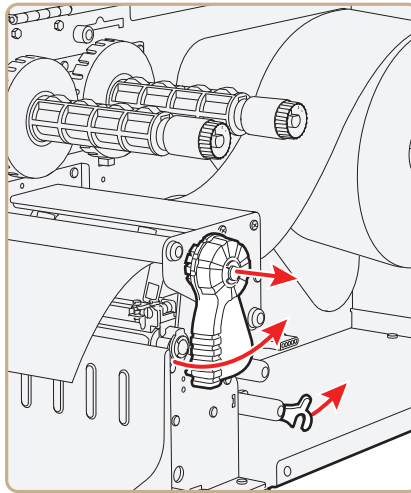
## Loading Media for Tear-Off Printing

Use this section to load media when you are manually tearing off labels against the tear bar on the printer. You can use these types of media for tear-off printing:

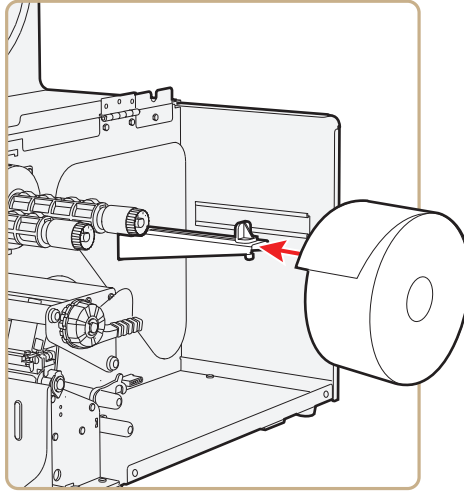
- Non-adhesive continuous stock
- Self-adhesive continuous stock with liner
- Self-adhesive labels with liner
- Tickets with gaps, with or without perforations
- Tickets with black marks, with or without perforations


### To load media for tear-off printing

- 1 Open the media cover.
- 2 Pull out the printhead lever and turn it counterclockwise. Lift up on the label feed guide.



- 3 Load a media roll onto the media supply hub. Be sure to push the roll all the way against the inner wall of the printer and adjust the edge guide.



- 4 Route the media through the print mechanism.
- 5 If you are using fanfold media, load it through the external media slot at the rear of the printer and route it the same way as you would a media roll.
- 6 Reset the label feed guide and the printhead lever.
- 7 Close the media cover.
- 8 Press the Print button to advance the media. If you are switching to a new type of media, you must run a Testfeed (  ) to calibrate the sensors on the printer.

## Loading Media for Peel-Off (Self-Strip) Printing

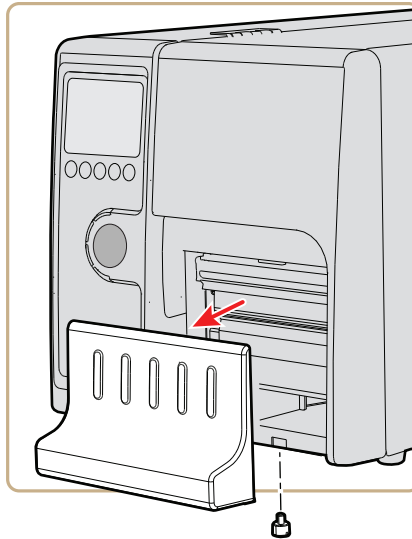
Use the procedure in this section when you are using self-adhesive labels that are separated from the liner immediately after printing. Peel-off printing is also called self-strip printing. With peel-off printing, you use the label taken sensor to sense when a label has been removed. After a label is removed, the sensor lets the printer know it is okay to print another label. Peel-off printing only supports self-adhesive labels with a liner.

You can also use this procedure to load media for batch takeup. For batch takeup, both the label and liner are rewound and the label taken sensor is not used.

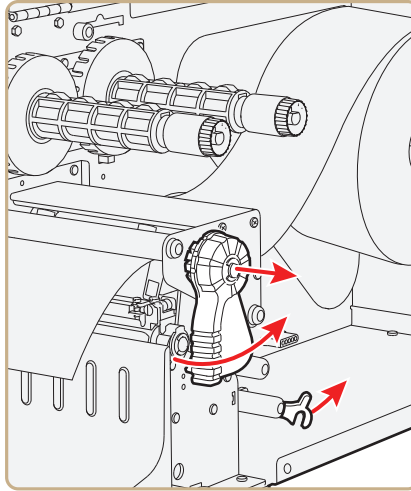
Peel-off printing and batch takeup printing require you to install the internal rewinder kit. For more information on the internal rewinder kit, see **“Accessories for the Printer” on page 107**.

**To load media for peel-off printing**

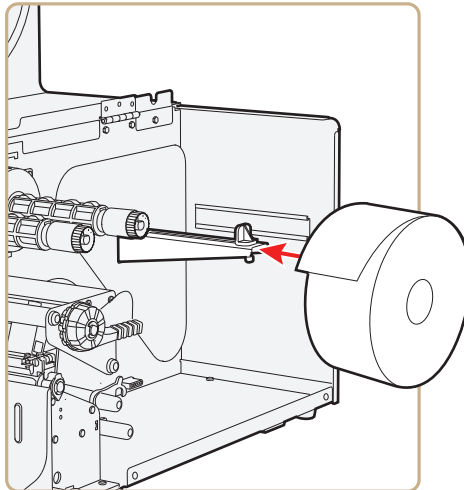
- 1 Remove the thumbscrew that attaches the front cover and remove it.



- 2** Open the media cover, pull out the printhead lever and turn it counterclockwise. Lift up on the label feed guide.



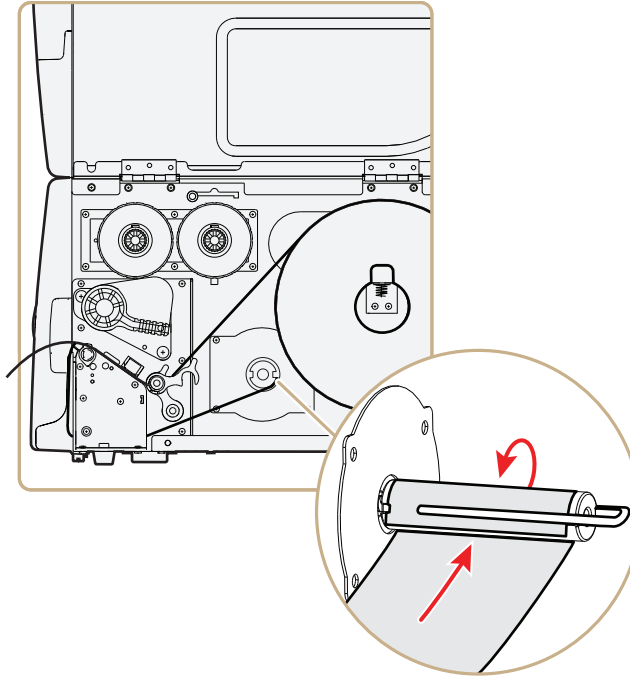
- 3** Load a media roll onto the media supply hub. Be sure to push the roll all the way against the inner wall of the printer and adjust the edge guide.



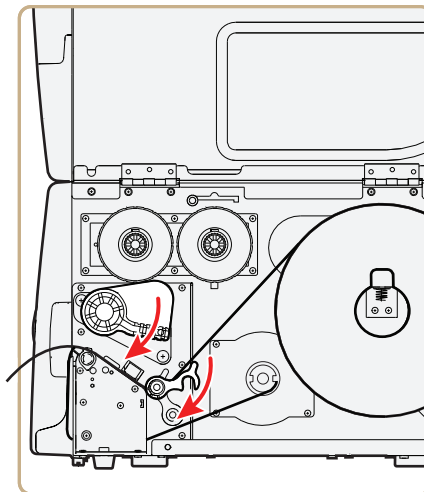
- 4** Route the media through the print mechanism and back into the media compartment.



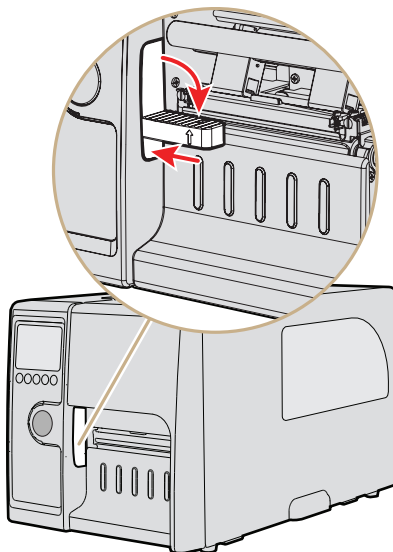
- 5** Wrap the liner around the internal rewinder takeup roll and lock it in place.



- 6** Reset the label feed guide and the printhead lever.



- 7 Reattach the front cover and secure with the thumbscrew.
- 8 Push in on the lower part of the label taken sensor and bring it out to a fully horizontal position.

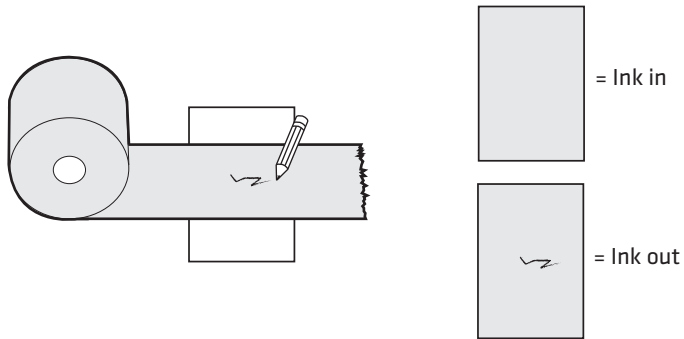


- 9 Close the media cover.
- 10 Press the **Print** button to advance the media.

## Loading Thermal Transfer Ribbon

Thermal transfer printing gives you a durable printout that is less vulnerable to chemicals, heat, sunlight and so on than direct thermal printing. Make sure you select a ribbon type that matches the media you are using and configure the printer for thermal transfer paper.

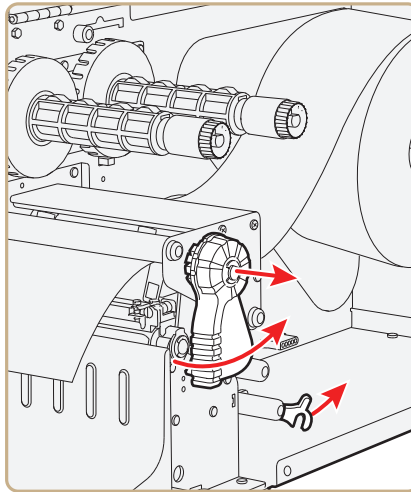
The printer supports thermal transfer ribbon rolls with the ink-coated side facing either inward or outward. To determine which type of ribbon you have, use a pen or other sharp object to scratch through the ribbon against a piece of paper. If you see a mark on the paper, your ribbon is wound ink out.



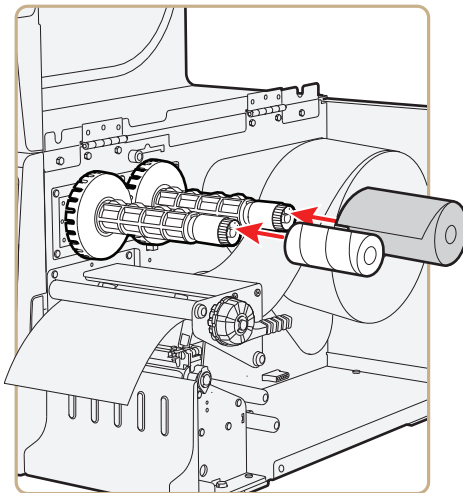
***Determining Whether Your Ribbon is Wound Ink In or Ink Out***

**To load thermal transfer ribbon**

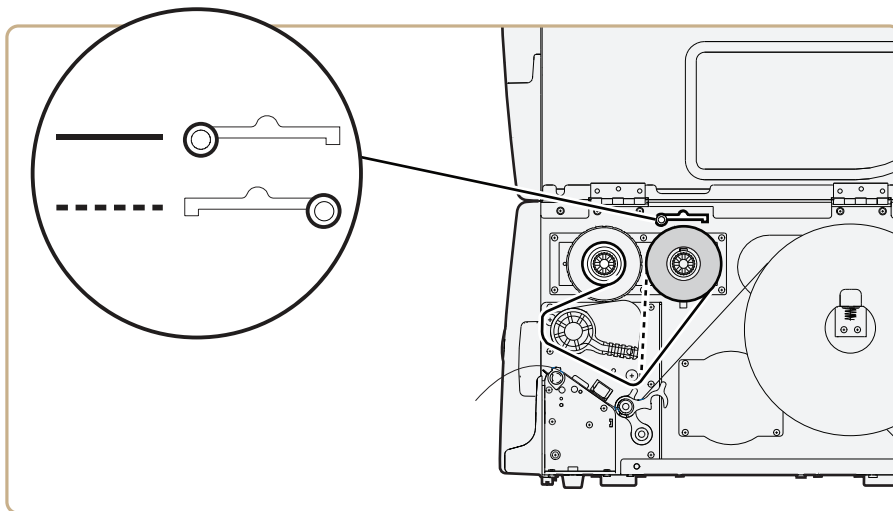
- 1** Open the media cover.
- 2** Pull out the printhead lever and turn it counterclockwise.



- 3** Slide the ribbon roll onto the ribbon hub closest to the media roll holder and slide the empty ribbon core onto the hub closest to the front of the printer.



- 4** For ink out ribbon (—): route the ribbon around the printhead and set the ink position lever to the left.



- 5** For ink in ribbon(---): route the ribbon around the printhead and set the ink position lever to the right.

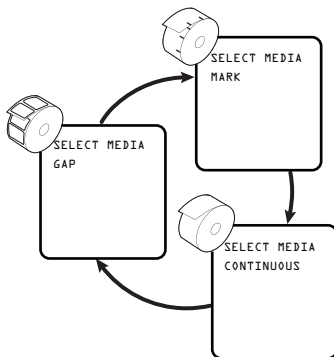
- 6 Load media in the printer For help, see “**Loading Media for Tear-Off Printing**” on page 11 or “**Loading Media for Peel-Off (Self-Strip) Printing**” on page 12.
- 7 Press the **Print** button to advance the media.

## Printing a Test Label

To verify that the printer is fully functional and to obtain the current configuration, you can print the test labels. The test labels contain hardware and software configuration information.

### To print a set of test labels

- 1 Turn off the printer.
- 2 Load media and ribbon (if necessary). For help see, “**Loading Media**” on page 11 and “**Loading Thermal Transfer Ribbon**” on page 16. Make sure the printhead is down.
- 3 Press and hold the **Print** button.
- 4 Continue to keep the **Print** button pressed down and turn on the **Power** switch. After approximately ten seconds, the printer screen lights up, runs a media setup routine, enters Testmode, and three of the LEDs start to flash one at a time (green, red, and then blue).
- 5 Continue to press the **Print** button until the printer starts cycling through the selectable media types: gap, mark and continuous.
- 6 Select your media type by releasing the **Print** button when your type of media appears on the screen.



The printer prints several test labels containing hardware, setup, and network information and then enters Dump mode.

- 7** Press the **Print** button once or press the cancel soft key (⊗) to exit Dump mode.

## **Creating and Printing Labels**

The easiest way to create and print labels, is to use the label design software LabelShop®. You can download LabelShop from the PrinterCompanion CD that shipped with your printer or you can download it from the Downloads page for your printer on [www.intermec.com](http://www.intermec.com).

You can also use Fingerprint and IPL to create and print labels. For more information, see either the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*.

# 2

## Connecting the Printer

Use this chapter to understand how to connect the printer to your PC or your network. This chapter contains these sections:

- **Connecting the Printer to Your PC**
- **Connecting the Printer to Your Network**
- **Connecting Peripherals to the USB Host Port**

## Connecting the Printer to Your PC

You can easily connect the PD41 or PD42 commercial printer to your PC using one of these ports:

- USB device port
- RS-232 serial interface port
- IEEE 1284 communications port (optional)



**Note:** You cannot use the USB device port and IEEE 1284 port at the same time. To select the active interface, go to **Setup** mode > **COM:** > **Interface**.

### Connecting the Printer to a PC Through the USB Device Port

Intermec recommends that you only connect one printer to each PC, either directly, or through a hub. To connect the printer to a PC through the USB device port, you need:

- USB Type B to USB Type A cable
- Intermec InterDriver® software

The USB cable you need is included in the shipping box with the printer. The InterDriver printer driver is available on the PrinterCompanion CD that ships with the printer. To make sure you have the latest version of InterDriver, you may want to go to the downloads page for the printer on [www.intermec.com](http://www.intermec.com).

#### To connect the printer to a PC through the USB port

- 1 Download and install the InterDriver software on your PC.
- 2 Connect the USB cable to the Type B connector on the back of the printer and connect the other end to your PC.

You do not need to set up any parameters for USB communications.

### Connecting the Printer to a PC Through the Serial Port

The serial communication parameters control the communication between the printer and the connected PC on the serial port, referred to as “uart1:” on the printer.



Make sure the serial port settings on the printer match the settings on the connected device. The default serial communication settings on the printer are: 9600 baud rate, 8 data bits, no parity, 1 stop bit and no flow control.

You can use a serial connection to communicate with your PC and run PrintSet, LabelShop, or InterDriver. You can also use the serial port to send commands directly to the printer through a terminal connection, for instance with Telnet.

To connect the printer to a PC through the serial port, you need:

- DB9 to DB9 RS-232 cable (P/N 1-974024-018)

### **To connect the printer to a PC through the serial port**

- 1 Connect one end of the RS-232 cable to the back of the printer and connect the other end of the cable to a serial COM port on the PC.
- 2 If necessary, change the PC serial port configuration to match your printer.

## **Connecting the Printer to a PC Through the IEEE 1284 Port**

You can use the parallel connection with LabelShop or the Intermec InterDriver. The parallel port supports Universal Plug and Play (UPnP) and additional status reporting through IEEE 1284 nibble ID mode.

If you are using a parallel port to communicate with the printer, you need:

- an IEEE 1284 interface adapter installed in the printer.
- a parallel cable to run between the printer and the PC.

If you did not have the parallel interface installed at the factory, you can install the field installable option (P/N 1-971164-800) in the optional I/O board port of your printer. You can purchase a parallel cable from Intermec (P/N 1-974022-018) or from your local computer store.

### **To connect your printer to a PC parallel port**

- Connect the IEEE 1284 cable connector to the interface adapter port on the back of the printer and connect the other end of the cable into a parallel port on the PC.

# Connecting the Printer to Your Network

Using either the integrated Ethernet or the optional 802.11 wireless network interface provides features such as security, FTP server, web server, and Alert handling.

## Setting Up Ethernet Communications

Use the Ethernet port to set up the PD41 or PD42 as a network printer. The printer is set to automatically retrieve an IP number from the network (DHCP) once it is turned on. You can use the network connection either with LabelShop or the Intermec InterDriver. You can also use it to directly send commands to the printer through a terminal connection (Telnet), or you can send instructions via FTP. For terminal connections, it utilizes the Raw TCP protocol through port 9100.


### To connect the printer to your Ethernet network

- 1 Connect the Ethernet cable to the Ethernet port in the rear of the printer and connect the other end to your network.
- 2 Turn the printer on. Wait for the blue Ready-to-Work LED to stop blinking, and for the message “IP configuration error” to disappear from the screen.
- 3 Enter **Information mode** by pressing ( **i** ) to obtain the IP address of your printer.

Information mode cycles through the interfaces installed on the printer in five-second intervals and displays them on the screen. The IP address is displayed under **net1:** in Fingerprint and **net** in IPL.

- 4 On your PC, enter the IP address of the printer in the address field of your web browser (for example <http://10.200.27.94>) and press **Enter**.

Entering the IP address brings up the home page of the printer, where you can check and modify printer settings.



The screenshot shows the Intermec Technologies Corporation EasyCoder PD42 web interface. At the top, there is a banner with the Intermec logo and a printer icon. Below the banner, the printer model 'INTERMECAABC67' is displayed, followed by navigation links: Home, Configuration, Maintenance, and Support. The main heading is 'EasyCoder PD42'. Below this, there are two tables of printer settings.

Name (WINS):	INTERMECAABC67
Firmware Version:	MCS 1929, 05-Jun-09 00:49:40
Active Command Set:	IPL 10.6.0 060409

MAC Address:	00:10:40:AA:BC:67
IP Address:	10.200.27.94
Network Type:	Ethernet
IPv6 Addresses:	FE80::210:40FF:FEAA:BC67/64

Image buffer:	<a href="#">label.png</a>
---------------	---------------------------

RtW™:	Operational
-------	-------------

- 5 You will be prompted to enter a login name and a password. By default, the login name is admin and the password is pass.

For more information on using the web page to configure the printer, see **“Configuring the Printer From the Home Page” on page 42.**

If your network does not assign IP numbers automatically, or the Ready-to-Work indicator is flashing to indicate a network error, you can use PrintSet (available on the PrinterCompanion CD or as a download from [www.intermec.com](http://www.intermec.com)) to correct the network settings.

## Manually Configuring IP Settings

You can configure the IP settings of your printer by sending Fingerprint or IPL commands through a serial connection. After you configure the IP settings, you can disconnect the printer from your PC and communicate with the printer using 802.11 communications.

### To configure the IP settings serially using Fingerprint

- 1 Connect the printer to your PC using a serial cable. For help, see [“Connecting the Printer to a PC Through the Serial Port” on page 22.](#)
- 2 Send the following commands to permanently assign the IP address, subnet mask, default router, and name server:  

```
setup "network,IP selection>manual"  
setup "network,IP address,xxx.xxx.xxx.xxx"  
setup "network,netmask,xxx.xxx.xxx.xxx"  
setup "network,default router,xxx.xxx.xxx.xxx"  
setup "network,server,xxx.xxx.xxx.xxx"
```

where *xxx* is a number from 0 to 255.
- 3 Disconnect the printer from the PC.
- 4 On your PC, enter the IP address of the printer in the address field of your web browser (for example <http://10.200.27.94>) and press **Enter**.

The home page of the printer appears.

### To configure the IP settings serially using IPL

- 1 Connect the printer to your PC using a serial cable. For help, see [“Connecting the Printer to a PC Through the Serial Port” on page 22.](#)
- 2 Send the following commands to permanently assign the IP address, subnet mask, default router, and name server:

```
<SI>n n [ , m1 [ , m2 ] ]
```

where:

*n* is the IP address of the printer in the format *n.n.n.n*, where *n* is a number from 0 to 255.

,*m1* is the subnet mask address in the format *n.n.n.n*, where *n* is a number from 0 to 255.

,*m2* is the router address in the format *n.n.n.n*, where *n* is a number from 0 to 255.

**Note:** You must specify at least two of the three parameters for the command to take effect.



- 3 Disconnect the printer from the PC.
- 4 On your PC, enter the IP address of the printer in the address field of your web browser (for example <http://10.200.27.94>) and press **Enter**.

The home page of the printer appears.

## Setting Up 802.11 Radio Communications

The printer can have an internal 802.11 b/g radio to transfer and receive data using wireless communications. This user's guide assumes that you have already set up your wireless communications network including your access points. The following procedures include information on setting up wireless security for both IPL and Fingerprint.

The printer supports these authentication modes: none, WEP, WPA Personal and Enterprise mode (802.1x authentication), WPA2 Personal and Enterprise mode (802.1x authentication).



**Note:** WPA and WPA2 Enterprise mode and dynamic WEP currently support PEAP, TTLS, LEAP, and EAP-Fast.

To set up the printer to work in your wireless network, you need these items:

- Serial cable (P/N 1-974024-018)
- Host PC running Windows or Linux
- PrintSet. You can download PrintSet from the **Downloads** page for your printer on [www.intermec.com](http://www.intermec.com) or you can download it from the PrinterCompanion CD that shipped with your printer.
- (optional) Serial port software such as HyperTerminal®

### To set up the printer for wireless communications using PrintSet

- 1 Download and install PrintSet on your PC.
- 2 Connect one end of the serial cable to the back of the printer and connect the other end of the cable to a serial COM port on the PC.

- 3 If necessary, change the PC serial port configuration to match your printer:

Parameter	Default Setting
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1

- 4 Start PrintSet on your PC.
- 5 In the **General Tasks** box, click **Add Printer** and step through the screens of the Add Printer Wizard until you have successfully added your printer.
- 6 In the **Printer Tasks** box, click **Wireless Setup Wizard** and step through the screens to set up wireless network and security parameters.

### To set up the printer for wireless communications using HyperTerminal

- 1 Connect one end of the serial cable to the back of the printer and connect the other end of the cable to a serial COM port on the PC.
- 2 On your PC, open HyperTerminal and set these serial port parameters:

Parameter	Default Setting
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1

- 3 From the host PC, check the wireless settings. For help, see **[“Manually Configuring IP Settings” on page 25.](#)**

If you are using IPL, send these commands to the printer:

```
<STX><SI>wt , SSID<ETX>  
<STX><SI>wt , WEP<ETX>
```

```

<STX><SI>wt, WEP1<ETX>
<STX><SI>wt, PAC<ETX>
<STX><SI>wt, ACQUIRE_PAC<ETX>
<STX><SI>wt, WEP2<ETX>
<STX><SI>wt, WEP3<ETX>
<STX><SI>wt, WEP4<ETX>
<STX><SI>wt, AUTH<ETX>
<STX><SI>wt, WPA<ETX>
<STX><SI>wt, WPA2<ETX>
<STX><SI>wt, WPA_PSK<ETX>
<STX><SI>wt, ROAM<ETX>
<STX><SI>wt, CHANNEL<ETX>
<STX><SI>wt, AP_MAC<ETX>
<STX><SI>wt, SIGNAL<ETX>
<STX><SI>wt, SPEED<ETX>
<STX><SI>wt, ACTIVE<ETX>

```

If you are using Fingerprint, send this command to the printer:

```

setup write "wlan", "uart1:"
setup write "8021x", "uart1:"

```

- 4 Set up the printer to use the correct SSID and authentication modes. For help, see the next section, **Configuring 802.11 Wireless Security Using IPL** or “**Configuring 802.11 Wireless Security Using Fingerprint**” on page 32.
- 5 If you are going to use certificates for validation, transfer the certificate to the printer. The printer can accept .pfx, .pem, and .der certificates.
- 6 Verify that the printer is connected to the access point and make sure it has an IP address allocated to it.

Use the following sections to set most of your wireless communication settings. For help with additional commands and information, see either the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*. You can download both documents from the Intermec web site at [www.intermec.com](http://www.intermec.com).

## **Configuring 802.11 Wireless Security Using IPL**

Use the following procedures to configure 802.11 wireless security parameters on your printer using IPL.

### To configure the printer to use WEP authentication

- 1 Send the following commands to login as an admin and set the SSID:

```
<STX><ESC>.x,su -p pass admin<ETX>  
<STX><SI>ws,SSID,xxxxx<ETX>
```

where *xxxxxx* can be from 0 to 32 ASCII characters, not including the double quote.



**Note:** The default password for logging in as an admin is “pass.” If you have changed the password, you will need to use your password instead of “pass.”

- 2 Send the following commands to configure the WEP keys. The following example sets WEP key 1 to 1234 and enables WEP key 1.

```
<STX><SI>ws,WEP1, 0x0001020304<ETX>  
<STX><SI>ws,.WEP_KEY,1<ETX>
```

- 3 Send the following command to activate the settings.

```
<STX><SI>ws,ACTIVE,1<ETX>
```

### To configure the printer to use WPA-PSK or WPA2-PSK mode

- 1 Send the following commands to login as an admin and set the SSID:

```
<STX><ESC>.x,su -p pass admin<ETX>  
<STX><SI>ws,SSID,xxxxxx<ETX>
```

where *xxxxxx* can be from 0 to 32 alphanumeric characters

- 2 Send one of the following commands to turn on WPA or WPA2 authentication. Send the WPA-PSK or WPA2-PSK command to set a pre-shared key:

```
<STX><SI>ws,WPA,ON<ETX>  
<STX><SI>ws,WPA2,ON<ETX>  
<STX><SI>ws,WPA_PSK,xxxxxxxxxxx<ETX>
```

where *xxxxxxxxxxx* is a value between 8 and 64 characters.

- 3 Send the following command to activate the settings:

```
<STX><SI>ws,ACTIVE,1<ETX>
```



## To configure the printer to use WPA or WPA2 Enterprise mode

- 1 Send the following commands to login as an admin and set the SSID:

```
<STX><ESC>.x,su -p pass admin<ETX>
<STX><SI>ws,SSID,xxxxx<ETX>
```

where *xxxxx* can be from 0 to 32 alphanumeric characters.



**Note:** The default password for logging in as an admin is “pass.” If you have changed the password, you will need to use your password instead of “pass.”

- 2 Send one of the following commands to enable WPA-802.1x or WPA2-802.1x authentication. You should also send the WPA\_PSK command that does not contain a value:

```
<STX><SI>ws,WPA,ON<ETX>
<STX><SI>ws,WPA2,ON<ETX>
<STX><SI>ws,WPA_PSK,<ETX>
```

- 3 Send these commands to configure the EAP\_TYPE:

```
<STX><SI>ws,EAP_TYPE,xxxx<ETX>
```

where *xxxx* can be OFF, LEAP, PEAP, TTLS, or EAP-FAST.

```
<STX><SI>ws,.EAP_USER,xxxx<ETX>
<STX><SI>ws,.EAP_PASS,xxxx<ETX>
```

where *xxxx* is the unique username and the unique password for this protocol.

- 4 If you are using EAP-FAST, you can use PAC and ACQUIRE\_PAC commands. The PAC setting specifies the PAC file to use for EAP-FAST authentication. The ACQUIRE\_PAC setting checks to see if automatic PAC file provisioning is enabled. You can set ACQUIRE\_PAC to on or off.

- Send the following command to set PAC to use /tmp/my.pac with a pass phrase of “verysecret”:

```
<STX><SI>ws,PAC,/tmp/my.pac @verysecret<ETX>
```

- Send the following command to set ACQUIRE\_PAC to on:

```
<STX><SI>ws,ACQUIRE_PAC,ON<ETX>
```

- 5 If you are using TTLS, you may need to send this command to set the TTLS outer name:

```
<STX><SI>ws,TTLS_USER, xxxx <ETX>
```

where *xxxx* is the outer name.

- 6 If you are using certificates for validation, here are some commands you may need to use.

- Send the following commands to set a certificate and enable validation:

```
<STX><SI>ws,CA_CERT,c:/testCA.pfx@export<ETX>  
<STX><SI>ws,VALIDATE,ON<ETX>
```

where *c:/testCA.pfx* is the location and name of the certificate and *export* is the passphrase.

- Send the following commands to set a common name for server 1 and server 2:

```
<STX><SI>ws,.SERVER_CN1,xxxxxxxxxxxx <ETX>  
<STX><SI>ws,.SERVER_CN2,xxxxxxxxxxxx <ETX>
```

where *xxxxxxxxxxxx* can be a value from 0 to 64 characters.

- Send the following command to make sure your values match those used by the access point:

```
<STX><SI>wt,[variable name]<ETX>
```

All variables are returned with the exception of EAP\_PASS which always returns “\*\*\*\*” if configured and CA\_CERT which transmits the name of the last certificate authority successfully installed. An additional read-only variable for the supplicant state, called STATE, is also returned.

- You may need to send the following command several times for the wireless station to connect:

```
<STX><SI>ws,ACTIVE,1<ETX>
```

## Configuring 802.11 Wireless Security Using Fingerprint

Use the following procedures to configure 802.11 wireless security parameters on your printer using IPL.

## To configure the printer to use WEP authentication

- 1 Send the following commands to login as an admin and set the SSID:

```
run"su -p pass admin"
setup write "wlan","uart1:"
setup "wlan","SSID","xxxxxx"
```

where xxxxx can be from 0 to 32 ASCII characters, not including the double quote.



**Note:** The default password for logging in as an admin is “pass.” If you have changed the password, you will need to use your password instead of “pass.”

- 2 Send the following commands to configure the WEP keys. The following example sets WEP key 1 to 1234 and enables WEP key 1.

```
setup "wlan","WEP1","0x0001020304"
setup "wlan",".WEP_KEY","1"
setup "wlan","ACTIVE","1"
setup write "wlan","uart1:"
```

## To configure the printer to use WPA-PSK or WPA2-PSK mode

- 1 Send the following commands to login as an admin and set the SSID:

```
run"su-p pass admin"
setup write "wlan","uart1:"
setup "wlan","SSID","xxxxxx"
```

where xxxxxx can be from 0 to 32 alphanumeric characters.

- 2 Send one of the following WPA/WPA2 ON commands to turn on WPA or WPA2 authentication. Send the WPA-PSK or WPA2-PSK command to set a pre-shared key:

```
setup "wlan","WPA","ON"
setup "wlan","WPA2","ON"
setup "wlan","WPA_PSK","xxxxxxxxxxxx"
setup "wlan","ACTIVE","1"
setup write "wlan","uart1:"
```

where xxxxxxxxxxxx is a value between 8 and 64 characters.

### To configure the Printer to use WPA or WPA2 Enterprise mode

- 1 Send the following commands to login as an admin and set the SSID:

```
run"su-p pass admin"  
setup write "wlan", "uart1:"  
setup "wlan", "SSID", "xxxxxx"
```

where xxxxxx can be from 0 to 32 alphanumeric characters.

- 2 Send one of the following WPA/WPA2 ON commands to set up WPA-802.1x or WPA2-802.1x authentication. You should also send the WPA\_PSK command that does not contain a value:

```
setup "wlan", "WPA", "ON"  
setup "wlan", "WPA2", "ON"  
setup "wlan", "WPA_PSK", ""  
setup write "wlan", "uart1:"
```

- To view the 802.1x values, send this command:

```
setup write "8021x", "uart1:"
```

- 3 Send these commands to configure the EAP\_TYPE:

```
setup "8021x", "EAP_TYPE", "xxxx"
```

where xxxx can be OFF, LEAP, PEAP, TTLS, or EAP-FAST.

```
setup "8021x", ".EAP_USER", "xxxx"  
setup "8021x", "EAP_PASS", "xxxx"
```

where xxxx is the unique username and the unique password for this protocol.

- 4 If you are using TTLS, you may need to send this command to set the TTLS outer name:

```
setup "8021x", "TTLS_USER", "xxxx"
```

where xxxx is the outer name.

- 5 If you are using EAP-FAST, you can use PAC and ACQUIRE\_PAC commands. The PAC setting specifies the PAC file to use for EAP-FAST authentication. The ACQUIRE\_PAC setting checks to see if automatic PAC file provisioning is enabled. You can set ACQUIRE\_PAC to on or off.

- Send the following command to set PAC to use /tmp/my.pac with a pass phrase of “verysecret”:

```
setup "8021x", "PAC", "/tmp/my.pac @verysecret"
```

- Send the following command to set ACQUIRE\_PAC to on:  
`setup "8021x", "ACQUIRE_PAC", "ON"`
- 6 If you are using certificates for validation, here are some commands you may need to use.
  - Send the following commands to set a certificate and enable validation:  
`setup "8021x", "CA_CERT", "c:/test.pfx@export"`  
`setup "8021x", "VALIDATE", "ON"`  
where *c:/test.pfx* is the location and name of the certificate and *export* is the passphrase.
  - Send the following commands to set a common name for server 1 and server 2:  
`setup "8021x", ".SERVER_CN1", "xxxxxxxxxxxx"`  
`setup "8021x", ".SERVER_CN2", "xxxxxxxxxxxx"`  
where *xxxxxxxxxxxx* can be a value from 0 to 64 characters.
  - Send the following command to make sure your values match those used by the access point:  
`setup write "8021x", "uart1:"`
  - You may need to send the following command several times for the wireless station to connect:  
`setup "wlan", "ACTIVE", "1"<ETX>`

## Connecting Peripherals to the USB Host Port

You can connect these peripheral devices to the USB host interface port on the printer:

- USB mass storage device
- Keyboard
- Bar code scanner
- USB hub

## Using a USB Mass Storage Device

You can use a USB mass storage device to store additional fonts and images for the printer. You can also use the device to upgrade your firmware. For more information on using the USB mass storage device to upgrade the printer, see [“Upgrading the Firmware” on page 59](#).

To verify the USB storage device is supported by your printer, insert the USB storage device in the appropriate slot on the back of your printer. On the display screen, one of the following status messages briefly appears:

- USB memory stick connected
- USB memory stick not supported

If no status message appears when you insert the USB storage device, you can manually verify the USB storage device is supported using HyperTerminal.

### To verify the USB storage device is supported by your printer

- 1 Connect one end of your serial cable to your printer, and connect the other end to your PC.
- 2 On your PC, open HyperTerminal.
- 3 In HyperTerminal, use one of the following Fingerprint commands:
  - Type **DEVICES**. The list of devices your printer supports appears. If the USB storage device is supported, it appears as drive d: in this list.
  - Type **Run “cd d:”** and press **Enter**.  
Type **Run “ls”** and press **Enter**. If the USB storage device is supported, the contents of the USB storage device appears.

## Connecting a Keyboard to the USB Host Port

You can use an external USB keyboard to:

- input data in Fingerprint applications. Some applications may require more complex input from users than the simple push of a button.

- manage setup in Fingerprint, Direct Protocol, and IPL. In the installed keyboard layouts, the arrow keys on the keyboard are mapped to the up, down, right, and left functions in the Setup menu. The five function keys **F1** to **F5** correspond to the five soft keys on the front panel, starting from the left. The **Enter** key will have the same apply and select function.

The printer comes with four keyboard layouts installed (US, Swedish, French, and German).

**To change keyboard layout**

- 1** Plug your USB-keyboard into the USB host connector in the back of the printer.
- 2** Turn the printer on.
- 3** Press Setup (⚙️).
- 4** Navigate to **COM > USB KEYBOARD**.
- 5** Choose a keyboard layout.
- 6** Exit Setup by pressing (⚙️).

Fingerprint users can create their own custom keyboard layouts. For help, see the *[Fingerprint Command Reference Manual](#)*.

## Connecting a Bar Code Scanner to the USB Host Port

You can connect a bar code scanner of HID (Human Interface Device) type to the printer. The scanner will send data to the “usbhost:” device in the same way as a USB keyboard. You can then use this data in a Fingerprint application.

The keyboard layout you choose in setup (see previous procedure) applies for connected scanners too.



**Note:** You can only use a bar code scanner with printers that are running Fingerprint firmware.

## **Connecting a USB Hub to the USB Host Port**

You can connect a USB hub to the printer so that you can connect several USB devices to the printer at the same time.



**Note:** If the USB hub is not powered, you can only connect one USB mass storage device and one HID (keyboard or scanner) peripheral to the USB hub at a time. If the USB hub is powered, you can connect multiple USB mass storage devices and multiple HID peripherals at once.



# 3

## Configuring the Printer

Use this chapter to understand how to configure the printer, upgrade firmware, and download fonts and graphics. This chapter contains these sections:

- **Configuring the Printer**
- **Upgrading the Firmware**
- **Downloading Fonts and Graphics**

## Configuring the Printer


You can change the configuration settings of your printer:

- directly from the screen.
- from the printer home page.
- using PrintSet.
- using commands sent from your PC.
- using SmartSystems Foundation.

### Configuring the PD42 Printer from the Screen

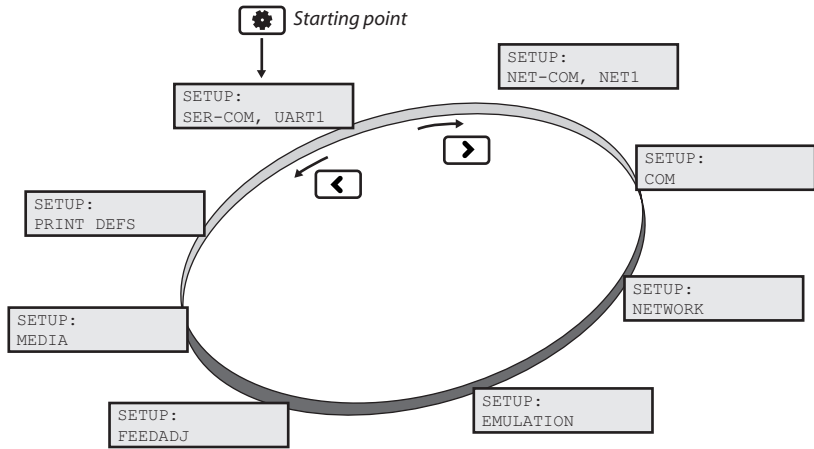
To configure the PD42 printer from the screen, you need to enter Setup mode.

#### To enter Setup mode

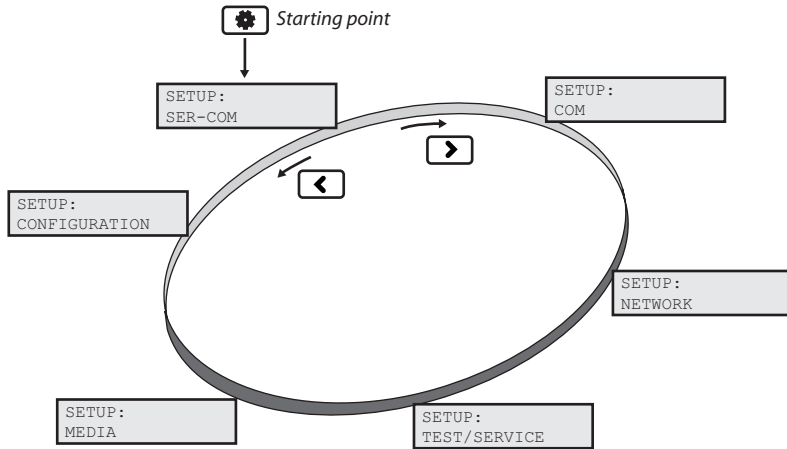
- Press the  button.

While in Setup mode, use the soft keys to navigate. For help using the soft keys, see [“Understanding the PD42 Screen and Soft Keys” on page 7](#).

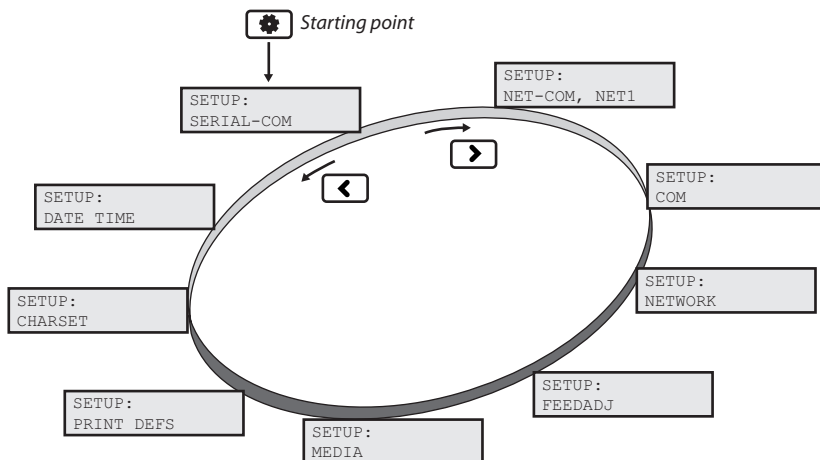
Use the following illustrations to understand the Setup menu. The main nodes of the setup tree are organized in a loop. You can view detailed illustrations of each menu in Appendix C [“Fingerprint, IPL, and ESim Setup Menus” on page 119](#). Each main node branches out to a number of sub-nodes. At startup, the firmware determines if optional equipment such as a cutter or an interface board is installed in the printer, and these are added to the Setup tree.



**The Main Nodes of the Setup Menu in Fingerprint**



**The Main Nodes of the Setup Menu in IPL**



**The Main Nodes of the Setup Menu in ESim**

## Configuring the Printer From the Home Page

If you are using an Ethernet or 802.11 wireless connection, you can change configuration settings from the home page of the printer.



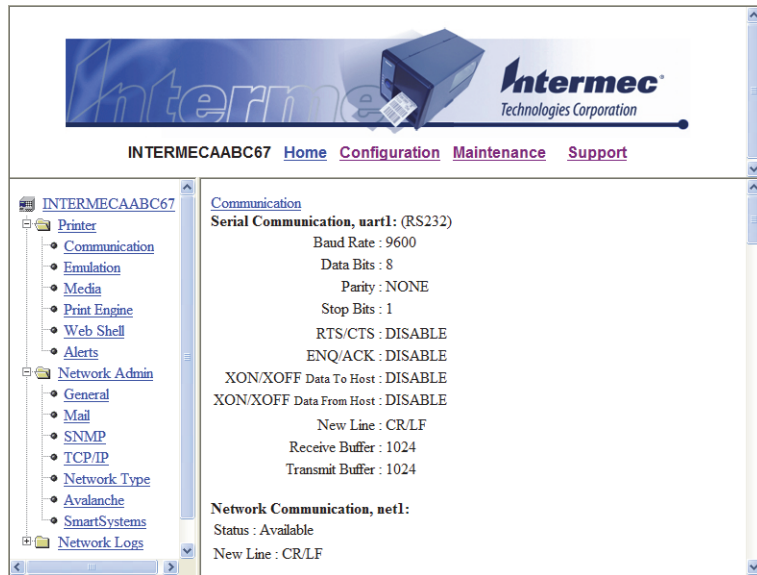
**Note:** You should have already connected your printer to your network and obtained an IP address. If not, see [“Connecting the Printer to Your Network” on page 24](#).

### To access the home page of the printer

- 1 Start your web browser.
- 2 In the address field, type the IP address of your printer and press **Enter**. The home page of your printer appears.

The home page displays the assigned name, firmware version, Active Command Set, MAC address, and IP address of your printer. The home page also displays the contents of the image buffer, as well as the status of the Ready-to-Work indicator.

- 3 Click **Configuration**.



- 4 Click the link for the settings you want to configure.
- 5 You will be prompted to enter a login name and a password. By default, the login name is admin and the password is pass.

Use the next sections to understand and configure the settings in each configuration page.

## Configuring Communications Settings

Use the communications page to configure serial communications, the communications interface, and the keyboard layout.

### To configure communications settings

- 1 Click **Printer > Communication**.
- 2 Choose the settings you want to change.
- 3 Click **Submit Setup**.

## Configuring Media Settings

Use the media page to view and change media settings such as XSTART position, media type, and contrast.

### To configure media settings

- 1 Click **Printer > Media**.

- 2 Enter the correct information for the media you are using.
- 3 Click **Submit Setup**.

### Configuring Print Engine Settings (Fingerprint only)

Use the print engine page to adjust the media feed direction (start and stop adjust positions) and print speed. The value of the head resistance is read-only and is measured by the firmware when the printer starts up.

#### To configure print engine settings

- 1 Click **Printer > Print Engine**.
- 2 Enter the correct information for the print engine.
- 3 Click **Submit Setup**.

### Configuring Web Shell Settings

Use the Web Shell page to view and change test and default settings. You can also use the Web Shell page to print test labels and change the command language.

#### To configure Web Shell settings

- 1 Click **Printer > Web Shell**.
- 2 Select the action you want to take or the setting you want to change.
  - For the actions in the top of the screen, the printer performs the action and may prompt you to reboot the printer.
  - For the settings in the bottom of the screen, select your desired settings and click **Submit Setup**. You will receive a message that reads “Application change will take effect at reboot.” You can choose to select **Reboot** or wait until you are done making other configuration changes.

Use the following table to understand the Web Shell settings.

### **Understanding the Web Shell Settings**

Setting	Description
Testfeed [value]	Calibrates the label stop sensor performs a testfeed. Selecting this setting is equivalent to issuing the TESTFEED command on the printer.
Ribbon Sensor	Detects is the printer has run out of ribbon during printing.
Default Setup	Returns the printer to factory default settings. Passwords, alerts, and the selected application are not changed.
Reboot	Reboots the printer.
Print Test Label	Prints the predefined test label you choose.
Command Language	Sets the command language to Fingerprint, Direct Protocol, IPL, ESim, ZSim, or DSim. You need to reboot the printer for the change to take effect.
Fingerprint Application	Defines the application to run as the default on startup. You need to reboot the printer for the change to take effect.
Standard I/O	Defines the port the printer listens to. You need to reboot the printer for the change to take effect.

## **Configuring Alerts**

Use the Alerts page to view and change the printer alert settings.

### **To configure alerts**

- 1 Click **Printer > Alerts**.
- 2 Change the alert settings:
  - Choose **Enabled** or **Disabled** from the **Setting** list.
  - Specify a **Delay repeat** in the text field.
  - Select **seconds** or **occurrences** in the **Delay Unit** list.
  - Enter a message in the **Message** text field.
- 3 Select the **Notification method**.

**4 Click Submit Settings.**

Use the following table to understand the Alert Settings.

***Understanding the Alert Settings***

<b>Setting</b>	<b>Description</b>
Label Not Taken (Fingerprint only)	Sent when the printed label is not taken from the printer. This setting applies to label and ticket media and requires an optional label taken sensor.
Cutter Error	There was an error related to the label cutter.
Head Lifted	A printer job was sent to the printer while the printhead was lifted.
Out of Ribbon	You have thermal transfer ribbon selected and the printer is out of ribbon.
Pause Mode	The printer is in Pause mode.
Setup Mode	The printer is in Setup mode.
Error Condition (Fingerprint only)	An error has occurred in the Fingerprint application. The error does not have to be critical to the print job for the printer to send this alert.
Application Break (Fingerprint only)	A running Fingerprint application has been interrupted manually or because of an error.
Print Job Complete (Fingerprint only)	The print job has been successfully completed.
Odometer Count 1	The amount of media printed has reached a preset amount, measured in meters or in number of labels. The Delay repeat setting represents how often the alert message will be sent when the preset value is reached.
Notification Method	The method used to send an alert message. You can choose from mail, SNMP-trap, or both.



## Configuring General Network Settings

Use the General network page to view the printer name, change passwords, and set restrictions.

### To configure general network settings

- 1 Click **Network Admin > General**.
- 2 View or update your settings.



**Note:** To enter a new password, you need to check the **Set password** check box.

- 3 Click **Submit General settings**.

Use the following table to understand the general network settings.

### Understanding the General Network Settings

Setting	Description
Printer Name	The network identification name (WINS name) of the printer. The default name is INTERMEC followed by the last six positions of the MAC address.
System Location	(Optional) The printer location.
System Contact	(Optional) The printer administrator.
Set Password	You must check this box if you want to change the admin password.
Old Admin Password	You need to enter the old password before you can change the password.
New Admin Password	The new password you want to use.

### Understanding the General Network Settings (continued)

Setting	Description
Restrictions	<p>Sets restrictions on who is allowed to upgrade the printer firmware or view and change network settings. You cannot remove “admin” from the list of authorized users.</p> <p><b>Users allowed to update:</b> Defines who may perform a firmware upgrade using FTP, PrintSet, or IFAB. This setting does not affect upgrading from a Compact Flash card.</p> <p><b>Users allowed to read/write protected LAN1 settings:</b> (Fingerprint only) Defines who may read/write settings in the LAN1 section.</p> <p><b>Users allowed to change network settings:</b> (Fingerprint only) Defines who may change the network node in the setup. This setting is not supported if you are setting up the printer from its internal keyboard.</p> <p><b>Users allowed to change wireless settings:</b> Defines who may change WLAN or 802.1x settings.</p>

## Configuring Mail Settings

Use the mail settings page to view and change email (SMTP) server settings.

### To configure mail settings

- 1 Click **Network Admin > Mail**.
- 2 Select the mail server settings and enter mail addresses.
- 3 Click one of these buttons:
  - **Submit Mail Settings** to send the changes to the printer.
  - **Submit & Send test mail** to send the changes to the printer and test your new settings.

Use the following table to understand the mail settings.

## Understanding the Mail Settings

Setting	Description
Mail (SMTP) Server	<p>Choose a configuration method for your mail server settings:</p> <ul style="list-style-type: none"> <li>• <b>SMTP settings from DHCP:</b> Choose this setting if you want the printer to receive settings automatically from your DHCP server. This setting requires that you choose DHCP and IP Selection in the TCP/IP section.</li> <li>• <b>Manual settings:</b> Choose this option to manually configure the Mail Server address and port. The default port is 25.</li> </ul>
Mail addresses	<p>Defines the email addresses to use when the printer sends alert messages:</p> <ul style="list-style-type: none"> <li>• <b>From address:</b> The address that displays as the sender of alert messages. Email will be returned to this address if the recipient is unreachable. To prevent email bounces when the recipient is unreachable, leave this field empty.</li> <li>• <b>To address:</b> The recipient of alert messages. To enter several addresses, separate them with a comma (,) or a semicolon (;).</li> </ul>

## Configuring SNMP Settings

Use the SNMP page to view and change SNMP settings.

### To configure SNMP settings

- 1 Click **Network Admin > SNMP**.
- 2 Change the SNMP settings.
- 3 Click **Add** to add trap settings. You can define up to four authentication failure traps.

After you add a trap, it appears in the Trap Address Settings list. You can edit or delete each trap in the list by clicking **Edit** or **Delete**.

- 4 Click **Submit SNMP settings**.

Use the following table to understand SNMP settings.

### Understanding the SNMP Settings

Setting	Description
Read Community	Community with rights to read the SNMP MIBs.
Read/Write Community	Community with rights to read and write SNMP MIBs.
Username	Username when using SNMPv3. The default value is “initial”.
Authentication Key	The authentication key for SNMPv3. The default value is “auth_key”.
Encryption Key	The privacy key for SNMPv3. The default value is “priv_key”.
System Name	Administrative name for the SNMP node.
Authentication Failure Trap	Defines if a trap is sent when an unauthorized SNMP request tries to access the printer. Choose <b>Enable</b> to send the trap.
Trap Address Settings	Click <b>Add</b> to specify these trap address settings: <ul style="list-style-type: none"><li>• <b>Trap Address:</b> IP address of the receiver of SNMP traps. You can specify up to four trap addresses.</li><li>• <b>Trap Port:</b> The port where SNMP traps are sent. The default port is 162.</li><li>• <b>Trap Community:</b> Defines the community to which SNMP traps will be sent.</li><li>• <b>Friendly Name:</b> A user-defined text string that identifies the trap.</li><li>• <b>Trap Enable Status:</b> Defines whether the specified trap is enabled.</li></ul>

### Configuring TCP/IP Settings

Use the TCP/IP settings page to view and change TCP/IP network settings.

#### To configure TCP/IP settings

- 1 Click **Network Admin > TCP/IP**.
- 2 View or update your settings.
- 3 Click **Submit TPC/IP settings**.

Use the following table to understand the TCP/IP settings.

### Understanding the TCP/IP Settings

Setting	Description
IPV4 Settings	<p><b>Configuration method:</b> The method by which an IP address is assigned to the printer. You can choose between DHCP, BOOTP, DHCP+BOOTP, or MANUAL.</p> <p><b>Address:</b> The current IP address of the printer.</p> <p><b>Netmask:</b> Manually assigned netmask for the printer.</p> <p><b>Default Router:</b> The IP address of the default router.</p>
IPV6 Settings	<p><b>Configuration method:</b> The method by which an IP address is assigned to the printer. You can choose between:</p> <ul style="list-style-type: none"> <li>• <b>AUTO:</b> The IP address is obtained using stateless auto-configuration. This is the default configuration method.</li> <li>• <b>AUTO+DHCP:</b> The IP address is obtained using stateless auto-configuration, but DNS options are obtained using DHCP.</li> <li>• <b>DHCP:</b> The IP address and DNS options are obtained using DHCP.</li> <li>• <b>MANUAL:</b> The IP address is set to a static address that you enter in the <b>Static Address</b> field.</li> </ul> <p><b>Current addresses:</b> A list of all the currently configured IP addresses for the Ethernet interface. The address starting with FE80:: is the link-local address and is available regardless of the configuration method you choose.</p> <p><b>Static address:</b> This address applies if you selected manual as the configuration method. The IP address is specified as an address and a prefix separated by a slash. You can use “::” to represent a large number of consecutive zeros. You should typically set the prefix to 64.</p> <p>Example:</p> <p>2001:DB8:0:F101::2/64</p>

### Understanding the TCP/IP Settings (continued)

Setting	Description
Name Resolution	<b>DNS Server:</b> The IP address of the name server. <b>DNSv6 Server:</b> The IP address of the name server for IPv6. <b>WINS Server (Primary and Secondary):</b> The IP addresses of the primary and secondary WINS servers. If you chose DHCP or BOOTP for the configuration method, you may see the currently assigned WINS IP addresses depending on the configuration of your DHCP server.
Printer Service	<b>NET1 TCP Port Number:</b> The port number for raw TCP. The default is 9100. <b>NET1 Queuing:</b> Determines whether queuing for the TCP port is turned on, off, or enabled for multiple network connections (Multi).

### Configuring the Network Type

Use the Network Type page to choose whether you are using an Ethernet or wireless 802.11 network.

#### To configure the network type

- 1 Click **Network Admin** > **Network Type**.
- 2 Select either **Ethernet** or **Wireless 802.11**.
- 3 Click **Submit new settings**.
- 4 Reboot the printer for the changes to take effect.



**Note:** Once you change the network type to Wireless 802.11, you cannot communicate with the printer using Ethernet. You need to change the command through the Setup menu or send a command through a serial connection.

### Configuring Avalanche Settings

Use the Avalanche page to view and change Wavelink Avalanche settings.

#### To configure Avalanche settings

- 1 Click **Network Admin** > **Avalanche**.
- 2 View or update your settings.

### 3 Click **Submit Avalanche settings**.

Use the following table to understand the Avalanche settings.

#### **Understanding the Avalanche Settings**

Setting	Description
Enabler Mode	Click one of the option buttons: <ul style="list-style-type: none"> <li>• <b>Disabled:</b> Disables Avalanche.</li> <li>• <b>Manual settings:</b> Enables Avalanche. You need to enter the Agent address and Port in the text fields.</li> <li>• <b>Find agent by broadcast:</b> Enables Avalanche and the network connection broadcasts to find the agent.</li> </ul>
Agent authorization	Enter your user name and password in the entry fields.

### **Configuring Wireless LAN Settings**

Use the Wireless LAN page to view and change 802.11 settings.



**Note:** You will only see the Wireless LAN settings if your printer has the wireless interface option installed and the printer is using Fingerprint 8.77 or later.

#### **To configure wireless LAN settings**

- 1 Click **Network Admin > Wireless LAN**.
- 2 View or update your settings.
- 3 Click **Submit 802.11 settings**.

Use the following table to understand the Wireless LAN settings.

#### **Understanding the Wireless LAN Settings**

Setting	Description
SSID	The network name of the printer.
Mode	Set the operating mode of the device to Ad-Hoc or Infrastructure.
WEP	Set Wired Equivalent Privacy (WEP) to on or off.
WEP Keys	You can enter values for up to 4 WEP keys.

**Understanding the Wireless LAN Settings (continued)**

Setting	Description
Active WEP key	Chooses the active WEP key.
Authentication	Sets the type of authentication for you use for WEP keys. You can choose between Auto, Open System, and Shared.
WPA	Sets the Wi-Fi Protected Access (WPA) to either on or off.
WPA Pre-shared key	Sets the WPA Pre-shared key.
WPA2	Sets the Wi-Fi-Protected Access version 2 to either on or off.
Roaming setting	Sets the roaming reluctance to 1, 2 or 3. Setting the roaming reluctance to 0 turns off the roaming feature.
Current channel	Shows the current channel the printer is using.
AP MAC Address	(Read only) MAC address of the access point to which the printer is connected.
Signal strength	(Read only) Radio signal strength of the access point.
Speed	(Read only) Speed of the current connection.
Region	(Read only) Shows the country short names provided by the 802.11d standard for the currently selected region or country.

**Configuring 802.1x Settings**

You only see the 802.1x settings page if you have the optional wireless interface installed in your printer. Use the 802.1x page to view and change 802.1x security settings.

**To configure 802.1x settings**

- 1 Click **Network Admin > 802.1x**.
- 2 View or update your settings.
- 3 Click **Submit 802.1x settings**.



Use the following table to understand the 802.1x settings.

**Understanding the 802.1x Settings**

Setting	Description
EAP Type	Choose the Extensible Authentication Protocol (EAP) type: <ul style="list-style-type: none"><li>• TTLS (default)</li><li>• LEAP</li><li>• PEAP</li><li>• EAP-FAST</li><li>• Off (disables 802.1x security)</li></ul>
Inner Authentication	Choose the inner authentication method: <ul style="list-style-type: none"><li>• PAP (TTLS only)</li><li>• MSCHAPv2</li><li>• EAP/MSCHAPv2</li><li>• EAP/MD5</li><li>• EAP/GTC</li></ul>
Outer Name (TTLS only)	Specify the EAP identity passed in the clear. The default is <b>anonymous</b> .
PAC- Key A-ID Info	The Protected Access Credential (PAC) setting is used to specify the PAC file used by EAP-FAST authentication. This setting is automatically filled up by the printer is ACQUIRE_PAC is enabled and current installed PAC file fails authenticating the printer to the network. To manually import a PAC file using a pass phrase, the pass phrase should be given after the path of the PAC file.
Automatic Provision (PAC)	Set Automatic PAC file Provisioning to on or off.
Root Certificate	The common name of the installed root CA certificate. You can also specify a different certificate (provided that it has already been installed on the printer) by entering the path to the new certificate in this field. If a pass phrase is required, add it to the end of the path in the form of “@passphrase”.

### Understanding the 802.1x Settings (continued)

Setting	Description
Server Common Name #1 Server Common Name #2 (TTLS and PEAP only)	Specify common names. If you specify one common name, the server certificate common name must match this name for authentication. If you specify two common names, the server certificate common name must match at least one of them. The default is "" (any common name).
Server Certificate Validation (TTLS and PEAP only)	Enables certificate validation. Specifies whether or not to check if the installed CA certificate is the root of the server certificate.

### Configuring SmartSystems Settings

Use the SmartSystems page to view or change the SmartSystems server IP address and the master port number.

#### To configure the SmartSystems settings

- 1 Click **Network Admin > SmartSystems**.
- 2 View or change the settings.
- 3 Click **Submit SmartSystems settings**.

## Configuring the Printer Using PrintSet

PrintSet is a printer configuration tool that allows you to easily change your setup parameters. You can also use the setup wizards in PrinSet to guide you through common configuration tasks.

#### To configure the printer with PrintSet

- 1 Make sure that you have a PC running Microsoft Windows 98 or later.
- 2 Download PrintSet from the Downloads page of the Intermec web site at [www.intermec.com](http://www.intermec.com).
- 3 Connect your printer to your PC using a serial cable. For help, see **“Connecting the Printer to a PC Through the Serial Port” on page 22**.

## Configuring the Printer Using Commands Sent From Your PC

You can change configuration parameters by sending commands directly to the printer using your terminal program (HyperTerminal) and a serial or network connection.

If your printer uses the Fingerprint language, you use the SETUP command, followed by the node, subnode, and parameters setting. Here is a Fingerprint example that sets your media setting to labels with gaps:

```
SETUP "MEDIA,MEDIA TYPE,LABEL (w GAPS) "
```

If your printer uses the IPL language, you would send this command:

```
<STX><SI>T1<ETX>
```

Fingerprint automatically sends feedback to HyperTerminal as you type. If you want to see what you are typing with IPL, you need to complete the following procedure.

### To see IPL commands as you type

- 1 From the HyperTerminal menu, select **File > Properties > the Settings** tab.
- 2 Click the **ASCII Setup** button.
- 3 Select **Echo typed characters locally**.
- 4 Click **OK** twice.

For more information on how to change configuration settings, see either the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*.

## Configuring the Printer Using SmartSystems Foundation

You can use SmartSystems Foundation to change configuration settings on your printer. The printer ships with the SmartSystems client loaded on it. The console is part of SmartSystems Foundation and is available from the Intermec web site. To download SmartSystems Foundation, go to [www.intermec.com/products/smrtsysfoundation/index.aspx](http://www.intermec.com/products/smrtsysfoundation/index.aspx).

## Choosing an Ethernet or Wireless Network

If you have an 802.11 wireless radio option installed in your printer, you need to choose between an Ethernet network or a wireless 802.11 network.



**Note:** Once you change the network type to Wireless 802.11, you cannot communicate with the printer using Ethernet. You need to change the command through the Setup menu or send a command through a serial connection.



You can choose the network type of your printer:

- directly from the screen.
- from the printer home page. For help, see [“Configuring the Network Type” on page 52.](#)
- using commands sent from your PC.
- using SmartSystems Foundation. For help, see the previous section [“Configuring the Printer Using SmartSystems Foundation.”](#)

## Using the PD42 Screen to Choose the Network Type

To configure the PD42 printer from the screen, you need to enter Setup mode.

### To choose the network type from the PD42 screen

- 1 Press the  button to enter Setup mode.
- 2 Navigate to **Network** > **Network Type** and then press **←**.
- 3 Select either **Ethernet** or **Wireless 802.11** and then press **←**.
- 4 Press  to exit Setup mode.
- 5 Reboot the printer for the change to take effect.

## Using Printer Commands to Choose the Network Type

You can send Fingerprint or IPL commands using a serial connection to the printer.

### To choose the network type using printer commands

- 1 Connect the printer to your PC using a serial cable. For help, see [“Connecting the Printer to a PC Through the Serial Port” on page 22](#).
- 2 Start your serial port software such as Hyperterminal.
  - If you are using Fingerprint, send this command to the printer:  
`setup "NETWORK", "NETWORK TYPE", "n"`  
where *n* can be either Ethernet or Wireless 802.11.
  - If you are using IPL, send this command to the printer:  
`<STX><SI>n, , , p<ETX>`  
where *p* can be either 0 (select Ethernet interface) or 1 (Select Wireless 802.11 interface).
- 3 Reboot the printer for the change to take effect.

## Upgrading the Firmware

The latest firmware and software is available for download from the Downloads page on the Intermec web site at [www.intermec.com](http://www.intermec.com). You can upgrade the firmware on your printer using:

- PrintSet. You can download PrintSet from the downloads page for the printer on the Intermec web site at [www.intermec.com](http://www.intermec.com).
- a CompactFlash (CF) card.
- a USB mass storage device (maximum 2 GB).
- an Ethernet or 802.11 network connection.
- a serial or USB connection.

### To download firmware updates

- 1 Go to the Intermec web site at [www.intermec.com](http://www.intermec.com).
- 2 Click **Support > Downloads**.
- 3 Use the **Product Category**, **Product Family**, and **Product** fields, to select the PD41 or PD42.
- 4 Click **Submit**. The latest available software appears on the page.
- 5 Download the latest firmware version to your PC.

- 6 Extract the .zip file to a folder on your PC.

### To upgrade using PrintSet

- 1 Download the latest version of PrintSet from the Intermec web site at [www.intermec.com](http://www.intermec.com).
- 2 Select **File > Add Printer**. The Add Printer Wizard starts.
- 3 Under My Printers, select your printer.
- 4 Go to **Printer > Firmware Wizard**.
- 5 Follow the steps to update your firmware.

### To upgrade using a CF card

- 1 Copy the firmware upgrade file to a CF card.
- 2 Insert the CF card in the appropriate slot on the back of your printer.
- 3 Turn on your printer.

### To upgrade using a USB storage device

- 1 Turn on your printer.
- 2 Verify the USB storage device is supported by your printer. Insert the USB storage device in the appropriate slot on the back of your printer. On the display screen, one of the following status messages briefly appears:
  - USB memory stick connected
  - USB memory stick not supported



**Note:** If no status message appears when you insert the USB storage device, remove and reinsert the USB storage device. To manually verify the USB storage device is supported, see **“Using a USB Mass Storage Device” on page 36**.

- 3 Insert the USB storage device in the appropriate slot on your PC.
- 4 In the root directory of the USB storage device, create a folder named “upgrade.”

- 5 Copy the firmware binary upgrade file to the upgrade folder on the USB storage device.



**Note:** The printer supports 8.3 binary filenames, which means the filename can have up to eight characters and a .bin extension.

- 6 Insert the USB storage device in the appropriate slot on the back of your printer. The upgrade starts. On the display screen, the status message, “Time Out,” appears.
- 7 When the upgrade is complete, the status message, “Check Integrity,” appears. Remove the USB storage device. You may need to restart your printer.

#### **To upgrade using an Ethernet or 802.11 network connection**

- 1 Start your web browser application.
- 2 In the address field, enter the IP address of your printer.
- 3 Press **Enter**. The home page of your printer appears.
- 4 From the menu at the top of the page, click **Maintenance**. The firmware upgrade screen appears.

#### **To upgrade using a serial or USB connection**

- Use Fingerprint or IPL commands to send the upgrade file to your printer.

For help, see the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*.



- 1 Click **Browse** and browse to the location of the firmware upgrade file.
- 2 Double-click the file, and then click **Upgrade**.

## Downloading Fonts and Graphics

The PD41 and PD42 support 10 scalable Unicode TrueType fonts as standard. The Unicode standard allows the use of special characters for various languages including non-Latin fonts, such as Arabic, Cyrillic, Chinese (including enhanced Simplified Chinese GB18030), Japanese, Korean, and Hebrew.



**Note:** Fingerprint and IPL firmware support the download of any TrueType font. ESim only supports bitmap fonts.

You can download additional fonts to the Flash memory of the printer using:

- PrintSet. You can download PrintSet from the downloads page for the printer on the Intermec web site at [www.intermec.com](http://www.intermec.com).



- Fingerprint or IPL commands. For help, see the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*.
- a CompactFlash card or external USB mass storage device (maximum 2 GB).



# 4

## Troubleshooting and Maintaining the Printer

Use this chapter to troubleshoot and maintain the printer. This chapter contains these sections:

- **Troubleshooting the Printer**
- **Adjusting the Printer**
- **Maintaining the Printer**

## Troubleshooting the Printer

You may have printer operation, print quality, or printer communication problems at some time during the life of the printer. It is easy to fix most of the problems and you will find solutions in “**Troubleshooting Printer Problems and Finding Solutions**” on [page 69](#). If you cannot find the answer to your problem, you may need to contact Product Support.

### Contacting Product Support

Before you call Intermec Product Support, you may want to visit the Intermec technical knowledge base (Knowledge Central). To do so, go to [www.intermec.com](http://www.intermec.com) and click **Support > Knowledge Central**. If you still need help after visiting Knowledge Central, you may need to call Product Support. To talk to an Intermec Product Support representative in the U.S.A. or Canada, call:

**1-800-755-5505**

Outside the U.S.A. and Canada, go to [www.intermec.com](http://www.intermec.com) and click **Contact Us** to find your local Intermec representative.

Before you call Intermec Product Support, make sure you have the following information ready:









- Printer serial number
- Firmware type and version
- Wireless or serial port settings

You can find all of the information listed above in the printer menu system or on a testprint page .

## Understanding Error Messages on the PD42

Use the following tables to troubleshoot some common error messages you may see on the PD42 printer display. Some of the error messages are specific to the type of firmware you have loaded on your printer.










### Possible PD42 Printer Error Icons and Messages

Error Icon	Error Message	Solution
	Printhead lifted.	Lower printhead.
	Maintenance.	The printer is upgrading its firmware. Wait for it to complete the task.
	IP link error.	Check to see if the network cable has been unplugged.
	Press feed not done.	Press Feed (  ) or Testfeed (  ) .
	Label not taken.	Printing has been stopped because a label is obstructing the label taken sensor. Remove the label to resume printing.
	LSS too high, LSS too low.	Label stop sensor errors can occur when you perform a testfeed without any media installed or if you have incorrect media settings.


#### To fix this error

- 1 Load the printer with media. For help, see **“The printers can enter various states which indicate the current mode of operation.” on page 9.**
- 2 Restart the printer in Test mode and select the appropriate media type. For help, see **“Using Testmode” on page 74.**

**Possible PD42 Printer Error Icons and Messages (continued)**

Error Icon	Error Message	Solution
	IP configuration error.	The printer is trying to acquire an IP address from the network. Wait until the printer receives the IP address.
	Out of media.	Load media in printer. For help, see <b>“The printers can enter various states which indicate the current mode of operation.” on page 9.</b>
	Field out of label.	You are attempting to print in an area that extends beyond the “print window.” See the appropriate printer language command reference manual for help setting the media parameters.
	Ribbon empty.	Try these solutions: <ul style="list-style-type: none"> <li>• Load thermal transfer ribbon. For help, see <b>“Loading Thermal Transfer Ribbon” on page 16.</b></li> <li>• On the PD42, change the Paper Type in Setup mode.</li> </ul>
	Label not found.	The printer does not find a label gap or black mark. <ul style="list-style-type: none"> <li>• Go into Setup mode and verify that the label length parameter is correct.</li> <li>• Verify that the Media type settings are correct.</li> </ul>
	Printhead hot.	The printhead is overheated and needs to cool down. Wait for printing to resume automatically.
	Testfeed not done.	Press Testfeed (  ).
	Cutter not found.	A cut command has been sent to the printer, but the printer cannot find the cutter. Make sure the cutter is installed properly.

**Possible PD42 Printer Error Icons and Messages (continued)**

Error Icon	Error Message	Solution
	Cutter not responding.	Make sure the cutter is installed properly.


## Troubleshooting Printer Problems and Finding Solutions

Use the following table to troubleshoot common printer problems.

**Printer Problems and Possible Solutions**

Problem	Possible Solution
The Power LED does not light up when the printer is switched on.	Check that the power cable is correctly connected to the printer and the electrical outlet.
The Error LED turns on after printing.	<ul style="list-style-type: none"> <li>• Check to see if the printer is out of media or ribbon.</li> <li>• Check to see if media is jammed or tangled.</li> <li>• Check to make sure the print mechanism is locked and closed correctly.</li> <li>• Check the cutter for problems.</li> <li>• Check to make sure your application is working correctly.</li> </ul>
The Ethernet connection is not working.	<ul style="list-style-type: none"> <li>• Check the network LED on the back of the printer. A green LED should be flashing to indicate network activity and a yellow LED should be on solid if connected to a 100 Mbps network.</li> <li>• Make sure the Ethernet cable is connected correctly to the back of the printer.</li> <li>• Make sure you are using the correct Ethernet cable.</li> <li>• Make sure you have Ethernet selected as the Network Type. For help, see <a href="#">“Choosing an Ethernet or Wireless Network” on page 58.</a></li> </ul>

**Printer Problems and Possible Solutions (continued)**

Problem	Possible Solution
A label is jammed after printing.	<ul style="list-style-type: none"> <li>• Clear the media jam. For help, see <b>“Clearing Media Jams” on page 78.</b></li> <li>• If the label is stuck on the thermal printhead, clean the printhead. For help, see <b>“Cleaning the Printhead” on page 89.</b></li> </ul>
When printing, the printer is skipping labels.	<ul style="list-style-type: none"> <li>• Run a new testfeed by pressing (  ) on the PD42 or by holding the print button more than one second on the PD41.</li> <li>• Make sure the label gap sensor is aligned properly and that it is clean. For help, see <b>“Adjusting the Label Stop Sensor” on page 85.</b></li> </ul>
When using the cutter, the label is not cut straight.	<ul style="list-style-type: none"> <li>• Make sure the media thickness does not exceed 0.25 mm (9.8 mils).</li> <li>• Make sure the media is loaded correctly and that it runs as close to the center section of the printer as possible.</li> </ul>
When using the cutter, the labels cannot feed or abnormal printing occurs.	<ul style="list-style-type: none"> <li>• Make sure the cutter is installed properly.</li> <li>• Make sure the paper feed rods are sticky.</li> <li>• Clean the media compartment. For help, see <b>“To clean the printhead” on page 89.</b></li> </ul>
When using the internal rewinder, the printer malfunctions.	Make sure the media is loaded correctly.
The printer keeps printing or feeding when it should stop.	<ul style="list-style-type: none"> <li>• Check the media settings.</li> <li>• Check the label gap sensor position. For help, see <b>“Adjusting the Label Stop Sensor” on page 85.</b></li> <li>• Make sure the sensors are clean. For help, see <b>“To clean the printhead” on page 89.</b></li> </ul>
Printing is slow.	Make sure your printing application is working correctly.



**Printer Problems and Possible Solutions (continued)**

Problem	Possible Solution
Printing is faded or light.	<ul style="list-style-type: none"> <li>• For Fingerprint: Adjust the the Constant, Factor and Contrast media settings.</li> <li>• For IPL: Adjust the Sensitivity setting.</li> <li>• Make sure the printhead is clean. For help, see <b>“Cleaning the Printhead” on page 89.</b></li> <li>• Check the printhead pressure. For help, see <b>“Adjusting Printhead Pressure” on page 81.</b></li> <li>• Check the printhead dotline position. For help, see <b>“Adjusting Printhead Dot Line” on page 82.</b></li> </ul>
The printer is working, but nothing is being printed.	<ul style="list-style-type: none"> <li>• Printing on direct thermal media: Make sure the media is loaded with the heat-sensitive side facing the printhead.</li> <li>• Printing with thermal transfer ribbon: Make sure the ink-side of the ribbon faces the media. For help, see <b>“Loading Thermal Transfer Ribbon” on page 16.</b></li> <li>• Make sure you have the correct media type and paper type selected.</li> <li>• Make sure the printhead is correctly connected to the print mechanism.</li> </ul>
Only partial labels are printing.	Check the printhead balance. For help, see <b>“Adjusting Printhead Balance” on page 79.</b>
Part of the print image is not printed along the feed direction.	<ul style="list-style-type: none"> <li>• Make sure the printhead is clean. For help, see <b>“Cleaning the Printhead” on page 89.</b></li> <li>• Make sure the ribbon is not wrinkling. For help, see <b>“Preventing Ribbon Wrinkling” on page 77.</b></li> </ul>
The printout is uneven across the media path.	<ul style="list-style-type: none"> <li>• Check the printhead balance. For help, see <b>“Adjusting Printhead Balance” on page 79.</b></li> <li>• Check the printhead pressure. For help, see <b>“Adjusting Printhead Pressure” on page 81.</b></li> </ul>

### Printer Problems and Possible Solutions (continued)

Problem	Possible Solution
The printout is not in the correct position.	<ul style="list-style-type: none"><li>• Check for errors in the software application.</li><li>• Make sure the label gap sensor is clean. For help, see <a href="#">“To clean the printhead” on page 89</a>.</li><li>• Check the position of the label gap sensor. For help, see <a href="#">“Adjusting the Label Stop Sensor” on page 85</a>.</li><li>• Check the position of the edge guide and media guide.</li><li>• Make sure you are using the correct media.</li><li>• Make sure the platen roller is clean and in good condition. For help, see <a href="#">“To clean the printhead” on page 89</a>.</li></ul>

## Troubleshooting Communication Problems

You can use Dump mode to verify that the printer is receiving data correctly from the host.

### Using the Line Analyzer in Fingerprint

In Dump mode, the printer runs a Fingerprint program called Line analyzer. The Line Analyzer captures incoming characters on the communication ports and prints them on one or more labels.

The easiest way to enter Dump mode is through Test mode or Extended Test mode. For help, see [“Using Testmode and Extended Testmode to Troubleshoot” on page 74](#).

After the printer enters Dump mode, the printer tells you it has entered Dump mode by printing it on a label. The printer is ready to receive data. If you have a PD42, the Dump mode icon appears on the screen.

While the printer is receiving data, the Ready-to-Work indicator blinks. After a half of a second, if no more characters have been received, the printer times out. The program considers the transmission terminated and prints out a label.

Printable characters are printed in black-on-white. Control characters and space characters (ASCII 000 to 032 dec) are printed in white-on-black.

As long as a continuous string of characters is being received, the program wraps the lines until the label is full and then starts to print another label. After each character transmission, the following information prints:

- Page number
- Number of characters printed on the label
- Total number of characters received so far

When you exit Dump mode, a final label prints to inform you that it exited Dump mode.


### Using Dump Mode

When you enter Dump mode, the printer captures incoming characters on the communications ports and prints them on one or more labels.

You can access Dump mode in two different ways with slightly different results:

- You can access Dump mode through Test mode or Extended Test mode and you will receive printouts that look exactly like those produced with the Line Analyzer program in Fingerprint. For more information, see the previous procedure, [“Using the Line Analyzer in Fingerprint” on page 72](#).
- You can access Dump mode from the Setup menu on the PD42 and characters will print on a continuous line, along with corresponding hexadecimal numbers.

#### To enter Dump from the Setup menu on the PD42

- 1 Press  to enter Setup mode.
- 2 Navigate to **Test/Service**> **Data Dump**.
- 3 Toggle to **Yes** and then press **↵**.

The printer is now in Dump mode.

#### To exit Dump mode

- Turn the printer off and then back on again.

## Using Testmode and Extended Testmode to Troubleshoot

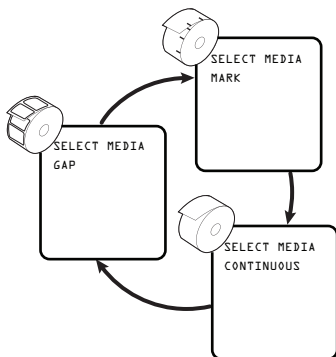
Use Testmode and Extended Testmode when you want to verify printer settings, print test labels, restore factory default settings, or enter Dump mode to troubleshoot. Testmode is a simple linear sequence which requires little user input. Extended Testmode gives you more options.

### Using Testmode

Testmode is a simple linear sequence which requires little user input.

#### To use Testmode

- 1 Turn off the printer.
- 2 Load media and ribbon (if necessary). For help see, [“Loading Media” on page 11](#) and [“Loading Thermal Transfer Ribbon” on page 16](#).
- 3 Press and hold the **Print** button.
- 4 Continue to keep the **Print** button pressed down and turn on the **Power** switch. After approximately ten seconds, the printer screen lights up, runs a media setup routine, enters Testmode, and three of the LEDs start to flash one at a time (green, red, and then blue).
- 5 Continue to press the **Print** button until the printer starts cycling through the selectable media types: gap, mark and continuous.
- 6 Select your media type by releasing the **Print** button when your type of media appears on the screen.



The printer prints several test labels containing hardware, setup, and network information and then enters Dump mode.

- 7 Press the **Print** button once or press the Cancel soft key (⊗) to exit Dump mode.
- 8 You can also save the dump by pressing the Save (⏏) soft key.

## **Using Extended Testmode**

Use Extended Testmode to run additional tests such as:

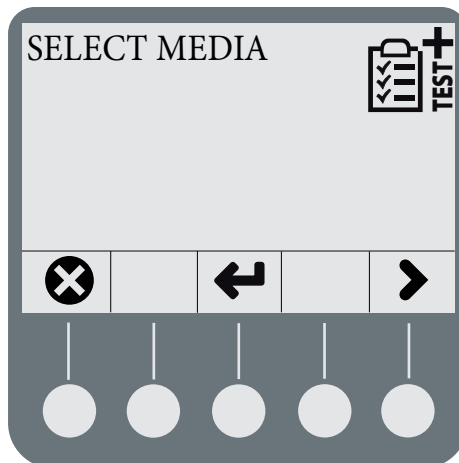
- printing test labels.
- running a Testfeed in slow mode.
- entering Dump mode.
- resetting to factory defaults.




### **To run Extended Testmode**

- 1 Make sure the printer is turned off, loaded with media, and that the printhead is lifted.
- 2 Press and hold the **Print** button.
- 3 Continue to keep the **Print** button pressed down and turn on the **Power** switch. After approximately ten seconds, the printer enters Extended Testmode.

All three LEDs flash rapidly four times to signal that Extended Testmode is active.


- 4 Release the **Print** button and lower the printhead. You are now in Extended Testmode and the following screen appears.



- Press  to cycle through the different options.
- Press  to select a test function.
- Press  to exit Extended Testmode.

**5** Lower the printhead.

### ***Understanding the Functions in Extended Testmode***

Function	Description
Select Media	When you select your media, the printer performs a slow sensor calibration (slow testfeed). Performing a slow testfeed can help resolve gap/mark detection problems.
Test Labels Setup Info	You can print configuration labels one at a time. Press  to print the next label. The screen shows which label is next.
Dump Mode	Enter Dump mode. For more information on Dump mode, see <a href="#">“Using Dump Mode” on page 73</a> .
Factory Default	Restore factory default settings. Select the option and then follow the onscreen instructions.
Setup and Exit	Exit Extended Testmode and enter Setup mode.
Exit	Exit Extended Testmode.

# Adjusting the Printer

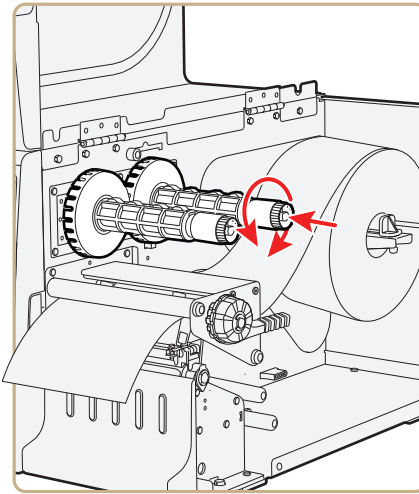
Use this section to perform adjustments to help solve problems related to print quality.

## Preventing Ribbon Wrinkling

If you have problems with thermal transfer ribbon getting wrinkled, try adjusting the the ribbon tension or the ribbon shield.

### To adjust the ribbon tension

- 1 Push in on the end knob of the ribbon supply hub.



- 2 Rotate the knob:
  - clockwise to increase the tension.
  - counterclockwise to decrease the tension.

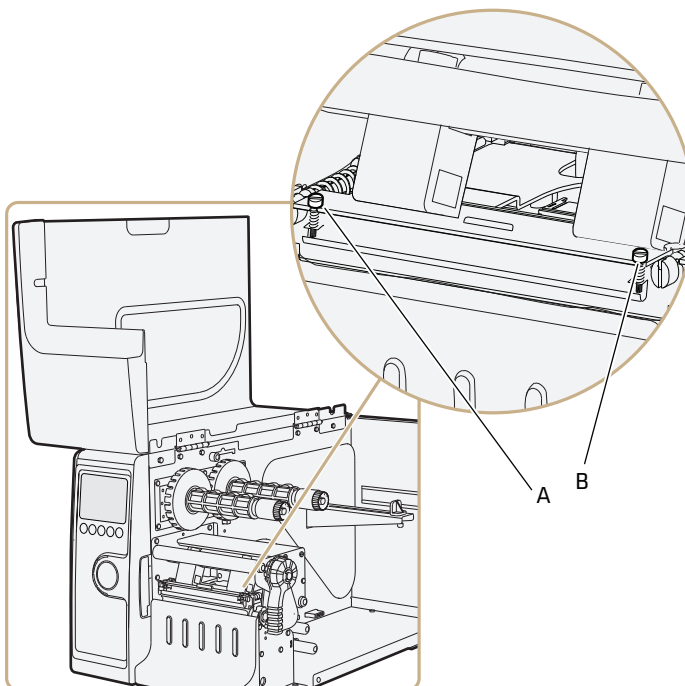
If your labels look like the following illustration, you may want to try adjusting the ribbon shield.



**Low Quality Printouts Caused by Ribbon Wrinkling**

### To adjust the ribbon shield

- 1 If the label printout matches:
  - Test Label A, turn screw A clockwise.
  - Test Label B, turn screw B clockwise.



- 2 Twist the screw a half-turn and perform a new test print.
- 3 Continue adjusting the ribbon shield screws until you achieve good printout quality.



**Note:** Do not exceed two full turns of a ribbon shield screw or the media may not feed smoothly. If this situation happens, turn the screws counterclockwise completely and start over.

## Clearing Media Jams

Common causes of media jams include media not being loaded properly or the printer not being maintained properly.

### To clear a media jam

- 1 Turn off the printer.



- 2 Pull out on the printhead lever and turn it counterclockwise to lift the printhead.
- 3 Pull the media away from the print mechanism.

If the media has been wound up or is stuck on the platen roller, carefully remove it by hand without using any sharp tools that can damage the platen roller or the printhead.



**Note:** Avoid rotating the platen roller. You may permanently damage the electronic components.

- 4 Cut off any damaged or wrinkled part of the media.
- 5 Check to see if adhesive material is sticking to parts of the print mechanism. If you need to clean the printhead, see **“Maintaining the Printer” on page 88**.
- 6 Reload the media. For help, see **“Loading Media” on page 11**.
- 7 Turn on the printer power.
- 8 Press the Print button to adjust the media feed.

## **Adjusting the Printhead**

Keeping the printhead properly balanced is crucial for obtaining high-quality printouts. Adjusting the printhead consists of adjusting the:

- printhead balance.
- printhead pressure.
- printhead dotline.

### **Adjusting Printhead Balance**

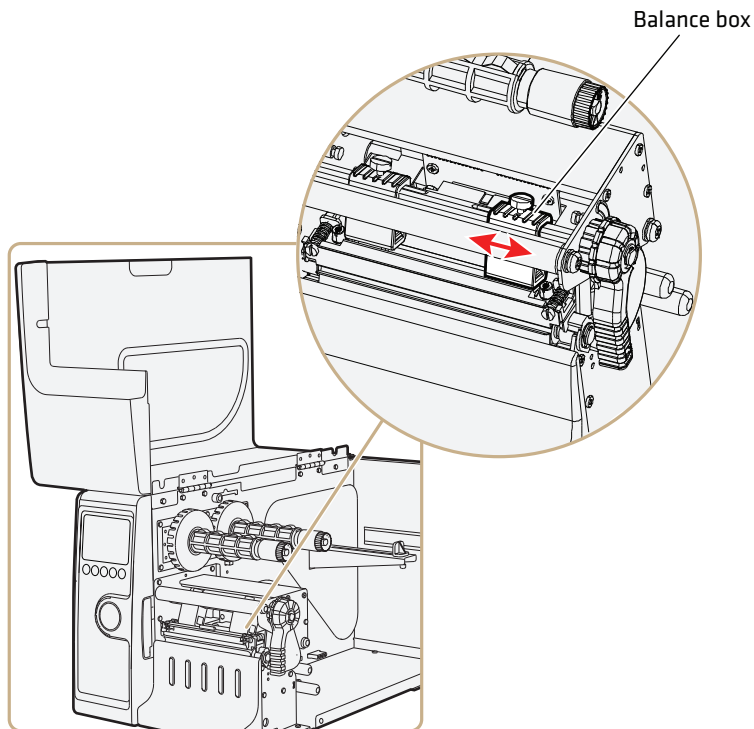
The printer is adjusted at the factory for full-width media. If you are using media that is less than full-width, Intermec recommends that you adjust the position of the printhead balance boxes so that the printhead is correctly pressured against the media. If your printouts are lighter on one side than the other, it is most likely due to an unbalanced printhead.

#### **To adjust the printhead balance**

- 1 If you have installed thermal transfer ribbon, remove it.

## Chapter 4 – Troubleshooting and Maintaining the Printer

- 2 Pull out on the printhead lever and turn it counterclockwise to lift the printhead.
- 3 Move the balance boxes:
  - outward for wider media.
  - inward for narrower media.



- 4 Close the printhead and load the ribbon.
- 5 Test and readjust the balance boxes if necessary.

## **Adjusting Printhead Pressure**

The pressure of the thermal printhead against the platen roller is adjusted at the factory. You may need to readjust the printhead pressure if the printing is weaker on one side of the media, or if the thermal transfer ribbon starts to crease (indicated by unprinted white streaks along the media feed direction).

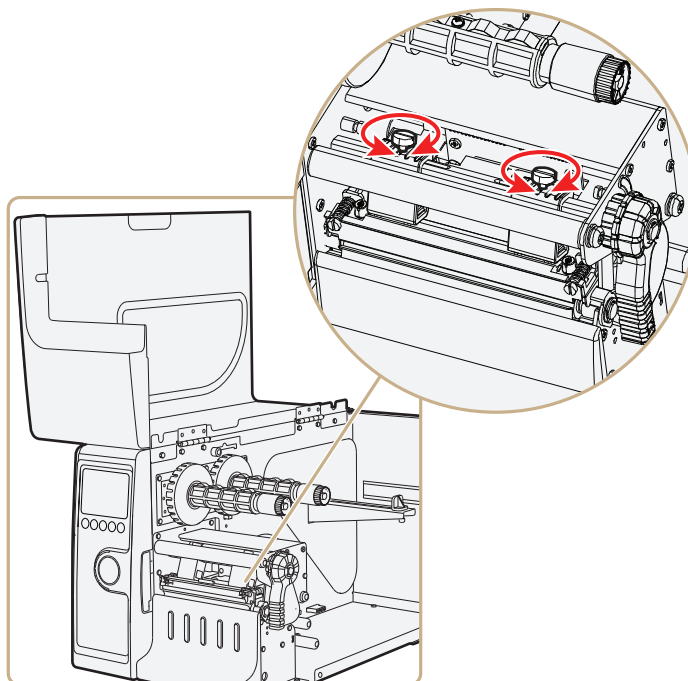


**Note:** Before adjusting the printhead pressure, try to move the outer balance box as described in the the previous procedure, “**Adjusting Printhead Balance.**”

### **To adjust the printhead pressure**

- 1** If you have installed thermal transfer ribbon, remove it.
- 2** Pull out on the printhead lever and turn it counterclockwise to lift the printhead.

- 3 Using a slotted screwdriver, turn the screw at the top of the balance boxes:
  - clockwise to increase pressure.
  - counterclockwise to decrease pressure.



- 4 Close the printhead and load the ribbon.
- 5 Test and readjust the pressure if necessary.

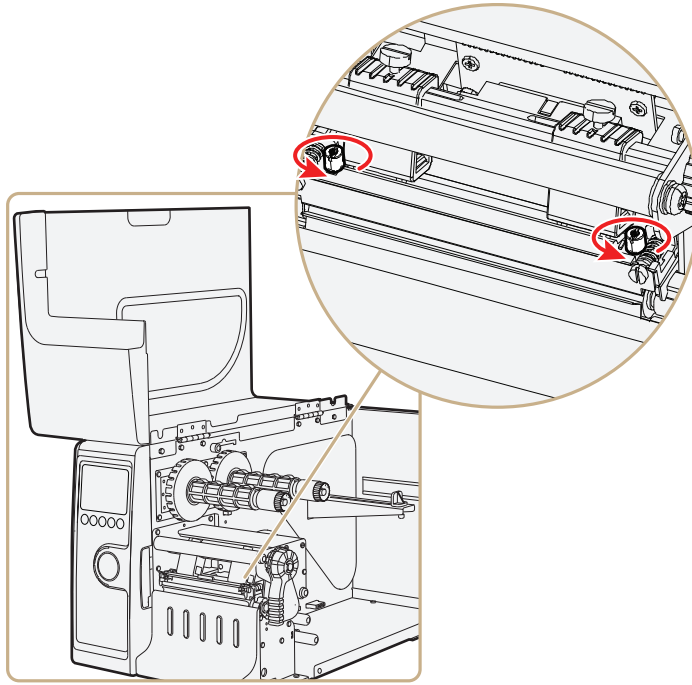
### Adjusting Printhead Dot Line

When using thick or stiff media, you need to move the printhead forward so that the dot line is aligned precisely with the top of the platen roller. You also need to make sure that the printhead dot line and the platen roller are parallel.

#### To adjust the printhead dot line

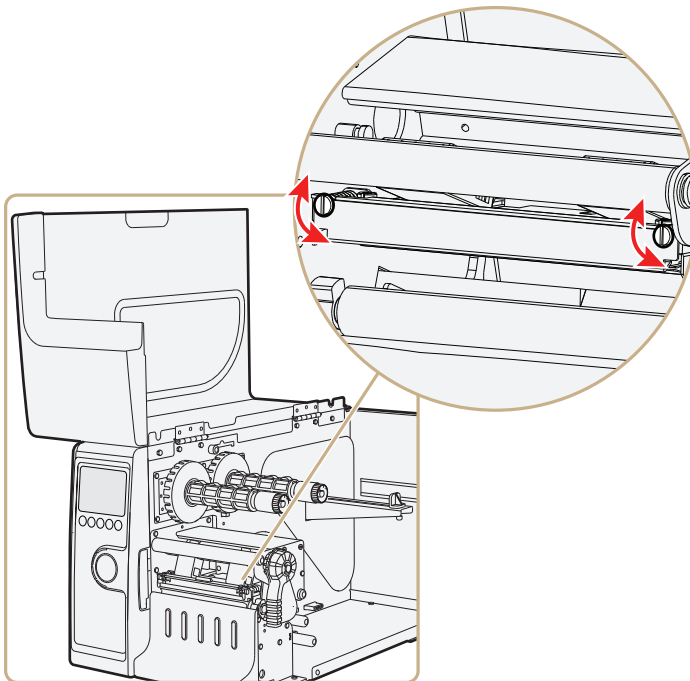
- 1 If you have installed thermal transfer ribbon, remove it and close the printhead.

- 2** Use a slotted screwdriver to turn the two screws at the top of the printhead bracket counterclockwise a single turn.



- 3** Pull out on the printhead lever and turn it counterclockwise to lift the printhead.

- 4 Carefully turn both screws, at the front of the printhead, clockwise a **quarter of a turn** at a time.



**Note:** Be sure you make identical adjustments on both screws. If you are unsure, tighten both screws completely by turning them counterclockwise as far as they will go, and then start over.

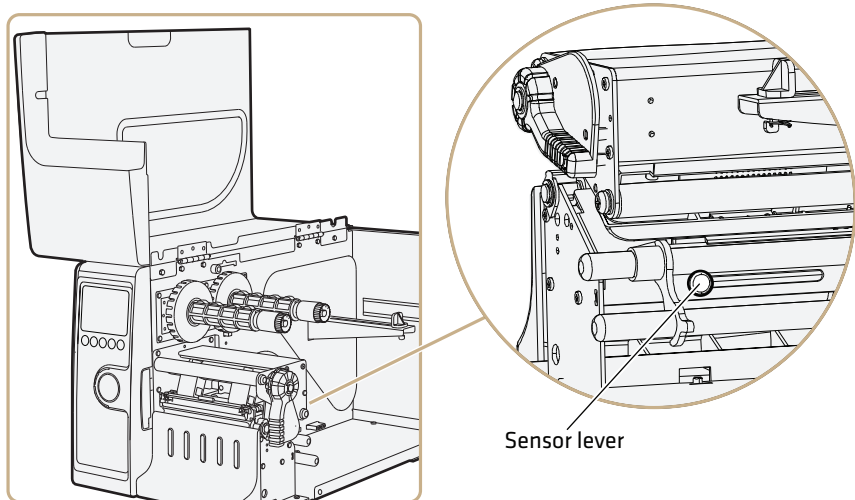
- 5 Close the printhead and using the slotted screwdriver to turn the two screws at the top of the printhead bracket clockwise a single turn.
- 6 If you are using thermal transfer ribbon, load it.
- 7 Test and readjust if necessary.

## Adjusting the Label Stop Sensor

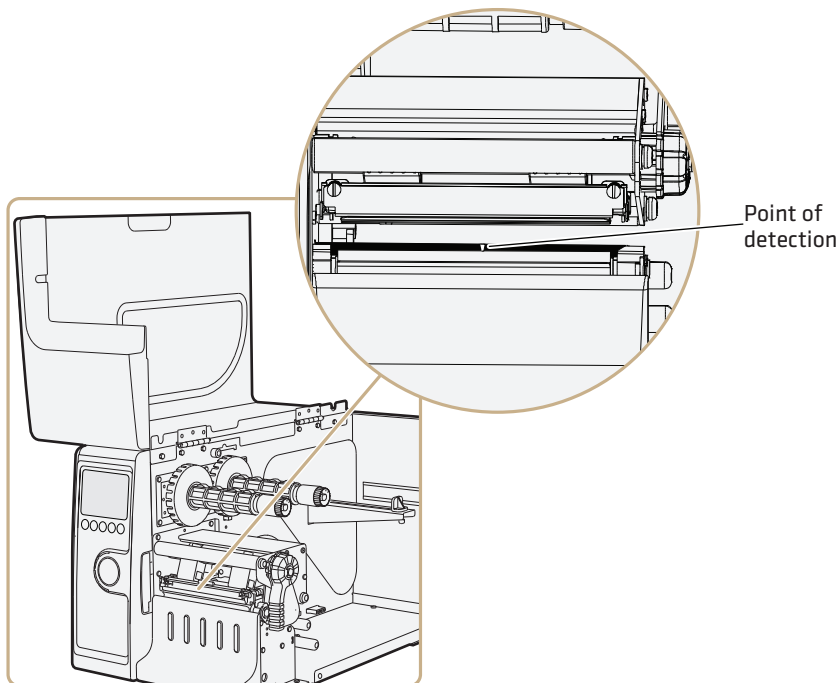
The label stop sensor (also called label gap sensor or black mark sensor) is a photoelectric sensor that controls the media feed by detecting gaps between labels, or slots or black marks in continuous stock. For the sensor to work, it must be aligned with the gaps, slots, or marks on the media. If you are using irregularly shaped labels, align the sensor with the front tip of the labels.

### To adjust the label stop sensor position

- 1 Pull out on the printhead lever and turn it counterclockwise to lift the printhead.
- 2 Use the sensor lever at the rear side of the print mechanism to move the sensor inward or outward.




- 3 Check the point of detection from the front with the printhead lifted.



If you are having detection problems, you can test the label stop sensor in Setup mode on the PD42. The label stop sensor tests can determine whether the sensor is in the right position, if it is blocked by dust or stuck labels, or if it is defective in some way. Setup mode has these two test functions:

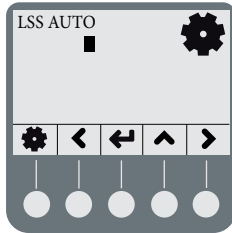
- LSS Auto: Checks to make sure that the label stop sensor is working properly and can detect gaps, slots, and black marks.
- LSS Manual: Shows the sensor setting established by the latest Testfeed. LSS Manual is intended to be used by Intermec service personnel only.

### To run the LSS Auto test

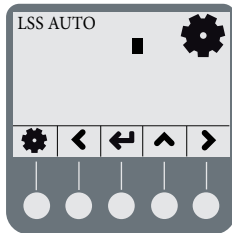
- 1 Make sure the printer is correctly configured for the type of media you are using.
- 2 Press Testfeed (  ).



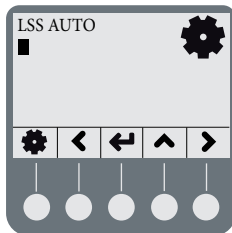
- 3 Make sure that there is a label, not a gap or black mark, at the sensor.
- 4 Make sure that the media runs as close to the center of the printer as the guides will allow.
- 5 Press **Setup** (⚙️).
- 6 Go to **Print Defs > LSS Test > LSS Auto**. The cursor will be in the center of the screen as shown below.



- 7 **For gap or slot detection:** Lift the printhead and slowly pull out the media in the media feed direction. When the label sensor detects a gap or a detection slot, the cursor moves to the right.



- 8 **For black mark detection:** Lift the printhead and slowly pull out the media in the feed direction. When the label stop sensor detects a black mark, the cursor moves to the left.



If the cursor behaves as described in Steps 7 and 8, the label stop sensor is working and is properly aligned.

If the cursor does not detect a gap, slot, or black mark, check the following:

- Is the label stop sensor laterally aligned with the slots or black marks?
- Is the transfer ribbon properly loaded so it does not interfere with the label stop sensor? For help, see **“Loading Thermal Transfer Ribbon” on page 16.**
- Are the label stop sensor guides clean? If not, clean them as described in the next section **“Maintaining the Printer.”**
- Does the media have preprint information on it that can make detection harder?
- Is there too little contrast between the black marks and the surrounding areas?
- Is the label liner not transparent enough?
- Does the label stop sensor work with another type of media?

## Maintaining the Printer

To ensure high productivity and a long life for your printer, Intermec recommends that you regularly inspect the printer and its environment to make sure that it is operated under optimal conditions. Keep the printer in a dry area, away from large electrical motors, welders, and similar products that might affect printer operation.

Clean your printer regularly to maintain the quality of your labels and extend the life of your printer.



Warning

**If you open the electronics cover, you will void the warranty and may cause damage to the internal components. Opening the electrical cover exposes the user to shock hazards which may result in injury or death.**



Warning

**Always turn off the printer and unplug the power cord before cleaning the printer.**

## Cleaning the Printhead

Cleaning the printhead on a regular basis prolongs the life of the printhead and ensures that you maintain high print quality. You should clean the printhead with cleaning cards or a cotton swab moistened with isopropyl alcohol. Ideally, you should clean the printhead every time you load a new supply of thermal transfer ribbon.



**Isopropyl alcohol is a highly flammable, moderately toxic, and mildly irritating substance.**



**Never use hard or sharp tools to peel away stuck labels or other material. The printhead is delicate and can easily be damaged.**

### To clean the printhead

- 1 Open the media cover.
- 2 Remove the media and ribbon.
- 3 Pull out on the printhead lever and turn it counterclockwise to lift the printhead.
- 4 Use a cleaning card or a soft cotton swab moistened with isopropyl alcohol to dissolve any contamination on the line of heat-emitting dots at the front/bottom of the printhead.
- 5 Wait 30 seconds and carefully rub off any contamination.
- 6 Repeat Steps 4 and 5 if necessary.
- 7 Allow the printhead to dry for a minute or more before loading a new supply of media and ribbon.

## Cleaning the Media Compartment

Regular cleaning of the printer's media compartment ensures smoother printing operation and avoids problems with media jams.

Use a soft cloth moistened with isopropyl alcohol to clean the inside of the printer.



**Isopropyl alcohol is a highly flammable, moderately toxic, and mildly irritating substance.**

Be sure to keep the following parts clean:

- Drive roller and tear bar
- Media edge guides and media path
- Label sensors

If there are stuck labels, or adhesive residue from labels, peel as much as possible with your fingers, and then use isopropyl alcohol to dissolve the remaining adhesive.

### Cleaning the Exterior of the Printer

Make sure to keep the exterior of the printer clean, this will reduce the risk of dust or foreign particles reaching the inside of the printer and affect printer functionality.

Use a soft cloth, possibly moistened with water or a mild detergent when cleaning the printer externally. Make sure to keep the surface surrounding the printer clean as well.



**If you use the printer in an environment where the premises are cleaned by a water hose or steam, move the printer to another room or cover it very carefully with a plastic sheet and make sure that the power cord is unplugged.**

# A

## Specifications

This appendix contains specifications for the printer and media. It also contains information on the accessories for the printers.

# **Printer Specifications**

## **Physical Specifications**

Dimensions: 453 x 273 x 270 mm (17.8 x 10.8 x 10.6 in)

Weight: 13 kg (28.7 lbs)

## **Power Specifications**

Printer Voltage: ---100 to 240 V, 2-1 A 50/60 Hz

## **Temperature and Humidity Specifications**

Operating Temperature: 5°C to 40°C (41°F to 104°F)

Storage Temperature: -20°C to 50°C (-4°F to 122°F)

Operating Humidity: 20 to 85% non-condensing

Storage Humidity: 10 to 90% non-condensing

## **Communications and Connectivity**

- Serial port (RS-232)
- USB device
- USB full speed host
- Ethernet, 100 Mbps
- 802.11b/g (optional)
- IEEE 1284 parallel port

## **Memory**

- 8 MB Flash
- 16 MB SDRAM
- CompactFlash (CF) card (optional)
- USB memory device (optional)

## **Miscellaneous**

- ARM 9 microprocessor
- 240 x 160 pixel LCD screen with LED backlight

## Print Speed and Resolution

Specification	Description
Print Mode	Direct Thermal Thermal Transfer
Print Speed (variable)	50.8 to 152.4 mm/sec (2 to 6 in/sec) at 8 dots/mm 203 dpi 50.8 to 101.6 mm/sec (2 to 4 in/sec) at 11.8 dots/mm 300 dpi
Printhead Resolution	8 dots/mm (203 dpi) 11.8 dots/mm (300 dpi)
Print Width (max)	104 mm (4.095 in) 105.7 mm (4.161 in) at 8 dots/mm 300 dpi
Media Width (min/max)	25 to 118 mm (1 to 4.6 in) 114 mm (4.5 in) with cutter
Media Roll Diameter (max)	213 mm (8.4 in) 190 mm (7.5 in) with internal rewinder
Medial Roll Core Diameter	38 to 40 mm (1.5 in) or 76 mm (3 in)
Media Thickness	60 µm to 250 µm (2.3 to 9.8 mils)
Ribbon Width (min/max)	30 to 110 mm (1.18 to 4.33 in)
Ribbon Roll Diameter (outer) (max)	76 mm (2.99 in) 450 m (1475 ft) of ribbon
Ribbon Roll Core Diameter (inner)	25.4 mm (1.00 in)

# Interfaces

This section describes the standard interfaces available on the PD41 and PD42 printers.

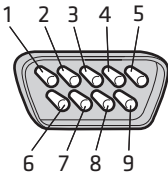
## RS-232 Serial Interface

Use this table to understand the default settings of the serial port.

### Default Settings of the Serial Port

Parameter	Default Setting
Baud rate	9600
Character Length or Data Bits	8
Parity	None
Stop Bits	1
Handshaking	none (Fingerprint XON/XOFF (IPL))

The printer end of the serial cable is a DB9 pin and the PC end is dependent on the model of the PC.



### RS-232 Serial Cable DB9 Pins

#### Serial Cable Pins and Description

Pin	Signal	Description
1		External +5 V DC, Max 500 mA
2	TXD	Transmit data
3	RXD	Receive data
4		
5	GND	Ground
6		



**Serial Cable Pins and Description (continued)**

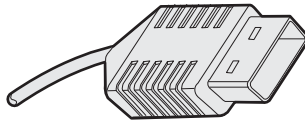
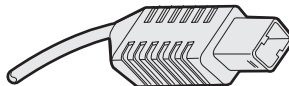
Pin	Signal	Description
7	CTS	Clear to send
8	RTS	Request to send
9		

**USB Interface**

The printer supports USB full speed v2.0 Host. To use the USB interface to print from a PC, you need to have the Intermec InterDriver printer driver installed on your PC. For help setting up USB communications, see **“Connecting the Printer to a PC Through the USB Device Port” on page 22.**

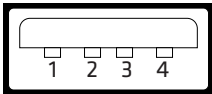
The printer is a “self-powered device.” Intermec recommends that you only connect one printer to each USB port on the PC, either directly or through a hub. You can connect other devices, such as a keyboard or a mouse, to the same hub. If you need more than one USG printer to a host, you should use different USB ports.

The USB cable that ships with the printer has a USB Type A connector on one end to connect to the PC and a USB Type B connector on the other end to connect to the printer. You do not need to configure communications for the USB port.

**USB Type A Connector****USB Type B Connector**

# USB Host Interface

The printer has a USB host interface for connecting USB devices such as HID bar code scanners and keyboards, USB storage devices, and USB hubs.



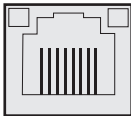
**USB Host Interface**

## USB Host Interface Pins and Descriptions

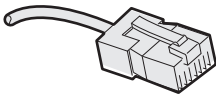
Pin	Description
1	VBUS
2	D-
3	D+
4	Gnd

# Ethernet Interface

The Ethernet interface has an RJ-45 socket for use with a standard RJ-45 cable. The interface supports 10/100 Mbps Fast Ethernet (10BASE-T, 100BASE-TX) and is fully compliant with the IEEE 802.3u standard. The network card MAC address can be found on the label below the socket.



**Ethernet Socket**



**Ethernet Connector**

One yellow and one green LED indicate the network status.

***Understanding the Ethernet LEDs***

LED	Status	Description
Green	On	Link
	Off	No link
	Blinking	Network activity
Yellow	On	100BASE-TX
	Off	10BASE-T

## Parallel IEEE 1284 Interface

The parallel port supports Universal Plug and Play (UPnP) and additional status reporting through IEEE 1284 nibble ID mode.

***Parallel IEEE 1284 Pins and Descriptions***

Pin	Description	Transmitter	Comments
1	nStrobe	Host	
2 to 9	Data 0-7	Host	
10	nAcknowledge	Printer	
11	Busy	Printer	
12	Perror	Printer	
13	Select	Printer	
14	nAutoFd		
15 to 16	Not connected		
17	Chassis ground		
18	External +5 V DC		Max 500 mA
19 to 30	Signal ground		
31	nInit		
32	nFault	Printer	
33	Signal ground		
34 to 35	Not connected		
36	nSelectIn		

# Media Specifications

## Core and Roll Specifications

Measurement	Value
Core inside diameter, standard	38 to 40 mm (1.5 in)
Core inside diameter, with adapter	76.2 mm (3 in)
Core width	must not protrude outside the media
Maximum roll outside diameter	213 mm (8.38 in)
Minimum media width, standard	25 mm (1.00 in)
Minimum media width, fanfold guides	40 mm (1.57 in)
Minimum media width, non-adhesive strip	25.0 mm (1.00 in)
Maximum media width, non-adhesive strip	118 mm (4.65 in)
Minimum media width, self-adhesive strip, with liner	25.0 mm (1.00 in)
Maximum media width, self-adhesive strip, with liner	118 mm (4.65 in)
Minimum media width, self-adhesive strip, without liner	23.8 mm (0.94 in)
Maximum media width, self-adhesive strip, without liner	116.4 mm (4.58 in)

## Non-Adhesive Strip

### Media Width (a)

Measurement	Value
Maximum	118 mm (4.65 in)
Minimum	25.0 mm (1.00 in)

### Media Type

Set media type to one of these values:

- Fingerprint:
  - FIX LENGTH STRIP
  - VAR LENGTH STRIP
- IPL: CONTINUOUS

- ESim: CONTINUOUS



**Non-Adhesive Strip**

### Self-Adhesive Strip

#### Media Width Including Liner (a)

Measurement	Value
Maximum	118 mm (4.65 in)
Minimum	25.0 mm (1.00 in)

#### Liner (b)

The liner must not extend more than a total of 1.6 mm (0.06 in) outside the face material and should protrude equally on both sides.

#### Media Width Excluding Liner (c)

Measurement	Value
Maximum	116.4 mm (4.58 in)
Minimum	23.8 mm (0.94 in)

## Appendix A – Specifications

### Media Type

Set media type to one of these values:

- Fingerprint:
  - FIX LENGTH STRIP
  - VAR LENGTH STRIP
- IPL: CONTINUOUS
- ESim: CONTINUOUS



**Self-Adhesive Strip**

## Self-Adhesive Labels

### Media Width Including Liner (a)

Measurement	Value
Maximum	118 mm (4.65 in)
Minimum	25.0 mm (1.00 in)

### Liner (b)

The backing paper must not extend more than a total of 1.6 mm (0.06 in) outside the labels and should protrude equally on both sides.

### Label Width Excluding Liner (c)

Measurement	Value
Maximum	116.4 mm (4.58 in)
Minimum	23.8 mm (0.94 in)

### Label Length (d)

Measurement	Fingerprint	IPL	ESim
8 dots/mm (203 dpi)			
Maximum	1270 mm (50 in)*	600 mm (23 in)	600 mm (23 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)
11.81 dots/mm (300 dpi)			
Maximum	558.8 mm (22 in)*	406.4 mm (16 in)	406.4 mm (16 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)

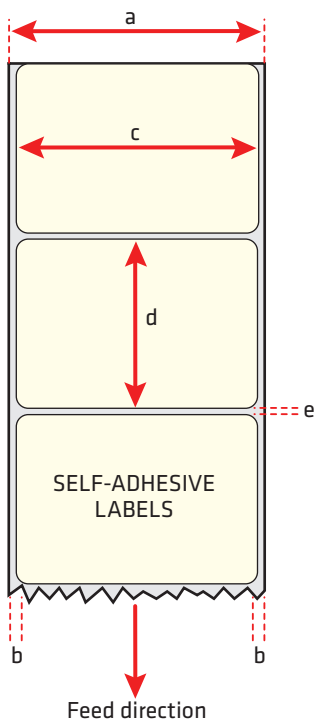
\* The print length is limited by memory constraints

### Label Gap (e)

Measurement	Value
Maximum	26.0 mm (1.02 in)
Recommended	3.0 mm (0.12 in)
Minimum	1.2 mm (0.05 in)

## Appendix A – Specifications

The Label Stop Sensor (LSS) must be able to detect the extreme front edges of the labels. You can move the sensor 0 to 57 mm (0 to 2.24 in) from the inner edge of the media.



### ***Self-Adhesive Labels***

**Media Type**

Set media type to one of these values:

- Fingerprint: LABEL (w GAPS)
- IPL: GAP
- ESim: GAP/NOTCH



## Tickets With Gaps (Gap Stock)

### Media Width (a)

Measurement	Value
Maximum	114.3 mm (4.50 in)
Minimum	25.0 mm (1.00 in)

### Copy Length (b)

Measurement	Fingerprint	IPL	ESim
8 dots/mm (203 dpi)			
Maximum	1270 mm (50 in)*	600 mm (23 in)	600 mm (23 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)
11.81 dots/mm (300 dpi)			
Maximum	558.8 mm (22 in)*	406.4 mm (16 in)	406.4 mm (16 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)

\* The print length is limited by memory constraints

### LSS Detection Position (c)

Variable from 0 to 57 mm (0 to 2.24 in).

### Detection Slit Length (d)

The length of the detection slit (excluding corner radii) must be a minimum of 2.5 mm (0.10 in) on either side of the LSS detection position (c).

### Detection Slit Height (e)

Measurement	Value
Maximum	26.0 mm (1.02 in)
Recommended	3.0 mm (0.12 in)
Minimum	1.2 mm (0.05 in)

## Appendix A – Specifications

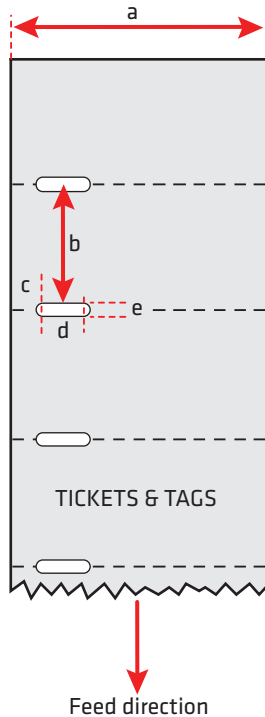
### Media Type

Set media type to one of these values:

- Fingerprint: TICKET (w GAPS)
- IPL: MARK
- ESim: MARK



**Note:** Do not allow a perforation to break the edge of the media, because the media may split and jam the printer.



***Tickets With Gaps (Gap Stock)***

## Tickets With Black Mark (Mark Stock)

### Media Width (a)

Measurement	Value
Maximum	118 mm (4.65 in)
Minimum	25.0 mm (1.00 in)

### Copy Length (b)

Measurement	Fingerprint	IPL	ESim
8 dots/mm (203 dpi)			
Maximum	1270 mm (50 in)*	600 mm (23 in)	600 mm (23 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)
11.81 dots/mm (300 dpi)			
Maximum	558.8 mm (22 in)*	406.4 mm (16 in)	406.4 mm (16 in)
Minimum	6.0 mm (0.2 in)	6.0 mm (0.2 in)	6.0 mm (0.2 in)

\* The print length is limited by memory constraints

### LSS Detection Position (c)

Variable from 0 to 57 mm (0 to 2.24 in).

### Black Mark Width (d)

The detectable width of the black mark should be at least 5.0 mm (0.2 in) on either side of the LSS detection point.

### Black Mark Length (e)

Measurement	Value
Maximum	25.0 mm (0.98 in)
Common	5.0 mm (0.2 in)
Minimum	3.0 mm (0.12 in)

### Black Mark Y-Position (f)

Intermec recommends that you place the black mark as close to the front edge of the ticket as possible and use a negative Stop Adjust value to control the media feed, so the tickets can be properly torn off.

### Media Type

Set media type to one of these values:

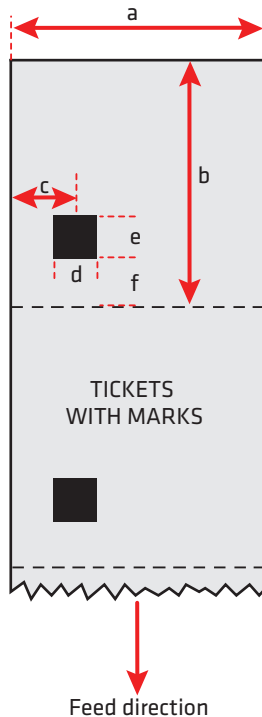
- Fingerprint: TICKET (w MARK)
- IPL: MARK
- ESim: MARK



**Note:** The black mark should be non-reflective carbon black on a whitish background. Do not allow a perforation to break the edge of the media, because the media may split and jam the printer.



**Note:** Try to avoid preprint that may interfere with the detection of the black mark. However, if you are running Fingerprint, you can use the command LBLCOND to temporarily disable the sensor for a specified amount of media feed to avoid unintentional detection. For help, see the [\*Intermec Fingerprint Command Reference Manual\*](#).



***Tickets With Black Mark (Mark Stock)***

# Accessories for the Printer

You can use these accessories (sold and ordered separately) with the PD41 and PD42 printer. To order accessories, contact your local Intermec sales representative.

## Internal Rewinder

Use this accessory, which comes with a guide shaft, for peel-off (self-strip) printing. You can also use the rewinder to roll up complete batches of labels.

## Paper Cutter

Use this accessory to cut off continuous paper-based stock or liner between labels. You can collect the cut-off labels, tickets, or tags in an optional tray.

If you are running Fingerprint or Direct Protocol, you can control the paper cutter using the commands CUT, CUT ON, and CUT OFF. For help, see the *Intermec Fingerprint Command Reference Manual*.

## Real Time Clock

The Real Time Clock (RTC) automatically keeps track of the current time. The RTC has its own backup battery backup that lasts for at least 10 years.

## Font Card

The font card is a CompactFlash memory card loaded with double-byte font sets including Kanji, Korean, Simplified Chinese and Traditional Chinese.

## Parallel IEEE 1284 Interface Board

The parallel IEEE 1284 interface board supports Universal Plug and Play (UPnP) and additional status reporting through IEEE 1284 nibble ID mode. You can use the parallel board with LabelShop or InterDriver.

## Wireless 802.11 Kit

The wireless 802.11 kit enables your printer to communicate wirelessly with your network.



# B

## Default Settings

# Default Configuration

Use this appendix to view the default settings on the printer. If you need to restore factory defaults at any time, you can use PrintSet or the printer home page to reset the printer.

## To reset the printer to factory defaults using Printset

- Use the Factory Default Wizard in the Printer Tasks box.

## To reset the printer to factory defaults using the home page

- 1 From the home page, click **Printer** > **Web Shell**.
- 2 Click **Default Setup**.
- 3 When prompted, click **OK**. The printer defaults are restored.
- 4 Reboot the printer.

The following tables list the default values of the configuration commands supported on the PD41 and PD42 printers. If you restore the printer to factory default settings, these are the values it uses.

The commands are grouped by function and reflect the organization of the IPL and Fingerprint setup menus. For detailed information on most of the commands, see the *Intermec Fingerprint Command Reference Manual* or the *IPL Command Reference Manual*.

## IPL Default Configuration

### *Ser-Com Parameters*

Parameter	Default Value
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Protocol	XON/XOFF



### **COM Parameters**

Parameter	Default Value
Interface	USB Device
USB keyboard	US

### **Network Parameters**

Parameter	Default Value
IP selection	DHCP+BOOTP
IP address	N/A
Netmask	N/A
Default router	N/A
IPv6 selection	Auto
IPv6 address	N/A
Nameserver	N/A
Nameserver6	N/A
DHCP response	Broadcast
MAC address	N/A
Network type	Ethernet

### **Test/Service Parameters**

Parameter	Default Value
Testprint Config Test labels Format Page UDC Font	N/A
Data dump	No
Memory reset	All
LSS test	LSS Auto
Cmd language	N/A

**Media Parameters**

Parameter	Default Value
Media type	Gap
Paper type	DT (Direct Thermal)
LBL length dots	1200 dots
Testfeed mode	Fast
Sensitivity	420
Darkness	0
LBL rest point	0
Form adj dots X	+0
Form adj dots Y	+0

**Configuration Parameters**

Parameter	Default Value
Emulation mode	None
Print speed	5 in/sec
Cutter	Not installed

**Fingerprint Default Configuration****Ser-Com “uart1:” Parameters**

Parameter	Default Value
Baud rate	9600
Character length	8
Parity	None
Stop bits	1
Flow control	
RTS/CTS	Disable
ENQ/ACK	Disable
XON/XOFF; data to host	Disable
XON/XOFF; data from host	Disable
New line	CR/LF
Receive buffer	1024 bytes

***Ser-Com “uart1:” Parameters (continued)***

Parameter	Default Value
Transmit buffer	1024 bytes

***Net-Com “net1:” Parameters***

Parameter	Default Value
New line	CR/LF

***COM Parameters***

Parameter	Default Value
Interface	USB Device
USB keyboard	US

***Network Parameters***

Parameter	Default Value
IP selection	DHCP+BOOTP
IP address	N/A
Netmask	N/A
Default router	N/A
IPv6 selection	Auto
IPv6 address	N/A
Nameserver	N/A
Nameserver6	N/A
DHCP response	Broadcast
MAC address	N/A
Network type	Ethernet

***Emulation Parameters***

Parameter	Default Value
Mode	Disabled
Adjust	
Base (mmX10)	+88
Stop (mmX10)	+55

***Feedadjust Parameters***

Parameter	Default Value
Startadjust	0
Stopadjust	0

***Media Parameters***

Parameter	Default Value
Xstart	0
Width	832 dots (203 dpi)
Length	1200 dots (203 dpi)
Media type	Label (with gaps)
Paper type	Thermal transfer
Contrastt	+0%
Testfeed	<no value>
Testfeed mode	Fast
Len (slow mode)	0

***Print Defs Parameters***

Parameter	Default Value
Testprint	N/A
Print speed	100 mm/sec
LSS test	LSS Auto
Clip default	Off
Cmd language	N/A

## ESim Default Configuration

### ***Serial-Com Parameters***

Parameter	Default Value
Baud rate	9600
Character length	8
Parity	None
Stop bits	1
Host handshake	XON/XOFF

### ***Net-Com “net1:” Parameters***

Parameter	Default Value
New line	CR/LF

### ***COM Parameters***

Parameter	Default Value
Interface	USB Device
USB keyboard	US

### ***Network Parameters***

Parameter	Default Value
IP selection	DHCP+BOOTP
IP address	N/A
Netmask	N/A
Default router	N/A
IPv6 selection	Auto
IPv6 address	N/A
Nameserver	N/A
Nameserver6	N/A
DHCP response	Broadcast
MAC address	N/A

**Network Parameters (continued)**

Parameter	Default Value
Network type	Ethernet

**Feedadjust Parameters**

Parameter	Default Value
Top form backup	Enable
Tear bar offset	106

**Media Parameters**

Parameter	Default Value
Print method	Thermal transfer
Density	10
Media type	Continuous
Media size	
Width:	832 (203 dpi)
Length:	1200 (203 dpi)
Point	
Type:	Global Ref (R)
X:	0
Y:	0
Testfeed	<no value>
Power up	No motion
Head close	No motion

**Print Defs Parameters**

Parameter	Default Value
Print speed	3
Print direction	ZT
Sensor	LTS disable
Cutter	Off
Cut position	100
Comman language	ESim

***Print Defs Parameters (continued)***

Parameter	Default Value
Testprint	Hardware Info

***Charset Paramters***

Parameter	Default Value
Charset	Bits

***Date Time Paramters***

Parameter	Default Value
Date Time	
Hour:	Current hour
Minute:	Current minute
Seconds	Current second
Year	Current year
Month	Current month
Day	Current day





# C

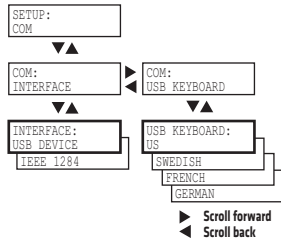
## Fingerprint, IPL, and ESim Setup Menus

The setup parameters of the printer control the way the printer operates. This chapter provides an overview of the menu structure you can use to configure setup parameters on the PD42 printer. To change the setup parameters on the PD41, see **“Configuring the Printer” on page 40**.

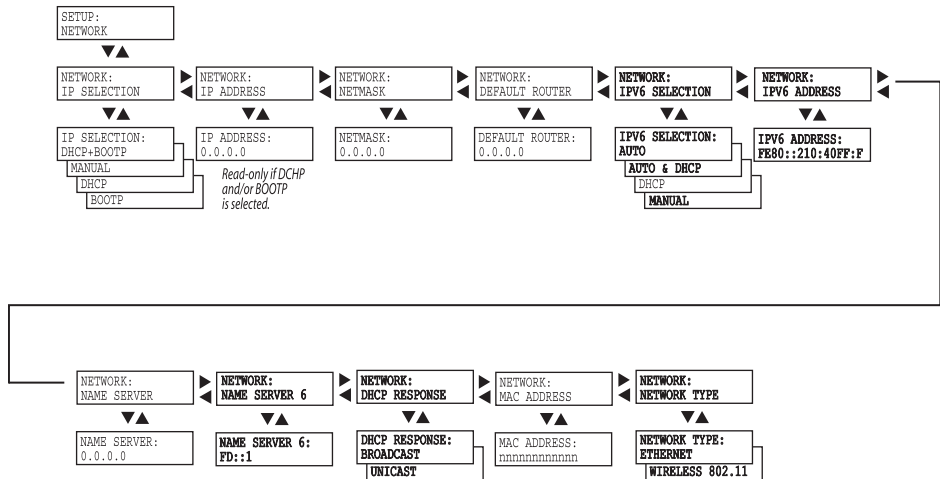
## Fingerprint Ser-Com, UART1 Menu



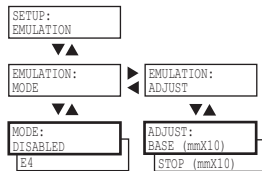
## Fingerprint Com Menu



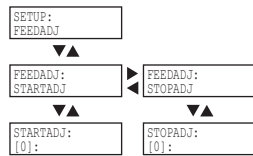
## Fingerprint Network Menu



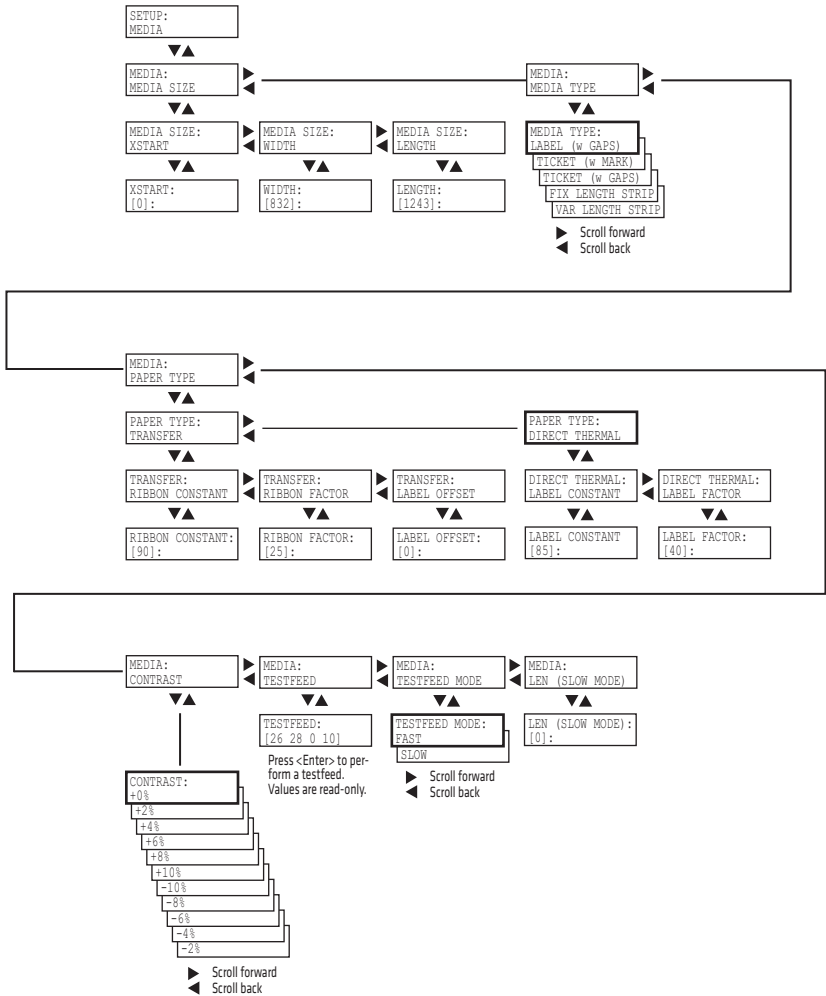
## Fingerprint Emulation Menu



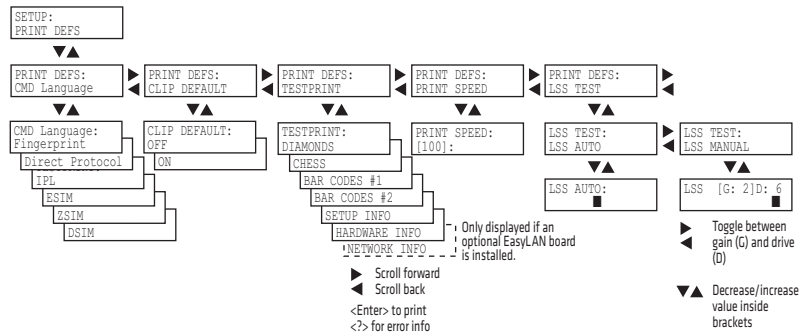
# Fingerprint Feedadjust Menu



# Fingerprint Media Menu



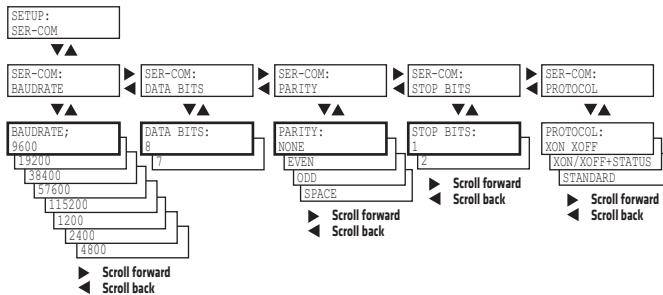
## Fingerprint Print Defs Menu



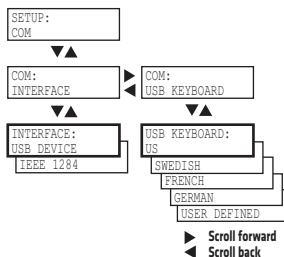
## IPL Setup Menus

Use this section to learn about the IPL setup menus and options.

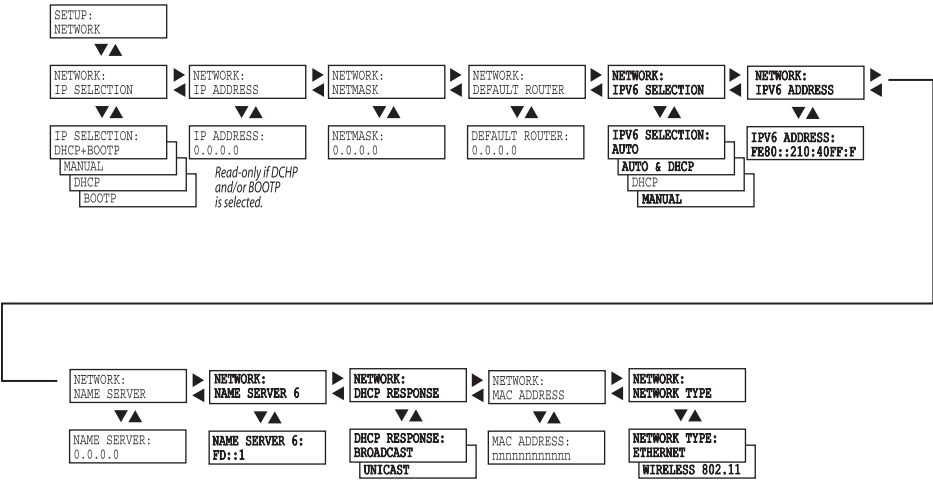
### IPL Ser-Com Menu



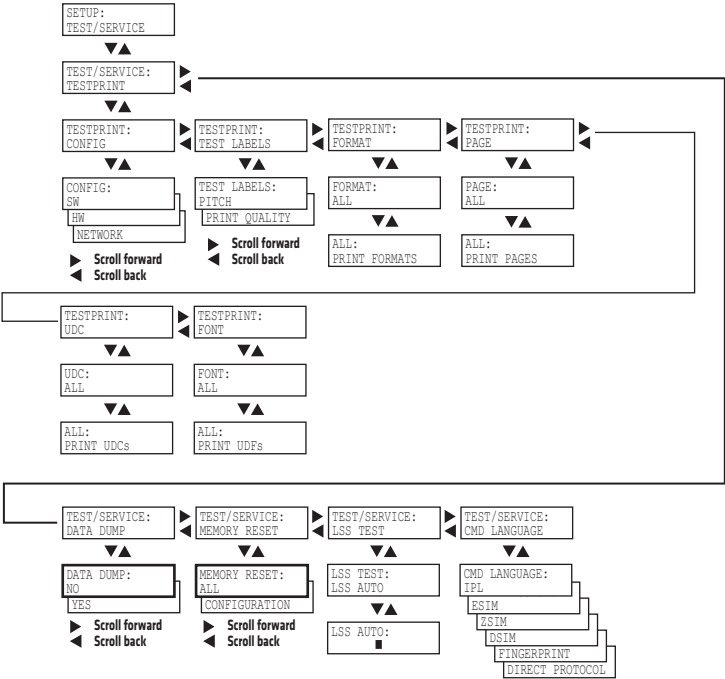
### IPL COM Menu



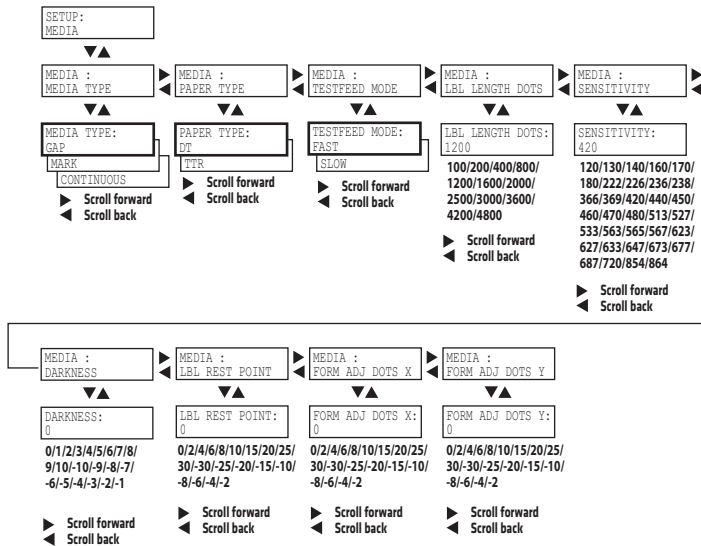
# IPL Network Menu



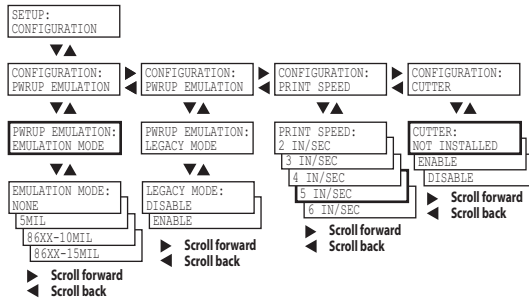
# IPL Test/Service Menu



## IPL Media Menu



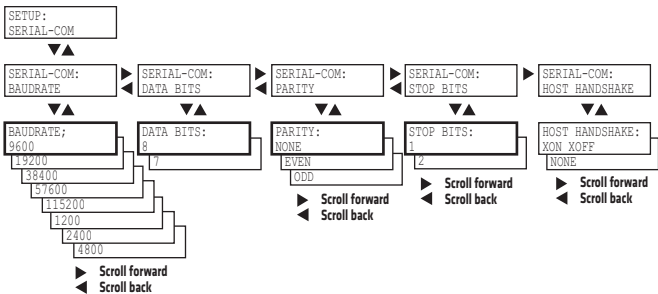
## IPL Configuration Menu



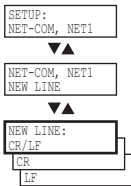
# ESim Setup Menus

Use this section to learn about the ESim setup menus and options.

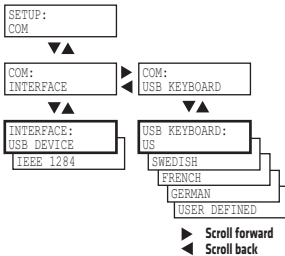
## ESim Serial-Com Menu



## ESim Net-Com, NET1 Menu

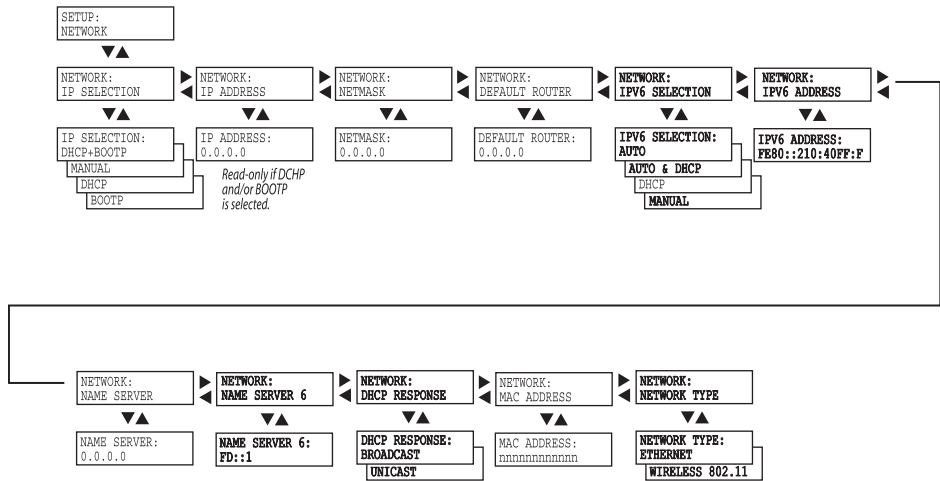


## ESim Com Menu

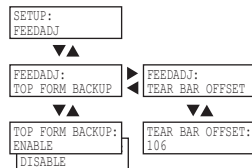




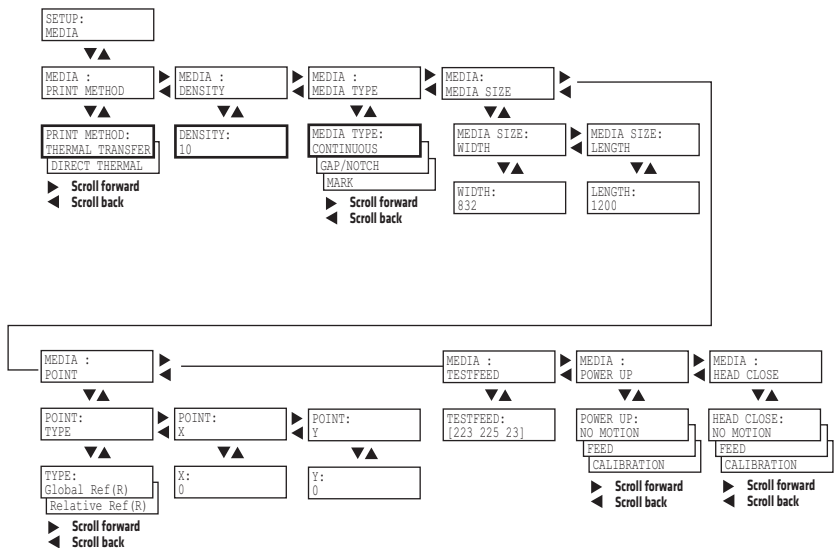
## ESim Network Menu



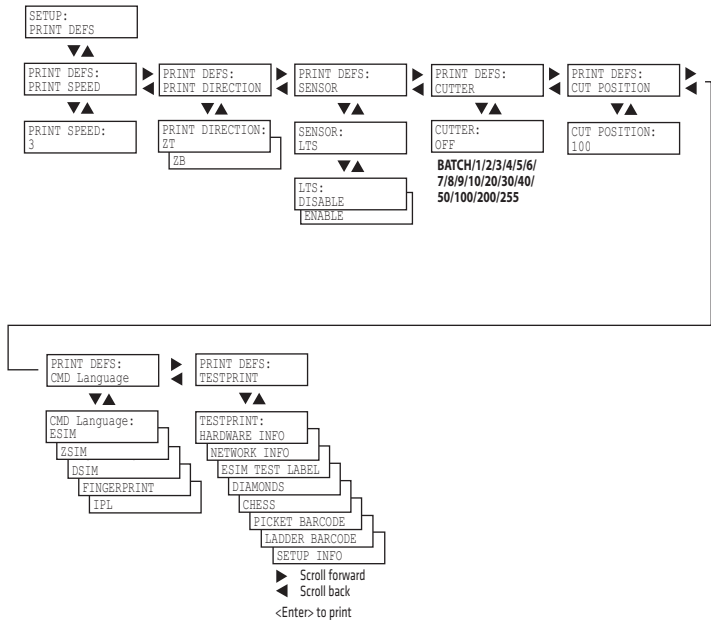
## ESim Feedadjust Menu



# ESim Media Menu



# ESim Print Defs Menu



## ESim Charset Menu

SETUP: CHARSET
▼▲
CHARSET: BITS
CODE PAGE

## ESim Date Time Menu

SETUP: DATE TIME										
▼▲										
DATE TIME: HOUR	▶	DATE TIME: MINUTE	▶	DATE TIME: SECONDS	▶	DATE TIME: YEAR	▶	DATE TIME: MONTH	▶	DATE TIME: DAY
▼▲		▼▲		▼▲		▼▲		▼▲		▼▲
8		12		45		2009		AUG		27



# D

## Advanced Configuration

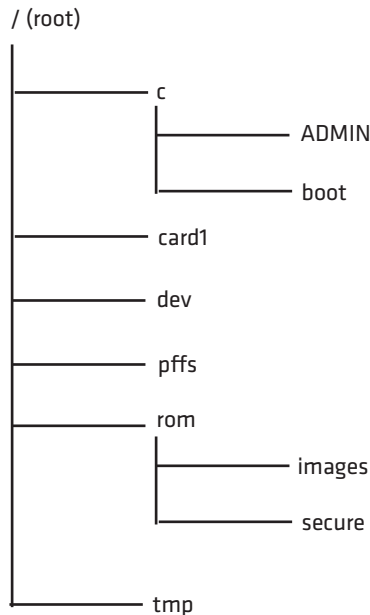
This appendix contains information on the printer file system and how to modify the appearance of the printer web page.

# Printer File System (Fingerprint)

As you access the printer for communications, you will encounter different parts of the printer file system. The following sections contain a device tree structure and brief descriptions of the different devices and directories of the file system.

## Device Tree Structure

This illustration shows the device tree structure of the printer.



## Devices and Directories

The file system of the printer is case-sensitive. This fact is important because filenames in Fingerprint commands are translated into capital letters by default. Directories or files with lowercase names will be inaccessible for Fingerprint commands and programs.

Depending on how you choose to navigate the file system on the printer, you will need to use different commands.

- If you are accessing the printer through an FTP client or a web browser, you can easily navigate through the different devices and directories. Lowercase letters are not an issue for FTP or a web browser.
- If you are accessing the printer through raw TCP (“net1:”), you use Fingerprint to communicate with the printer. Since Fingerprint commands are translated into uppercase letters, you are restricted from accessing devices and directories with lowercase names. For more information on using Fingerprint, refer to the *Fingerprint Command Reference Manual*.

### **/(root)**

The root node is write protected to preserve the device and file structure of the printer.

### **/c (or c:)**

/c or c: is the user file system. You can create directories here to store files such as programs, fonts, and images.

### **/c/ADMIN (or c:ADMIN)**

This directory is only accessible for the admin user. It contains start order, Fingerprint restrictions, and other configuration parameters only configurable for an admin.

### **/c/boot (or c:boot)**

This directory contains the firmware, password file, and other system information.

### **/card1 (or card1:)**

This directory is the Compact Flash file system used to store large fonts, images and so on. You can also use this device to upgrade the firmware of the printer.

### **/dev**

This directory is where devices used for input/output, such as uart1, Flash, net1, parallel IEEE 1284, and so on are located.

### **/pffs (or pffs:)**

The power fail file system is used to store files that need to be saved at power down. Files stored on this unit cannot exceed the size of 256 bytes each, and the total size of the “pffs” unit is 32 KB.

### **/rom (or rom:)**

This device is used to store a collection of files that are available as default in the printer, for example the default web pages, fonts, and images.

### **/rom/images (or rom:images)**

This directory is used to store images used for the default web pages.

### **/rom/secure (or rom:secure)**

This directory is used to store the password protected web pages.

### **/tmp (or tmp:)**

This is the printer's temporary read/write memory. It will lose its content when the power is turned off or at a power failure. **Do not** use "tmp:" to store valuable data. One advantage of using "tmp:" instead of "/c" to temporarily store data is that data can be written to SDRAM faster than to the flash memory.

## Customizing the Printer Home Page

The easiest way to modify the appearance of the printer web page is to create an HTML file called "INDEX.HTM" on the device "/c" with custom designed logo and colors. From this file it is quite easy to link to the configuration pages of the printer. The web server generates these web pages with dynamic information on the fly. This process makes the real-time generated pages of the printer appear in the Intermec style. The colors and logo of the customer will be ignored.

## Web Style Guide Files

The printer network cards are prepared for customization of the default web pages in a more permanent way by changing the configuration of the engine that generates the pages. While generating the pages, the web server accesses configuration parameters, like the background color, the name of logos to display on the page and generates the HTML code. Default configuration of these parameters makes the printer's web page appear in the Intermec style, with corporate colors and logos. When changing the parameters, the web pages are permanently customized.



Customization of these parameters has to be done in specific files called “*Web Style Guide Files*”, assigning user-defined values to several support environment variables.

Web style guide files contain parameters to set web page content and layout. These files can be stored either on /c or pffs:

In the file system, /c has priority over pffs:, which implies that if there is a web style guide on /c (for example /c/webstyleguide.0), the printer will not look for pffs:webstyleguide.1. We suggest that web style guides are stored on pffs: to minimize the risk that they are accidentally removed.

## Content of a Web Style Guide File

A Web Style Guide file has to contain a set of mandatory environment variables and it can also contain optional variables. All variables have to be lowercase, followed by a “=” sign and a consistent value. There is no specific order of the variables.

### Required Environment Variables

Use the reference table below to understand all of the required environment variables.

#### *Understanding Required Environment Variables*

Variable	Description
bgco	Background color, BGCOLOR attribute of BODY tag.
coli	Copyright link, link to html file showing Copyright notes.
cona	Company name.
loat	Logotype attributes, contains all attributes for the IMG-tag to replace the Intermec logo.
trna	Trade name.

### Optional Environment Variables

The optional environment variables are used to specify extra parameters; for instance, these variables permit to change the printer’s model name. The web server only recognizes the following model names:

- PD41

- PD42

The web server checks the available hardware and then displays the correct model name in the web page. If the page has to show a different name of the printer, the web style guide file has to contain the optional variable printer=your name.

**Optional Variables Reference Table**

Variable	Description	Comments
alco	Active link color, ALINK attribute of BODY tag.	
BGLI	Background image link, BACKGROUND attribute of BODY tag.	
heon	Help on, enables a help link on the page.	If this parameter is in the webstyle guide file, the variables “heli” and “hena” must have a value.
heli	Help link, link associated to the Help tag.	
hena	Help link name, the label to be shown on the web page.	
lico	Link color, LINK attribute of BODY tag.	
suon	Support link on, enables a support link on the page.	If this parameter is in the webstyle guide file, then the variables “suli” and “suna” must have a value.
suli	Support link, this is the link associated with the support tag.	
suna	Support link name, this is the label to be shown on the web page.	
teco	Text color, TEXT attribute of the BODY tag.	
vlco	Visited link color.	

## **x-www-url-Encoding Syntax Rules**

The value given to environment variables has to be specified respecting the x-www-url-encoding syntax rules. According to the syntax rules, characters can be inserted using the notation %<ASCII Hex>. For example, space in the ASCII table has the Hex number 20 so it corresponds to %20. For example, “Intermec Technologies Corporation” corresponds to “Intermec%20Technologies%20Corporation” (it can also be written “Intermec+Technologies+Corporation”).

Colors are specified according to the RGB syntax: %23cdcdcd corresponds to #cdcdcd.

Any quotation marks (%22) must be preceded by a back slash (\).

The file must contain only one line, where the different variables and valuers are separated by ampersand (&) characters.

## **Memory and Storage**

Web Style Guide files are designed to be placed on the printer's pffs, as mentioned. Due to the memory limits of the pffs the environment variables have very short name (4 bytes), which may make them less user friendly to use, but this allows more space to be used for the value of the variable.

There is also a size limit per file that is set to 256 bytes. In case the Web Style Guide File you want to create is bigger than 256 bytes, the content has to be split in more than one file.

The parser daemon will start looking for the first Web Style Guide File which has to be named “webstyleguide.0”, then it will try to read the next file called “webstyleguide.1” and so on.

## **Creating a Web Style Guide File**

You can create Web Style Guide Files with a standard text editor and then transfer them to the printer. Follow these rules when creating a Web Style Guide File:

- The name has to be lowercase.
- The first file has to have extension “.0”. The following files have to have sequential extension number if one number is missing in the sequence the parser will stop reading the files.

## **Appendix D – Advanced Configuration**

- The split point between one web style guide and the other cannot be in the middle of a line. The last line of the file has to be consistent in the syntax and the first line of the following web style guide file has to be a new line.
- If variables are specified more than one time, the last value is the one assumed.

Intermec recommends that you use the FTP server to transfer the files.

Example (the default Web Style Guide):

```
bgco=%23ffffff&loat=src%3d\%22/rom/images/  
itclogo1.gif\%22+align%3dbottom+alt%3d\%22Intermec_  
Technologies_Corporation\ %22+border%3d0  
&cona=Intermec+Technologies+Corporation&coli=copyrigh  
t.htmf&suli=support.htmf&suna=Support&suon=t&trna=Eas  
yCoder
```



# Index

**Numerics**

- 802.11
  - choosing as network type 58
  - choosing network type from web page 52
  - security, setting from web page 53
  - wireless kit accessory 107
- 802.11 radio communications, setting up 27
- 802.1x
  - configuring from web page 54
  - web page setting descriptions 55

**A**

- accessories, printer 107
- advanced configuration 131
- alerts
  - configuring from web page 45
  - web page setting descriptions 46
- authentication modes, supported 27
- Automatic Provision (PAC), turning on or off 55
- Avalanche
  - configuring from web page 52
  - web page setting descriptions 53

**B**

- back view of printer 3
- balance, adjusting printhead 79
- bar code scanner, connecting to printer 37
- batch takeup, loading media 13
- black mark sensor, adjusting 85

**C**

- Charset menu, ESim 129
- cleaning
  - media compartment 89
  - printhead 89
- clearing media jams 78
- Com menu
  - ESim 126
  - Fingerprint 121
- Com menu, IPL 123
- command language
  - changing from web page 44
  - selecting 3
- communication settings, configuring 43
- communications

- page 43
- ports and options 92
- setting up 802.11 radio 27
- setting up Ethernet 24
- troubleshooting problems 72
- configuration
  - advanced 131
  - menu, IPL 125
  - settings, changing 40
- contact Product Support 66
- core and roll, media specifications 98
- creating labels 20
- cutter
  - not found, error message 68
  - not responding, error message 69
  - troubleshooting 70

**D**

- Date Time menu, ESim 129
- default configuration
  - ESim 115
  - Fingerprint 112
  - IPL 110
- default configuration settings 110
- default serial port settings 23
- default settings
  - viewing and changing with web page 44
- device tree structure 132
- DHCP, default setting 24
- directories, printer 132
- dot line, adjusting printhead 82
- DSim, language description 4
- Dump mode
  - accessing from PD42 Setup menu 73
  - accessing through Test mode or Extended Test mode 73
  - entering in Extended Testmode 76
  - entering through Test mode and Extended Testmode 74
  - using Line Analyzer 72

**E**

- EAP Type, choosing 802.1x with web page 55
- Emulation menu, Fingerprint 121
- enter Dump mode 74

- Error LED
  - illustration and description 6
- Error LED, troubleshooting 69
- error message, understanding
  - PD42 67
- ESim
  - Charset menu 129
  - Com menu 126
  - Date Time menu 129
  - default configuration 115
  - Feedadjust menu 127
  - language description 4
  - Media menu 128
  - Net-Com, NET1 menu 126
  - Network menu 127
  - PD42 Setup menu illustration 42
  - Print Defs menu 128
  - Serial-Com menu 126
- Ethernet
  - choosing as network type 58
  - choosing network type from web page 52
  - interface description 96
  - LEDs, understanding 97
  - setting up communications 24
  - troubleshooting connection 69
- Extended Testmode
  - function descriptions 76
  - using 75
- Extended testmode
  - using to troubleshoot 74
- F**
  - factory defaults
    - resetting 110
    - restoring in Extended Testmode 76
  - settings 110
- Feed,soft key 8
- Feedadjust menu
  - ESim 127
  - Fingerprint 122
- field out of label, error message 68
- file system, Fingerprint printer 132
- Fingerprint
  - Com menu 121
  - configuring wireless security 32
  - default configuration 112
  - Emulation menu 121
  - Feedadjust menu 122
  - language description 4
  - Line Analyzer program 72
  - Media menu 122
  - Net-Com, NET1 menu 120
  - Network menu 121
  - PD42 Setup menu illustration 41
  - Print Defs menu 123
  - Ser-Com, UART1 menu 120
  - using commands to upgrade firmware 61
  - using to configure network type 59
  - using to configure printer 57
  - using to serially configure IP settings 26
- firmware
  - downloading updates 59
  - upgrading 59
  - upgrading with printer commands 61
  - upgrading with PrintSet 60
  - upgrading with web page 61
- font card accessory 107
- front panel, understanding 5
- front view of printer 2
- G**
  - General network web page
    - configuring settings 47
    - understanding settings 47
- H**
  - home page
    - customizing printer 134
    - illustration 25
    - printer login and password 25
  - humidity specifications 92
- Hyperterminal
  - turning on typing with IPL 57
  - using to send configuration commands 57
  - using to set up wireless communications 28
- I**
  - IEEE 1284
    - interface board accessory 107
    - interface, pins and descriptions 97
  - IEEE 1284 port, using to connect printer to PC 23

- Information mode
  - soft key 8
  - using to find IP address 24
- inner authentication, choosing 802.1x with web page 55
- InterDriver software, how to download 22
- interface
  - Ethernet 96
  - IEEE 1284 97
  - serial 94
  - standard 94
  - USB 95
  - USB host 96
- internal rewinder accessory 107
- IP address
  - configuring manually 25
  - retrieving with DHCP 24
- IP configuration error, error message 68
- IP link error, error message 67
- IP settings
  - configuring serially using Fingerprint 26
  - configuring serially using IPL 26
- IPL
  - Com menu 123
  - Configuration menu 125
  - configuring wireless security 29
  - default configuration 110
  - language description 4
  - Media menu 125
  - Network menu 124
  - PD42 Setup menu illustration 41
  - Ser-Com menu 123
  - Test/Service menu 124
  - using commands to upgrade firmware 61
  - using to configure network type 59
  - using to configure printer 57
  - using to serially configure IP settings 26
- IPv4 settings, web page description 51
- IPv6 settings, web page descriptions 51
- K**
  - keyboard
    - changing layout 37
    - configuring layout from web page 43
    - connecting to the printer 36
- Knowledge Central, web site 66
- L**
  - label
    - creating and printing 20
    - gap sensor, adjusting 85
    - not found, error message 68
    - not taken, error message 67
    - printing test 19
    - stop sensor, adjusting 85
    - stop sensor, testing in Setup mode 86
  - LabelShop software, downloading 20
  - LCD screen, 240x160 pixel 92
  - LEDs
    - illustration 6
    - understanding 6
  - Line Analyzer, using Fingerprint 72
  - loading
    - media 11
      - peel-off printing 12
      - self-strip printing 12
      - tear-off printing 11
    - ribbon 16
  - login name, home page 25
  - LSS Auto, using to verify label stop sensor is working 86
  - LSS too high, LSS too low, error message 67
- M**
  - mail settings, configuring from web page 48
  - maintaining the printer 88
  - maintenance, error message 67
  - media
    - clearing jams 78
    - compartment, cleaning 89
    - feed direction, configuring 44
    - loading 11
      - peel-off 12
      - self-strip 12
    - menu, ESIm 128
    - menu, Fingerprint 122
    - menu, IPL 125
    - roll diameter, max and min 93
    - settings, configuring 43



- media (*continued*)
  - specifications 98
    - core and roll 98
    - non-adhesive strip 98
    - self-adhesive labels 101
    - self-adhesive strip 99
    - tickets with black mark 105
    - tickets with gaps 103
  - web page 43
  - width, max and min 93
- memory and storage, web style guide 137
- memory, printer 92
- microprocessor, ARM 9 92
- N**
  - Net-Com, NET1 menu
    - ESim 126
    - Fingerprint 120
  - Network menu
    - ESim 127
    - Fingerprint 121
    - IPL 124
  - network type
    - choosing Ethernet or wireless 802.11 58
    - choosing from PD42 screen 58
    - choosing with printer commands 58
    - configuring from web page 52
  - network, connecting your printer 24
  - non-adhesive strip, media specifications 98
- O**
  - optional environment variables, web style guide 135
  - out of media, error message 68
- P**
  - paper cutter accessory 107
  - parallel port
    - pins and descriptions 97
    - using to connect printer to PC 23
  - password
    - changing with web page 47
    - home page 25
  - Pause, soft key 8
  - PD41
    - back of printer 3
    - front view 2
    - selecting command language 4
  - PD42
    - back of printer 3
    - choosing network type from screen 58
    - configuring from screen 40
    - error messages, understanding 67
    - front view 3
    - screen and soft key illustration 7
    - screen, understanding 7
    - selecting command language 4
    - setup menus 119
    - soft keys, using 7
    - startup screen 5
    - testing label stop sensor in Setup mode 86
  - peel-off media, loading 12
  - physical specifications 92
  - poor printing, troubleshooting 71
  - Power LED
    - illustration and description 6
    - troubleshooting 69
  - power specifications 92
  - press feed not done, error message 67
  - pressure, adjusting printhead 81
  - Print button
    - illustration 6
    - understanding 6
  - Print Defs menu
    - ESim 128
    - Fingerprint 123
  - print engine settings, configuring 44
  - print speed, configuring 44
  - print test labels 74
  - print width, max and min 93
  - printer home page
    - illustration 25
    - using to configure printer 42
  - printer name, viewing 47
  - printer states
    - icons active in each 10
    - understanding 9
  - printers
    - accessories 107
    - adjusting 77

- printers (*continued*)
  - configuring 40
  - configuring with PrintSet 56
  - connecting to a PC 22
  - connecting to your network 24
  - directories, Fingerprint file system 132
  - exterior, cleaning 90
  - file system, Fingerprint 132
  - home page, login name and password 25
  - identifying parts 2
  - learning about 2
  - maintaining 88
  - memory 92
  - modifying web page 131
  - problems and solutions 69
  - specifications 92
  - standard interfaces 94
  - troubleshooting 66
- printhead
  - adjusting 79
  - balance, adjusting 79
  - cleaning 89
  - dot line, adjusting 82
  - hot, error message 68
  - lifted, error message 67
  - pressure, adjusting 81
- printing, test label 19
- PrintSet
  - using to configure printer 56
  - using to upgrade firmware 60
- problems, printer 69
- Product Support, contacting 66
- R**
  - Ready/Data LED 6
  - Ready-to-Work LED 7
  - real time clock (RTC) accessory 107
  - required environment variables, web style guide 135
  - resetting printer to factory defaults 110
  - restore factory default settings 76
  - ribbon
    - determining ink in or out 17
    - empty, error message 68
    - loading thermal transfer 16
    - roll diameter, max and min 93
    - shield, adjusting 78
    - tension, adjusting 77
    - width, max and min 93
    - wrinkling, preventing 77
- RS-232
  - cable part number 23
  - serial interface 94
- S**
  - scanner, connecting to printer 37
  - screen, using PD42 to configure printer 40
  - security, configuring wireless 53
  - self-adhesive labels, media specifications 101
  - self-adhesive strip, media specifications 99
  - self-strip media, loading 12
  - Ser-Com, UART1 menu, Fingerprint 120
  - serial cable 23
  - serial communications, configuring from web page 43
  - serial interface
    - default settings 94
    - illustration and pin descriptions 94
  - serial port
    - default communication settings 23
    - using to connect printer to PC 22
  - Serial-Com menu, ESIm 126
  - Setup menu
    - changing command language 5
    - ESIm illustration 42
    - Fingerprint illustration 41
    - IPL illustration 41
  - setup menus
    - ESIm 126
    - Fingerprint 120
    - IPL 123
  - Setup mode
    - entering 40
    - soft key 8
    - using to access Dump mode 73
  - skipping labels, troubleshooting 70
  - slow testfeed, performing 76
  - SmartSystems
    - configuring with web page 56
    - Foundation, using to configure printer 57

- SNMP
  - configuring with web page 49
  - setting descriptions 50
- soft keys
  - understanding 8
  - using PD42 7
- specifications
  - humidity 92
  - media 98
  - physical 92
  - power 92
  - printer 92
  - temperature 92
- SSID 53
- startup screen, PD42 printer 5
- style guide
  - content of web 135
  - creating web 137
  - memory and storage 137
  - optional environment variables 135
  - required environment variables 135
  - URL encoding syntax rules 137
  - web pages 134

**T**

- TCP/IP
  - configuring with web page 50
  - setting descriptions 51
- tear-off printing, loading media 11
- temperature specifications 92
- test labels
  - printing 19
  - printing from web page 44
- Test/Service menu, IPL 124
- Testfeed
  - soft key 8
- testfeed
  - not done, error message 68
- Testmode, using to troubleshoot 74
- thermal transfer ribbon, loading 16
- tickets with black mark, media
  - specifications 105
- tickets with gaps, media
  - specifications 103
- troubleshooting
  - communication problems 72
  - printer 66

**U**

- uart1, serial port 22
- updates, downloading firmware 59
- upgrading firmware 59
- URL encoding syntax rules, web style guide 137
- USB
  - host interface, pins and descriptions 96
  - hub, connecting to printer 37
  - interface description 95
- USB device port, using to connect printer to PC 22
- USB host port
  - connecting a USB hub 37
  - connecting bar code scanner 37
  - connecting keyboard 36
  - connecting peripherals 35
- USB mass storage device
  - using with printer 36

**W**

- Wavelink Avalanche, configuring from web page 52
- web page
  - customizing the home page 134
  - modifying printer 131
  - style guide files 134
  - using to configure printer 42
  - using to upgrade firmware 61
- web pages
  - creating a web style guide 137
  - style guide content 135
- Web Shell
  - setting descriptions 45
  - settings, configuring 44
- web style guide files 134
- WEP
  - configuring with Fingerprint 33
  - configuring with IPL 30
  - keys 53
  - web page setting and description 53
- wireless 802.11 kit accessory 107
- wireless LAN, configuring from web page 53
- wireless security
  - configuring from web page 53
  - configuring with Fingerprint 32
  - configuring with IPL 29

- WPA 54
  - configuring with Fingerprint 34
  - configuring with IPL 31
- WPA2
  - configuring with Fingerprint 34
  - configuring with IPL 31
- WPA2-PSK
  - configuring with Fingerprint 33
  - configuring with IPL 30
- WPA-PSK 54
  - configuring with Fingerprint 33
  - configuring with IPL 30

**Z**

- ZSim, language description 4





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## PD41 and PD42 Commercial Printer User's Manual



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