

# 2

## Connecting and Configuring the Printer

Use this chapter to understand how to configure the printer to communicate in your network. This chapter contains these sections:

- **Connecting the Printer to Your PC**
- **Connecting the Printer to Your Network**
- **Configuring the Printer**
- **Upgrading the Firmware**
- **Downloading Fonts and Graphics**

## 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 network

- 1 Connect the Ethernet cable to the Ethernet port in the rear of the printer.
- 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** ).

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 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 web interface for an Intermec EasyCoder PD42 printer. At the top, there is a banner with the Intermec logo and a printer icon. Below the banner, the printer's name 'INTERMECAABC67' is displayed, followed by navigation links: 'Home', 'Configuration', 'Maintenance', and 'Support'. The main heading is 'EasyCoder PD42'. Below this, there are several 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>
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RtW™:	Operational
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- 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 38**.

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..

## 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 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.
- 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

- 1** Start PrintSet on your PC.
- 2** 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.
- 3** 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 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** On your PC, open HyperTerminal® and set these serial port parameters:

<b>Parameter</b>	<b>Default Setting</b>
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1

- 3** From the host PC, check the wireless settings.

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

```

<STX><SI>wt , SSID<ETX>
<STX><SI>wt , WEP1<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 , PWR_MODE<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:"
```

- 4 Set up the printer to use the correct SSID and authentication modes. For help, see the next section, **Configuring Wireless Printing Using IPL** or **“Configuring Wireless Printing Using Fingerprint” on page 33**.
- 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 *Fingerprint Command Reference Manual* (P/N 937-005-xxx) or the *IPL Command Reference Manual* (P/N 937-007-xxx). You can download both documents from the Intermec web site at [www.intermec.com](http://www.intermec.com).

### Configuring Wireless Printing Using IPL

Use the following procedures to configure your printer with IPL for wireless printing.

#### 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 ,xxxxxx<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 , xxxxxxxxxxxx<ETX>
```

where *xxxxxxxxxxxx* 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 , xxxxxx<ETX>
```

where *xxxxxx* 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>
```

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```
<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, or TTLS.

```
<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 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.

- 5** 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 *xxxxxxxxxx* 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 Wireless Printing Using Fingerprint

Use the following procedures to configure your printer with Fingerprint for wireless printing.

#### 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 xxxxx 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, or TTLS.

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

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", "xxxxx"
```

where *xxxxx* is the outer name.

5 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

## Connecting a USB Mass Storage Device to the USB Host Port

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 mass storage device to upgrade the printer, see [“Upgrading the Firmware” on page 54](#).

## 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 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 “console:” 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:** You can only connect one mass storage device and one HID (keyboard or scanner) peripheral to the USB hub at a time.

## 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.
- remotely using SmartSystems Foundation.

## Configuring the PD42 Printer from the Screen

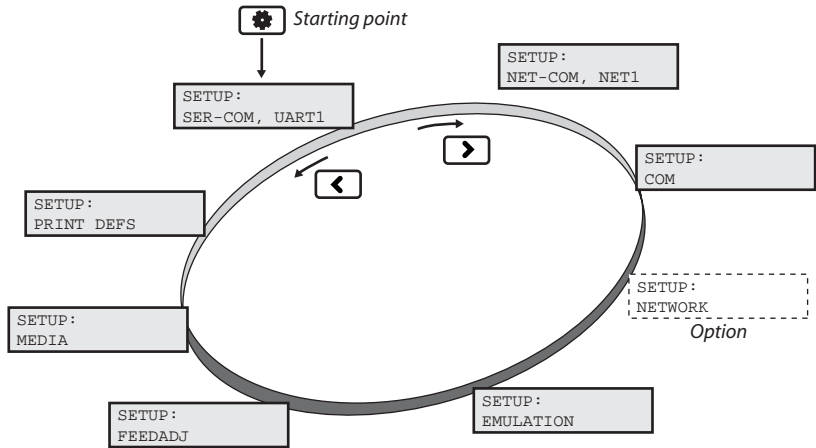
To configure the PD42 printer from the screen, you need to enter Setup mode.

### To enter Setup mode

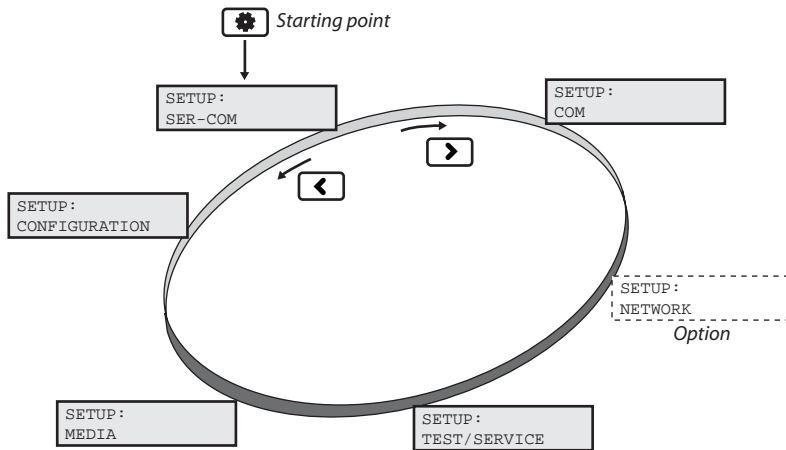
- Press the  button.

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 8](#).

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 [“IPL and Fingerprint Setup Menus” on page 107](#). 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**

## **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.

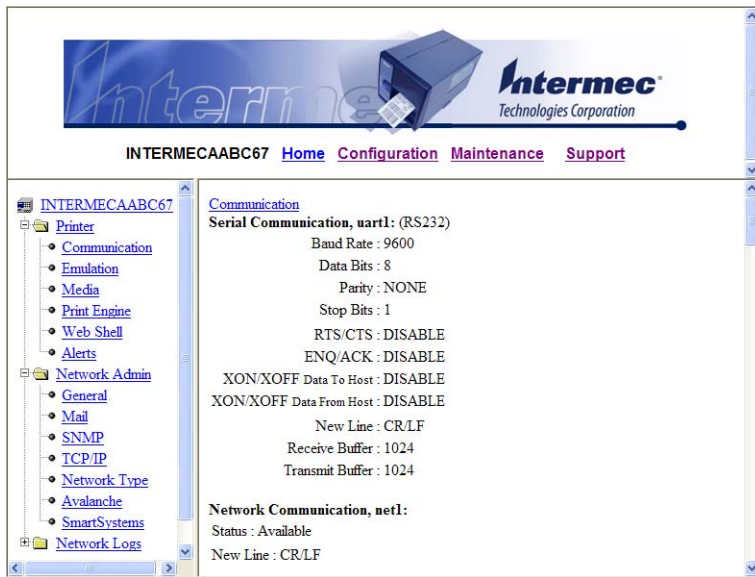
### **To access the home page of the printer**

- 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 [value]	Calibrates the ribbon sensor. The ribbon sensor is also calibrated by the testfeed. You only see this setting if the ribbon sensor is installed in the printer.
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.
Out of Paper	The printer is out of media.
Ribbon Low	The diameter of the remaining roll of ribbon is lower than a specified value. You can specify the value in the Media settings page.
Pause Mode	The diameter of the remaining roll of media is lower than a specified value. You can specify the value in the Media settings page. This alert is only shown if the sensor ( <b>which one?</b> ) is installed.
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.
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, BOOTP+DHCP, 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: 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.

### 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.
Active WEP key	Chooses the active WEP key.

### Understanding the Wireless LAN Settings (continued)

Setting	Description
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.
Current channel	(Read only) The MAC address of the access point
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**

<b>Setting</b>	<b>Description</b>
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 <code>anonymous</code> .
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 <code>ACQUIRE_PAC</code> 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 24**.

## 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 Remotely Using SmartSystems

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).

## 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 or 2GB USB storage device.
- 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 or USB storage device

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



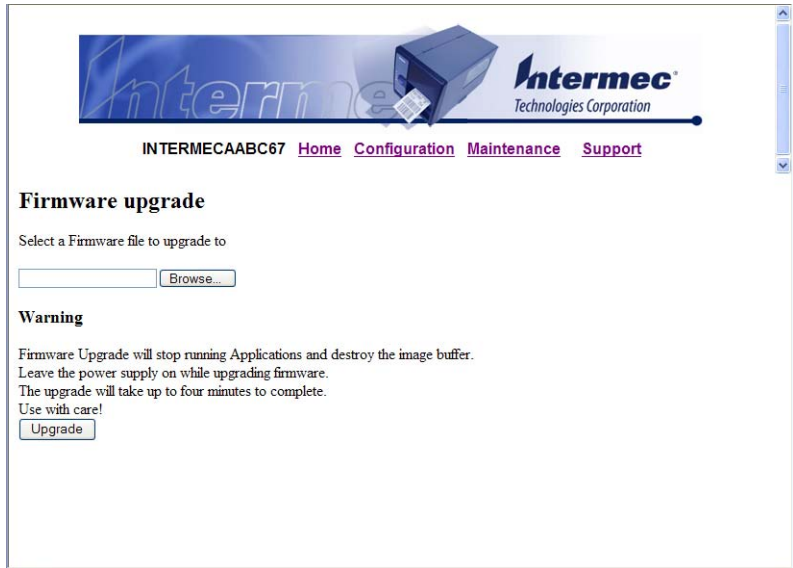
**To upgrade using a serial or USB connection**

- 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*.

**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.



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

## Downloading Fonts and Graphics

The PD41 and PD42 support 15 scalable Unicode TrueType and TrueDoc 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 firmware supports the download of any TrueType font. IPL and ESIm only support TrueType fonts provided by Intermec.

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 2GB USB mass storage device.

# 3

## 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 61](#). 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. <b>To fix this error</b> <ol style="list-style-type: none"> <li>1 Load the printer with media. For help, see <b>“The printers can enter various states which indicate the current mode of operation.” on page 10.</b></li> <li>2 Restart the printer in Test mode and select the appropriate media type. For help, see <b>“Using Testmode” on page 65.</b></li> </ol>


**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 10.</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 17.</b></li> <li>•</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 (  <sub>Test</sub> ).
	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.
	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**

<b>Problem</b>	<b>Possible Solution</b>
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> </ul>
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 70</b>.</li> <li>• If the label is stuck on the thermal printhead, clean the printhead. For help, see <b>“Cleaning the Printhead” on page 80</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 75</b>.</li> </ul>

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

Problem	Possible Solution
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 80.</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 75.</b></li><li>• Make sure the sensors are clean. For help, see <b>“To clean the printhead” on page 80.</b></li></ul>
Printing is slow.	Make sure your printing application is working correctly.
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 80.</b></li><li>• Check the printhead pressure. For help, see <b>“Adjusting Printhead Pressure” on page 72.</b></li><li>• Check the printhead dotline position. For help, see <b>“Adjusting Printhead Dot Line” on page 73.</b></li></ul>



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

Problem	Possible Solution
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 17.</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 71.</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 80.</b></li> <li>• Make sure the ribbon is not wrinkling. For help, see <b>“Preventing Ribbon Wrinkling” on page 68.</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 71.</b></li> <li>• Check the printhead pressure. For help, see <b>“Adjusting Printhead Pressure” on page 72.</b></li> </ul>
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 <b>“To clean the printhead” on page 80.</b></li> <li>• Check the position of the label gap sensor. For help, see <b>“Adjusting the Label Stop Sensor” on page 75.</b></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 <b>“To clean the printhead” on page 80.</b></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 65](#).

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 64](#).
- You can access Dump mode from the Setup menu and characters will print on a continuous line, along with corresponding hexadecimal numbers.

### To enter Dump from the Setup menu

- 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 9** and **“Loading Thermal Transfer Ribbon” on page 15**.
- 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.

*insert illustration*

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:

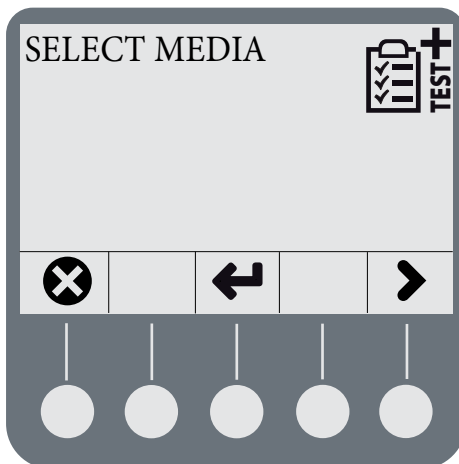
- printing test labels.
- running a Testfeed in slow mode.
- entering Dump mode.
- resetting to factory defaults.

#### 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**

<b>Function</b>	<b>Description</b>
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 <b>◀</b> to print the next label. The screen shows which label is next.
Dump Mode	Enter Dump mode. For more information on Dump mode, see <b>“Using Dump Mode” on page 65</b> .
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.

### Understanding the Functions in Extended Testmode

Function	Description
Exit	Exit Extended Testmode.

## Adjusting the Printer

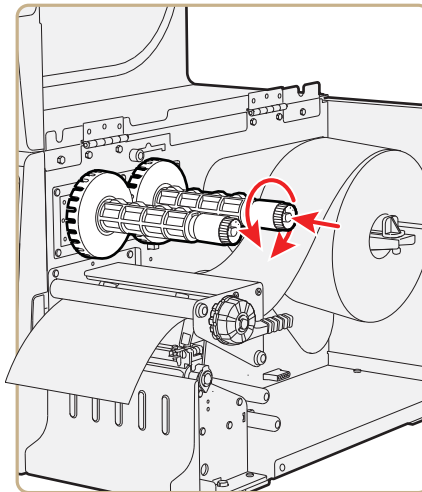
Use this section to perform adjustments to help solve problems related to print quality.

### 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.

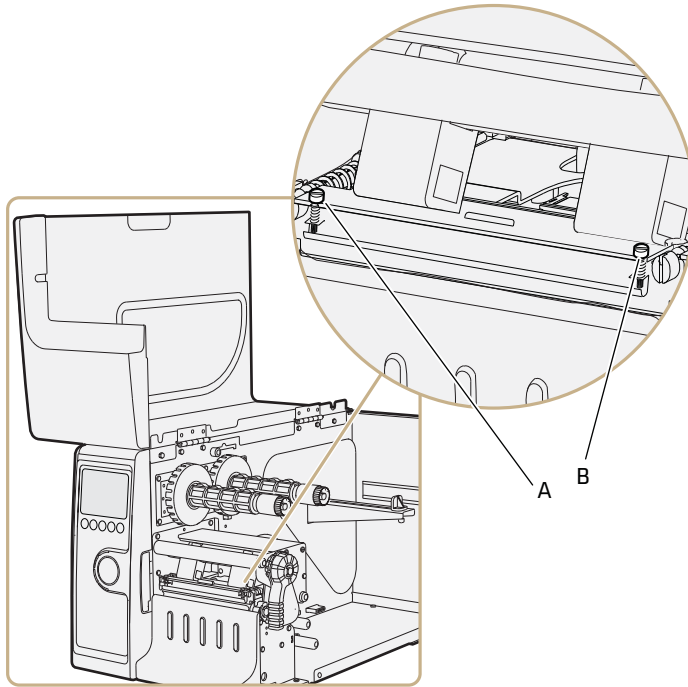


**Low Quality Printouts Caused by Ribbon Wrinkling**

**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 79**.
- 6 Reload the media. For help, see **“The state of the printer also determines the functions and icons that are active in the screen.” on page 11**.
- 7 Turn on the printer power.
- 8 Press the Print button the 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.

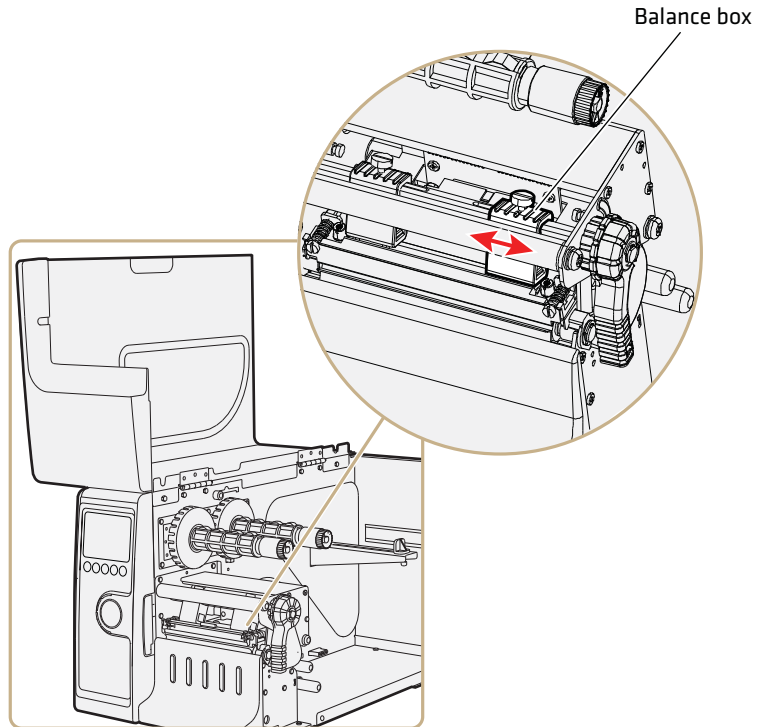
### **Adjusting Printhead Balance**

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.
- 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**

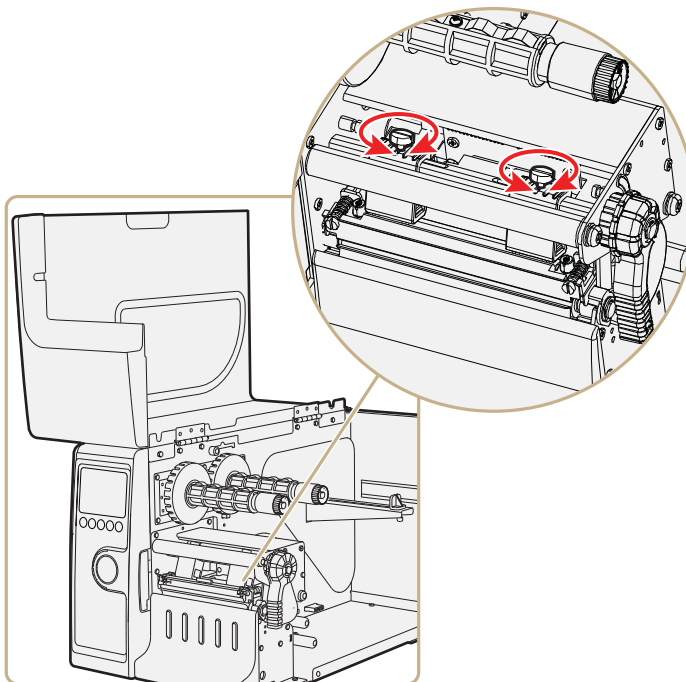
The pressure of the thermal printhead against the platen roller is adjusted at the factory. You may need to readjust the printhead pressure if the printing is weaker on one side of the media, or if the thermal transfer ribbon starts to crease (indicated by unprinted white streaks along the media feed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



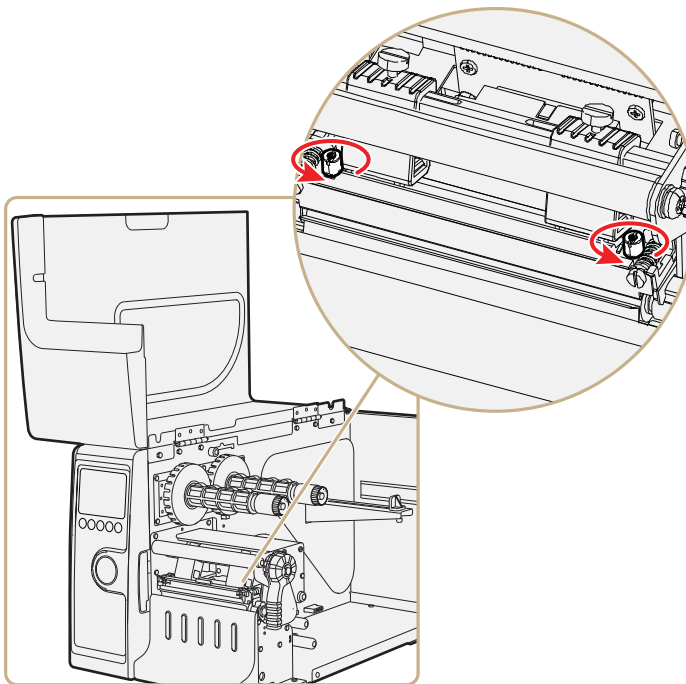
- 4** Close the printhead and load the ribbon.
- 5** Test and readjust the pressure if necessary.

**Adjusting Printhead Dot Line**

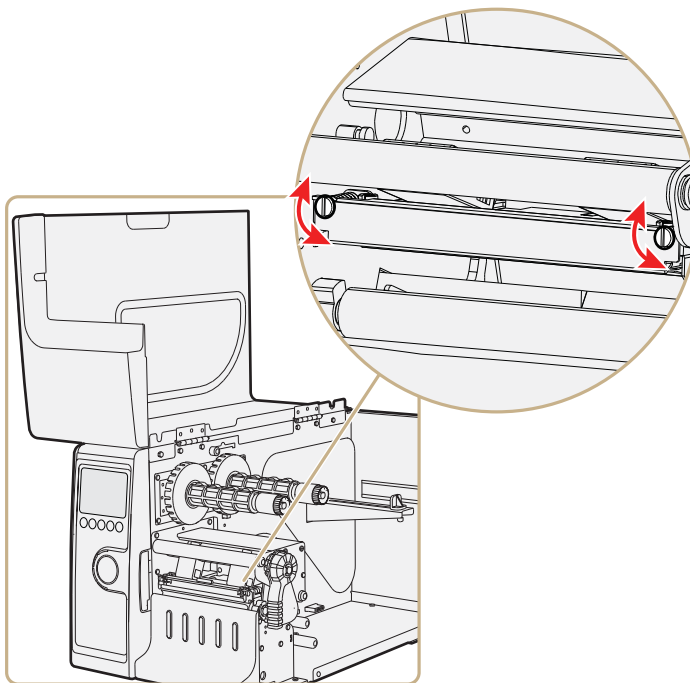
When using thick or stiff media, you need to move the printhead forward so that the dot line is aligned precisely with the top of the platen roller. You also need to make sure that the printhead dot line and the platen roller are parallel.

### 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.

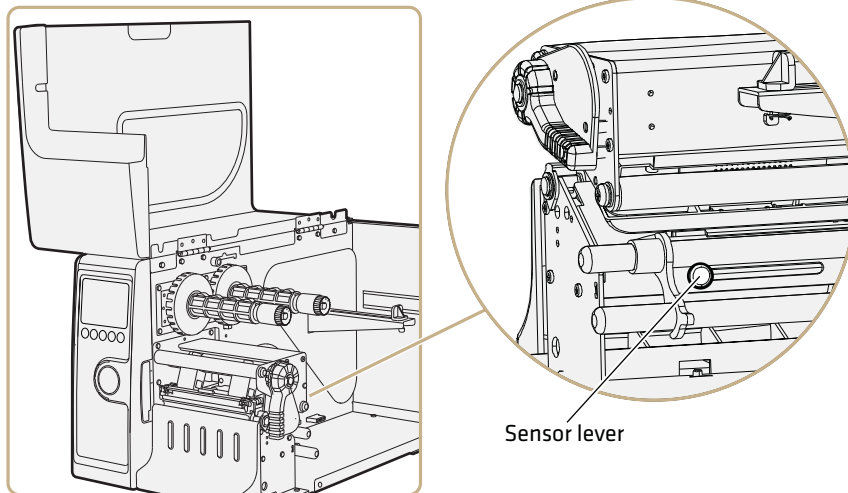
- 5 Close the printhead and using the slotted screwdriver to turn the two screws at the top of the printhead bracket clockwise a single turn.
- 6 If you are using thermal transfer ribbon, load it.
- 7 Test and readjust if necessary.

## Adjusting the Label Stop Sensor

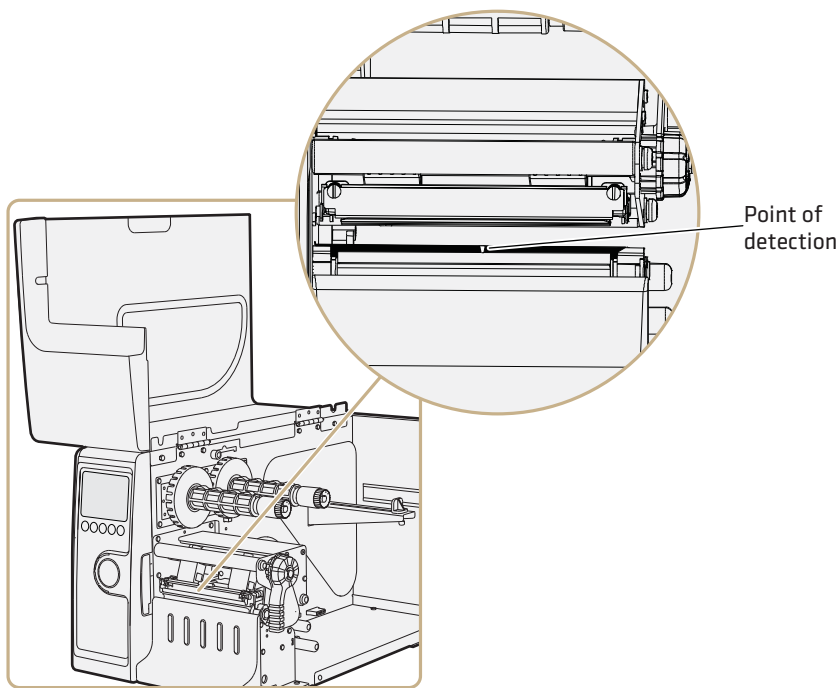
The label stop sensor (also called label gap sensor or black mark sensor) is a photoelectric sensor that controls the media feed by detecting gaps between labels, or slots or black marks in continuous stock. For the sensor to work, it must be aligned with the gaps, slots, or marks on the media. If you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

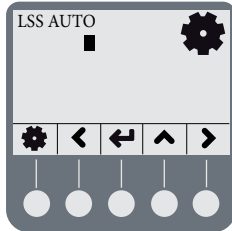
- LSS Auto: Checks to make sure that the label stop sensor is working properly and can detect gaps, slots, and black marks.
- LSS Manual: Shows the sensor setting established by the latest Testfeed. LSS Manual is intended to be used by Intermec service personnel only.

### To run the LSS Auto test

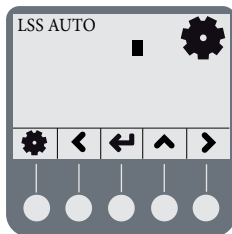
- 1 Make sure the printer is correctly configured for the type of media you are using.
- 2 Press Testfeed (  ).
- 3 Make sure that there is a label, not a gap or black mark, at the sensor.

### Chapter 3 – Troubleshooting and Maintaining the Printer

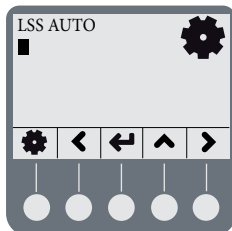
- 4 Make sure that the media runs as close to the center of the printer as the guides will allow.
- 5 Press **Setup** (⚙️).
- 6 Go to **Print Defs > LSS Test > LSS Auto**. The cursor will be in the center of the screen as shown below.



- 7 **For gap or slot detection:** Lift the printhead and slowly pull out the media in the media feed direction. When the label stop 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 17.**
- 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.



**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.**



**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.



Warning

**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

*insert illustration?*

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.



Warning

**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.**

