ZEBRA ZXP Series 7™

User's Manual

P1036101-002

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Trademarks

ZXP Series 7 is a trademark and Zebra is a registered trademark of Zebra Technologies Corporation. Windows is a registered trademark of Microsoft Corporation in the United States and other countries. All other trademarks or registered trademarks are marks of their respective holders.

Product Disposal

Product Disposal Information • Do not dispose of this product in unsorted municipal waste. This product is recyclable, and should be recycled according to your local standards. For addtional information please contact a J. O'Brien sales representative (877) 379-8844.

Compliance and Regulatory Statements

FCC - Compliance Statement (USA)
This device complies with Part 15 rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for Class A Digital Devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the product manuals, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to do one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced RF service technician for help.

Important:

1. The radio must be installed with a minimum 20 cm separation between the user and the antenna.
2. The radio must not be co-located or used in simultaneous transmitting condition with another radio.
3. The host system shall have a label to indicate that the system contains a certified module. An example is “Contains FCC ID : I28-W2WLAN11G , IC ID: 3798B-W2WLAN11G; or ”Contains FCC ID : I28-RFIDM6EM , IC ID: 3798B-RFIDM6EM.”
4. The radio is for indoor use only in the 5150-5250 GHz frequency range.

The user is cautioned that any changes or modifications not expressly approved by Zebra Technologies could void the user’s authority to operate the equipment. To ensure compliance, this printer must be used with fully shielded communication cables.

Canadian DOC Compliance Statement
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.
This Class A digital apparatus complies with Canadian ICES-003.
Industry Canada (IC) Warning
Le présent appareil est conforme aux CNR d'Industrie Canada ap-plicables aux appareils radio exempts de licence. L'exploitation est auto-risée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compro-mettre le fonctionnement.
This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: 1) This device may not cause interference., 2) This device must accept any interference, including interference that may cause undesired operation of the device.

ANATEL
Agência Nacional de Telecomunicações

Brasil - Aviso da Anatel
Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.

"Este produto está homologado pela ANATEL, de acordo com os procedimentos regulamentados pela Resolução 242/2000, e atende aos requisitos técnicos aplicados"
Para maiores informações, consulte o site da ANATEL www.anatel.gov.br

UHF RFID Approved Antenna information

Only Zebra approved antennas are allowed and cannot be user replaceable.

Antenna PN: Zebra Technologies P1033567-01
Type: Patch
Gain: -10 dBi

Wireless Approved Antenna information

Only Zebra approved antennas are allowed and cannot be user replaceable.

802.11 b/g
Antenna PN: Laird Technologies WCR2400SMRP
Gain: 1.3 dBi @ 2.4 GHz
Impedance: 50 Ω

Agency Approvals

Zebra ZXP Series 7 Card Printer complies with following applicable directives and standards for the ITE: Residential, Commercial & Light Industry environments

- For US/Canada/Mexico/Australia&NZ
  - FCC Class A, CFR 47, Part 15 Subpart B
  - Part15 Subpart C
  - Canadian STD RSS-210
  - NOM-NYCE (Mexico)
  - EN60950: EN60950-1 Safety Standard (TUV & NRTL)
  - RCM (Australia)

- For Europe (Applicable Directives and Supporting Standards):
  - 2004/108/EC EMC Directive, EN55022: Class A,
  - EN55024, EN61000-3-2, EN61000-3-3,
  - 2006/95/EC LVD Directive, EN60950-1, CB Scheme

Declarations of Conformity

ZEBRA TECHNOLOGIES CORPORATION

Declares that the following Information Technology Equipment

Zebra ZXP Series 7 Card Printer

complies with following applicable directives and standards for the

ITE: Residential, Commercial & Light Industry environments

CE

Applicable Directives and Supporting Standards:

2004/108/EC EMC Directive, EN55022:2010 Class A,

EN55024: 2010, EN61000-3-2:2006+A2:2009, EN61000-3-3:2008

2006/95/EC LVD Directive, EN60950-1:2006+A1:2010, CB Scheme

RFID Enabled

Applicable Directives and Supporting Standards:

99/5/EC R&TTE Directive, ETSI EN 301 489-3 V1.4.1 (2002-08), EN 300 220-2 V2.1.2 (2007-06)

For a formal certificate, please contact the Compliance Office at Zebra's Agoura Hills facility.

EUROPE: Norway Only: This product is also designed for IT power system with phase to phase voltage 230V. Earth grounding is via the polarized, 3-wire power cord.

FI: "Laite on liitettävä suojamaadoitus koskettimilla varustettuun pistorasiaan"

SE: "Apparaten skall anslutas till jordat uttag"

NO: "Apparatet må tilkoples jordet stikkontakt"

Japanese Notification

日本：総務省 (MIC) 認証マーク

本製品は MIC の認証を受けています。

RFID 認証番号は No. FC-10003 です。

この機器は、無線周波数エネルギーを生成および使用し、それらを放射する可能性があります。したがって、ユーザー・マニュアルに従って設置および使用しなかった場合、無線通信あるいはペースメーカーなどの医療機器に有害な干渉を引き起こすことがあります。

Icons

Throughout this manual, different icons highlight important information, as follows:

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

Important • Advises you of information that is essential to complete a task, or points out the importance of specific information in the text.

Provides an example or scenario to demonstrate or clarify a section of text.

Electrostatic Discharge • Warns you of the potential for electrostatic discharge damage to parts and assemblies.

Electric Shock • Warns you of a potential electric shock situation.

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

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

Zebra Supplies

Genuine Zebra supplies meet stringent quality standards and are recommended for optimal printing quality and proper printer performance. ZXP Series 7 printers are designed to work only with Zebra True Colours® Ribbons and Zebra True Secure™ Laminates. For details, go to http://www.jobrien.com/id-card-printer-supplies/zebra-printer-supplies/.

Support and Services: http://www.jobrien.com/

jobrien-company/contact-jobrien-company.html

Contents

1 • Introduction 1
Description 1
Printer Components 2

2 • Installation and Setup 3
General Information 3
Unpacking the Printer 4
Loading Cards 8
Installing the Feeder Cartridge and Output Hopper 10
Installing the Dual Cleaning Cartridge 11
Installing the Manual Feed Cleaning Cassette 13
Loading a Print Ribbon 15
Loading the Laminate 18
Connecting Power 31
Connecting the Printer to your Computer 32
Installing the Windows Printer Driver 35

3 • Operation 49
Introduction 49
Printing a Test Card 50
Manual Card Feed 51
Operator Control Panel (OCP) 53

4 • Printer Settings and Adjustments 65
Introduction 65
Printer Properties 66
Printing Preferences 75

5 • ZXP Series Toolbox 97
Introduction 97
ZXP Series Toolbox Access 98
Information 99
Configuration 104
Cleaning 112
Print Test Card 115
Technology 120
Advanced Security 124
Print Viewer 127

6 • Cleaning 129
Cleaning the Printer 130
Cleaning the Laminator 134
Dual Cleaning Cartridge 141
Manual Feed Cleaning Cassette 141

7 • Troubleshooting 143
Introduction 143
OCP Test Cards 150
Ethernet 151

8 • Technical Specifications 153
Standard features 153
Optional features 153
Specifications 154

Appendix A • Connecting to a Network 159

Appendix B • Accessing a Network Printer via a Web Browser 167

Appendix C • WiFi Connectivity 171

Appendix D • Magnetic Card Encoder 179

Appendix E • Smart Card Options 187

Appendix F • Barcode Reader 193

1

Introduction

Description

This Manual provides detailed information on the installation and operation of Zebra ZXP Series 7 Card Printers manufactured by Zebra Technologies Corporation.

The ZXP Series 7 offers the choice of single- or dual-sided direct to card printers with a range of options that can be installed in the factory or added later so the printer can be scaled as business needs grow or demands change.

The single-sided Laminator lays down and seals a laminating film on the top surface of the printed card for added security; the dual-sided Laminator lays down and seals laminating film on both the top and bottom surfaces of the printed card. A variety of Laminating Films are available for specific uses; for details, go to http://www.jobrien.com.

References to “the printer” in this document apply to either the single-sided or the dual-sided Printer.; similarly, references to “the laminator” apply to either the single-sided or the dual- sided Laminator.

Printer Components

Printer only

Printer with Laminator

2

Installation and Setup

General Information

This section will guide you through the installation and setup of your Card Printer. This consists of the following procedures, which should be performed in the order presented.

- Unpacking the Printer. 4
- Loading Cards 8
- Installing the Dual Cleaning Cartridge. 11
- Installing the Manual Feed Cleaning Cassette 13
- Loading a Print Ribbon 15
- Loading the Laminate. 18
- Connecting Power 31
- Connecting the Printer to your Computer 32
- Installing the Windows Printer Driver 35

Unpacking the Printer

Printer without a Laminator

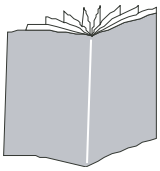
Step 1. Inspect the shipping container to ensure that no damage has occurred during shipment. If any damage is apparent, file a claim with the shipper.

Step 2. Open the shipping container.

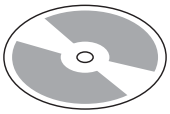
Step 3. Remove the packing material and accessories.

Important • Save all the packing material and the shipping carton in case the Printer needs to be moved or shipped. If the original material is lost or damaged, a replacement Shipping Kit can be ordered from Zebra.

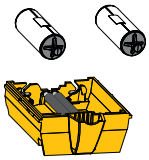
Step 4. Make sure the following items are included with the Printer:



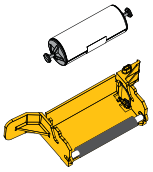
Quick Start Guide



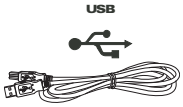
CD-ROM with InstallWizard



Dual Cleaning Cartridge

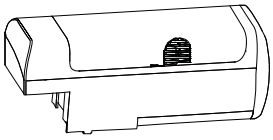


Manual Feed Cleaning Cassette



USB Cable

Power Cable



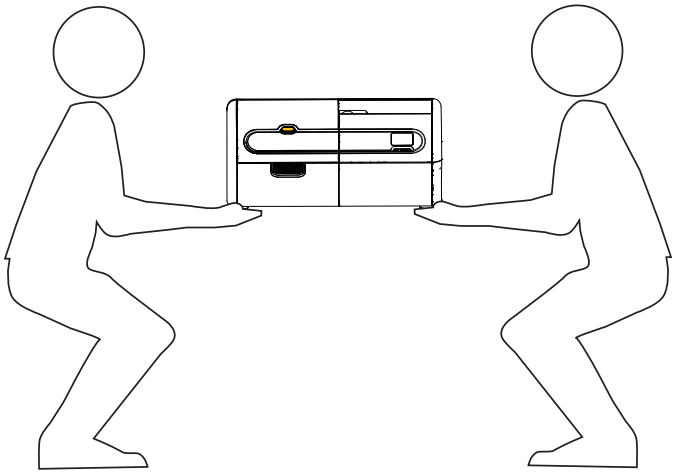
Feeder Cartridge

Output Hopper

If any items are missing, please contact your supplier.

Caution • The Printer weighs approximately 12.2 kg (26.9 lbs). Use two people to lift it out of the shipping carton.

Step 5. Lift the Printer and Laminator out of the carton by holding it with both hands.



Step 6. Place the Printer in a location that meets the following requirements:

Important • When moving the printer from storage (23º F/-5º C to 158º F/70º C) to the operating area (59º F/15º C to 95º F/35º C), allow time to acclimate prior to operation.

- A reasonably dust-free and dirt-free environment.
- Flat surface at least 30 in (762 mm) x 12 in (305 mm) that can support the weight of the Printer; additional space preferred. Allow a 4-inch clearance, minimum, on all sides.
- Vertical clearance at least 32 in (813 mm).
- Temperature within the range of 59° to 95°F (15° to 35°C).
- Relative humidity 20 to 80% inclusive, non-condensing.
- Auto-switching single-phase AC Power, 90V~264V AC, 47-63Hz (50-60Hz nominal); see *Electrical specifications* on page 157 for power consumption.

Step 7. Remove the Printer from the protective bag.

Printer with a Laminator

Step 1. Inspect the shipping container to ensure that no damage has occurred during shipment. If any damage is apparent, file a claim with the shipper.

Step 2. Open the shipping container.

Step 3. Remove the packing material and accessories.

Important • Save all the packing material and the shipping carton in case the Printer needs to be moved or shipped. If the original material is lost or damaged, a replacement Shipping Kit can be ordered from Zebra.

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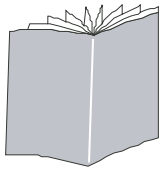
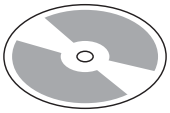
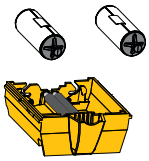


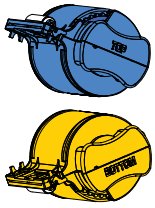
Quick Start Guide



CD-ROM with InstallWizard



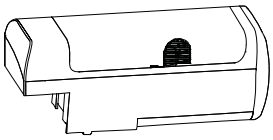
Dual Cleaning Cartridge



Single Sided & Dual Sided

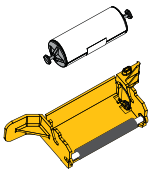
Dual Sided only

Laminate Cassette(s)

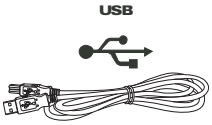


Feeder Cartridge

Output Hopper



Manual Feed Cleaning Cassette



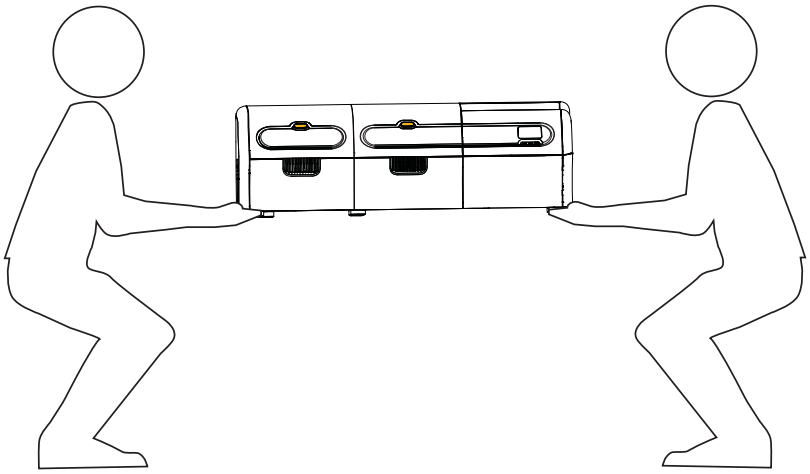
USB Cable

Power Cable

If any items are missing, please contact your supplier.

Caution • The Printer with Laminator weighs approximately 17.9 kg (39.5 lbs). Use two people to lift it out of the shipping carton.

Step 5. Lift the Printer out of the carton by holding it with both hands.



Step 6. Place the Printer in a location that meets the following requirements:

Important • When moving the printer from storage (23º F/-5º C to 158º F/70º C) to the operating area (59º F/15º C to 95º F/35º C), allow time to acclimate prior to operation.

- A reasonably dust-free and dirt-free environment.
- Flat surface at least 40 in (1016 mm) x 12 in (305 mm) that can support the weight of the Printer; additional space preferred. Allow a 4-inch clearance, minimum, on all sides.
- Vertical clearance at least 32 in (813 mm).
- Temperature within the range of 59° to 95°F (15° to 35°C).
- Relative humidity 20 to 80% inclusive, non-condensing.
- Auto-switching single-phase AC Power, 90V~264V AC, 47-63Hz (50-60Hz nominal); see *Electrical specifications* on page 157 for power consumption.

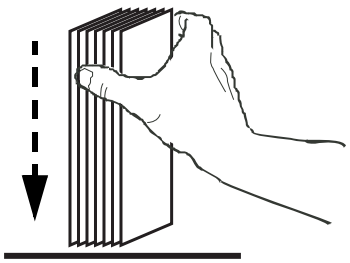
Step 7. Remove the Printer from the protective bag.

Loading Cards

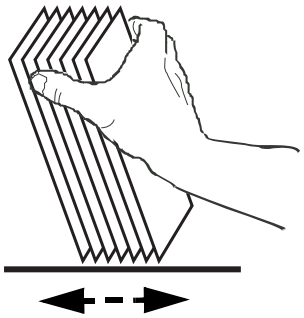
Caution • DO NOT bend cards or touch print surfaces as this can reduce print quality. The surface of the cards must remain clean and dust free. Always store cards in an enclosed container. Ideally, use cards as soon as possible after unwrapping.

Step 1. Remove the wrapping from the card stack.

Step 2. Holding the card stack by the sides (**do not touch the print surfaces**), hold it vertically against a flat surface such as a desktop. If the stack is too thick for your hand to hold it comfortably, use about half a stack at a time.



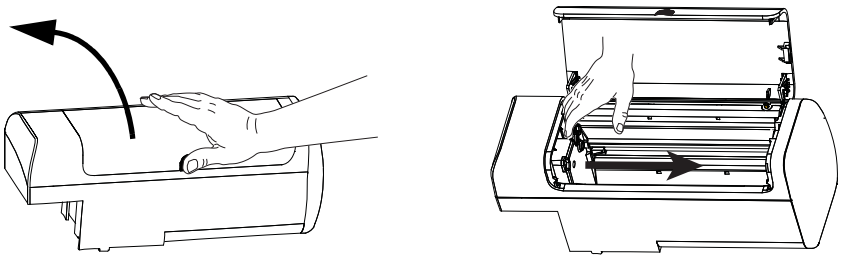
Step 3. Push the stack back and forth to an angle of about 45° from vertical, so as to separate all of the cards.



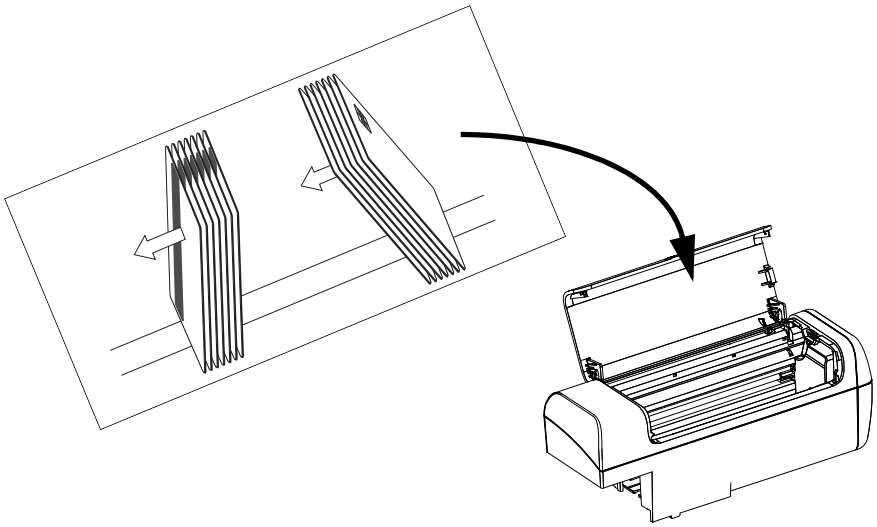
Note • Static charges and edge burrs from the card die-cutting process can render individual cards stuck together with significant adhesion force. These cards *must be* physically separated from each other before inserting into the feeder; if not separated, feeding or printing problems may occur.

Step 4. Restore the card stack to its original squared-off condition.

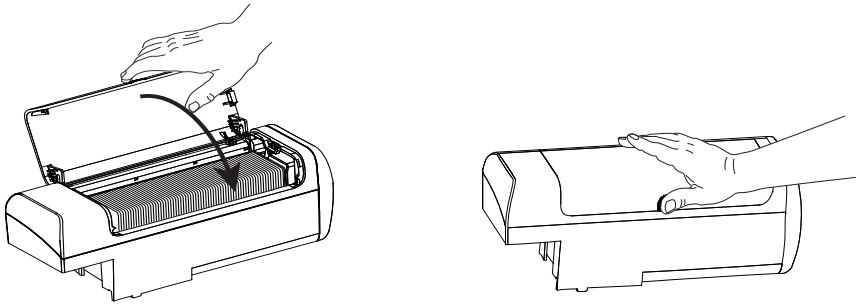
Step 5. Open the Feeder Cartridge Door, and slide the Card Stack Pusher all the way to the right, until it locks in place.



Step 6. Place the card stack in the Feeder Cartridge in the correct orientation shown below. For Cards with a Barcode, see Appendix F for details.



Step 7. For optimum performance, ensure that the cards are fully seated; then close the Feeder Cartridge Door.

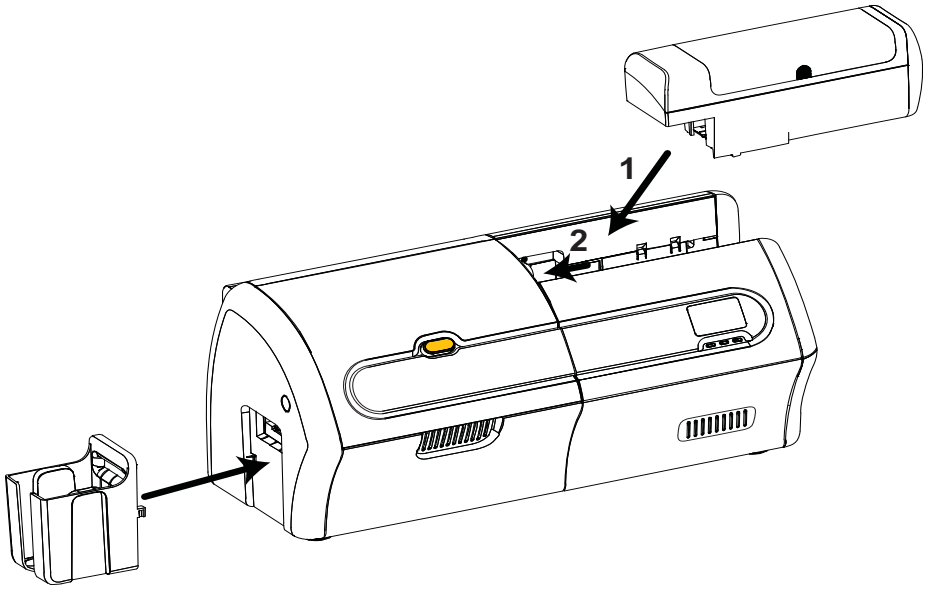


Installing the Feeder Cartridge and Output Hopper

Feeder Cartridge

The Feeder Cartridge is positioned on the right side of the Printer and holds the cards to be printed. Note that once in place, you can add cards as needed to the Feeder Cartridge without removing it from the Printer.

Step 1. Install the Feeder Cartridge by sliding it down and to the left into the receptacle. You will need to apply enough pressure for it to “snap” and lock securely into place.



Step 2. Ensure that the Feeder Cartridge locks securely in place.

Output Hopper

The Output Hopper is positioned on the left side of the Printer and receives the printed cards.

Step 1. Install the Output Hopper by inserting the two tabs on the right side of the hopper into the two slots on the left side of the Printer.

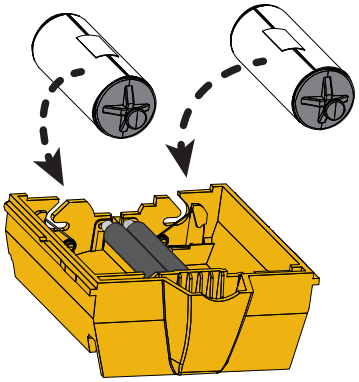
Step 2. Ensure that the Output Hopper locks securely in place.

Installing the Dual Cleaning Cartridge

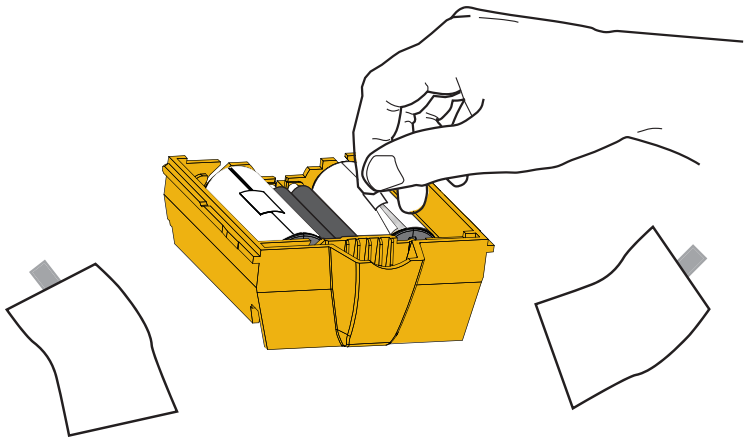
The Dual Cleaning Cartridge cleans the cards entering the Printer from the Feeder Cartridge. The cartridge consists of a cartridge frame and two adhesive rollers.

Step 1. Locate the cartridge frame and the two adhesive rollers.

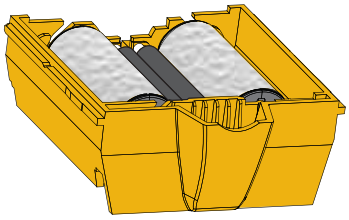
Step 2. Insert the adhesive rollers into the cartridge frame.



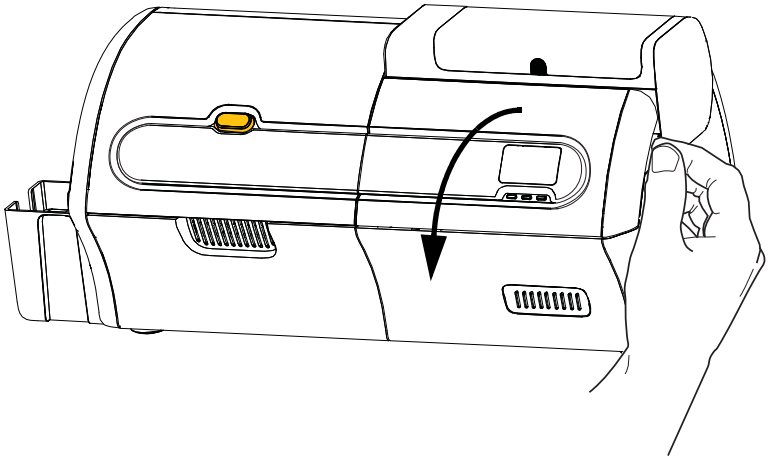
Step 3. Peel the protective wrapper from the adhesive rollers to expose the sticky surface. Do not touch the sticky surface.



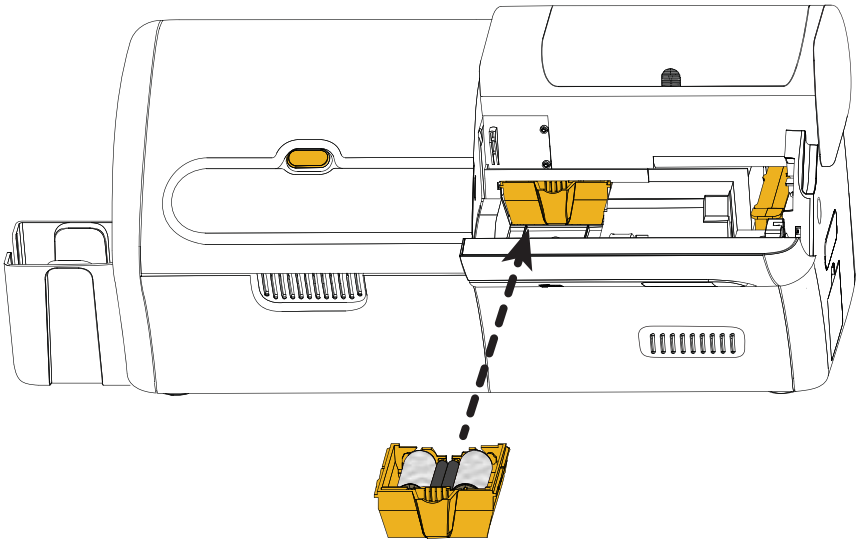
Step 4. The Dual Cleaning Cartridge is ready to use.



Step 5. Open the Options Cover.



Step 6. Locate the area where the Dual Cleaning Cartridge will be installed.



Step 7. Hold the cartridge by the extended handle.

Step 8. Insert the lip of the cartridge into the slot, and push forward, into the printer, until it snaps into place.

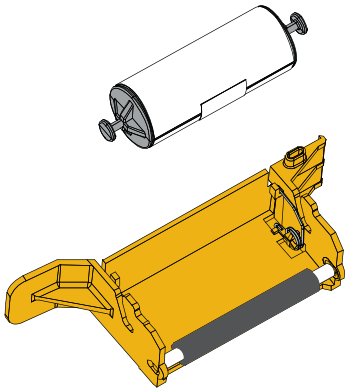
Step 9. If you are also installing the Manual Feed Cleaning Cassette, continue to the next page; otherwise, close the Options Cover.

Installing the Manual Feed Cleaning Cassette

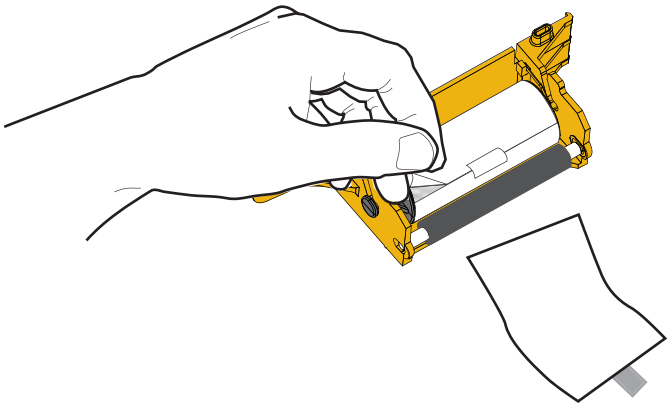
The Manual Feed Cleaning Cassette cleans the cards entering the Printer from the Manual Feed Slot. The cassette consists of a frame and an adhesive roller.

Step 1. Locate the cassette frame and adhesive roller.

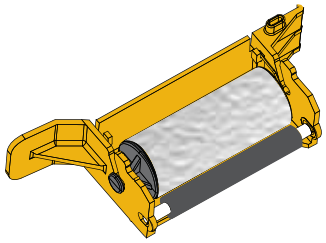
Step 2. Insert the adhesive roller into the cassette frame.



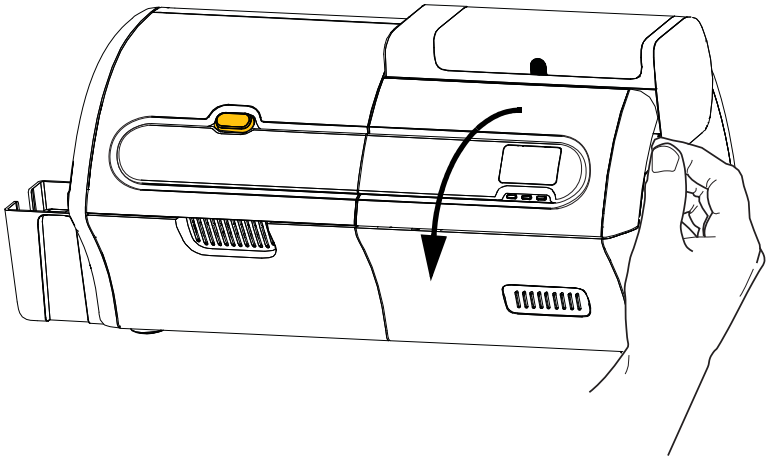
Step 3. Peel the protective wrapper from the adhesive roller to expose the sticky surface. Do not touch the sticky surface.



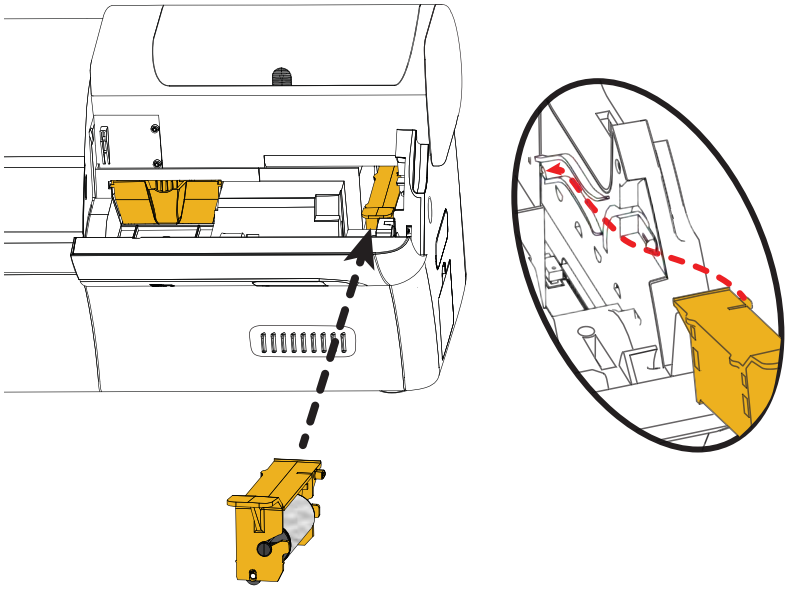
Step 4. The Manual Feed Cleaning Cassette is ready to use.



Step 5. If not already done, open the Options Cover.



Step 6. Locate the area where the Manual Feed Cleaning Cassette will be installed.



Step 7. Hold the cassette by the extended handle.

Step 8. Slide the cassette into place.

Step 9. Insert the lip of the cassette into the slot in the back panel.

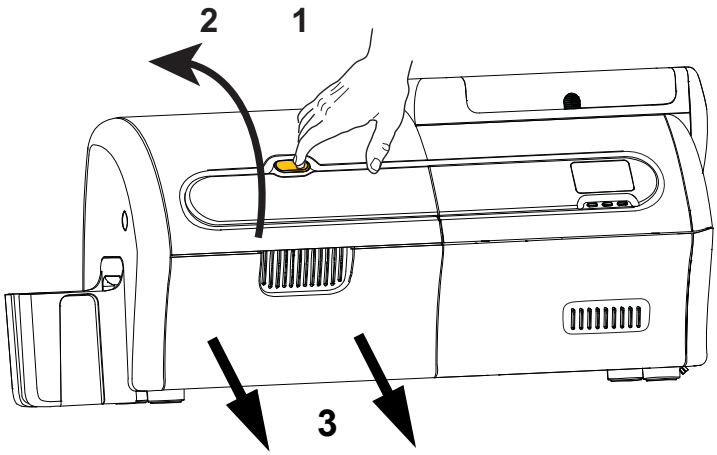
Step 10. Press the cassette down until it seats and latches.

Step 11. Close the Options Cover.

Loading a Print Ribbon

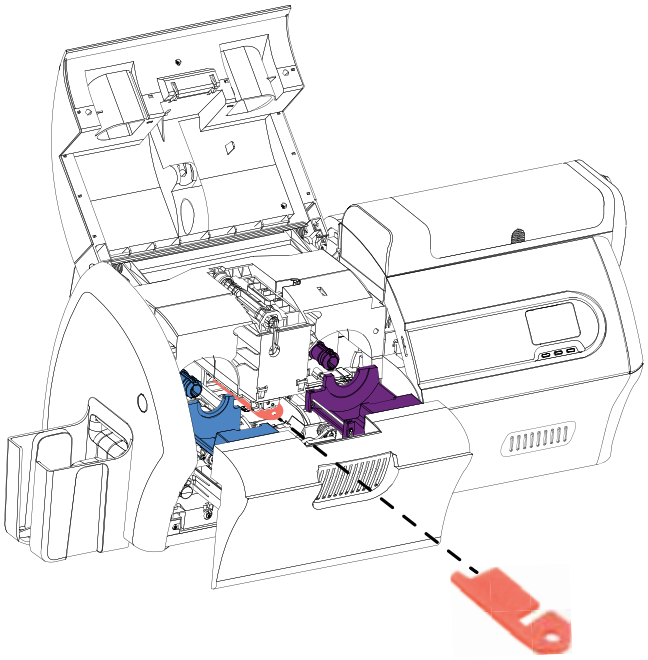
The ZXP Series 7 Printer is designed to work only with Zebra True Colours® Ribbons in order to achieve rich, vibrant image production over the full-color spectrum.

Step 1. Press the Print Cover Release Button.



Step 2. Open the Print Cover.

Step 3. Slide out the Ribbon Drawer until it stops. It is not necessary to remove it.



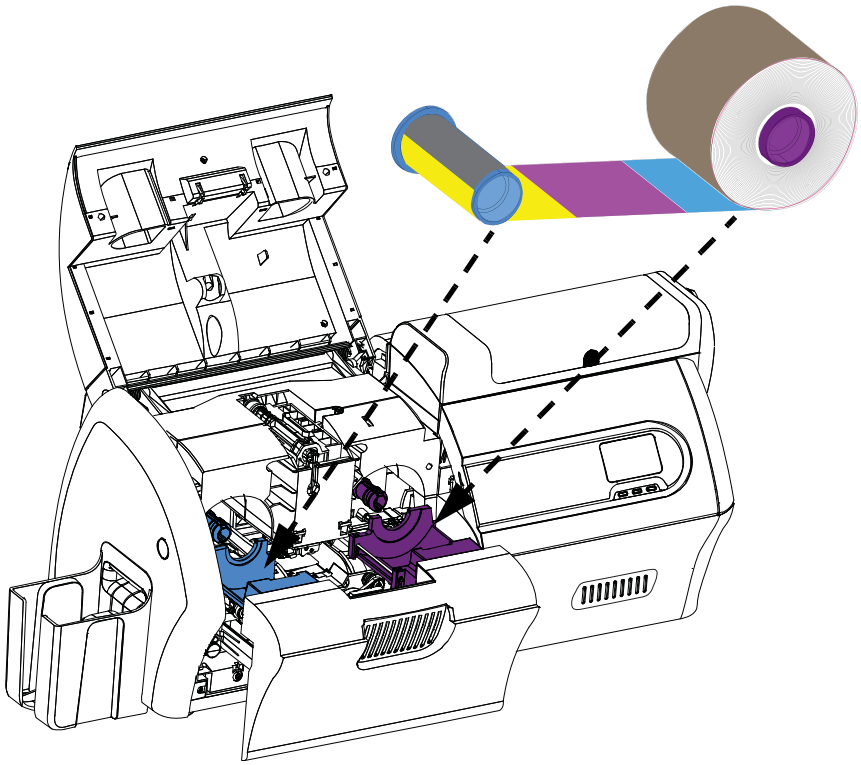
Step 4. Remove the printhead protective foam, if present.

Step 5. Take the print ribbon out of the box.

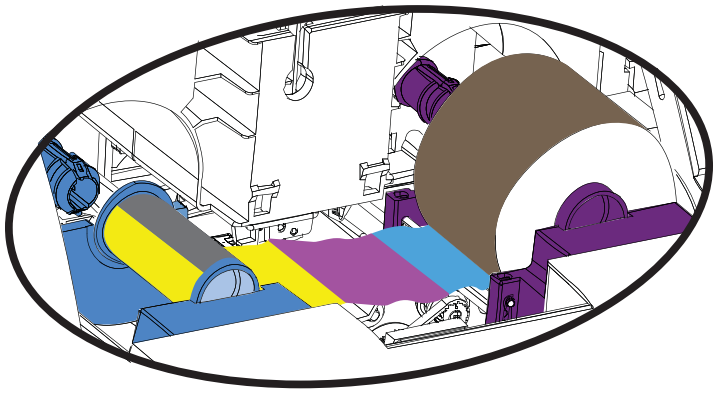
Step 6. Carefully unroll the print ribbon. Note that there is a clear leader with a sticky surface holding the print ribbon in place. This leader needs to be pulled free and rolled onto the take-up spool.

Step 7. Make sure the print ribbon comes off the bottom of the supply spool and feeds to the bottom of the take-up spool.

Step 8. Set the print ribbon supply spool (**PURPLE**) into the supply carrier (**PURPLE**).

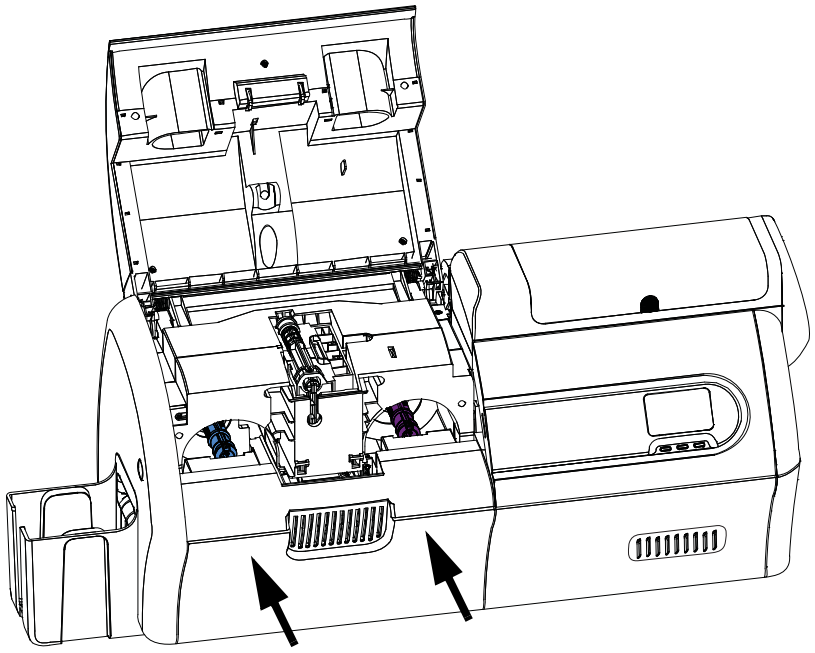


Step 9. Set the empty take-up spool (**BLUE**) into the take-up carrier (**BLUE**).

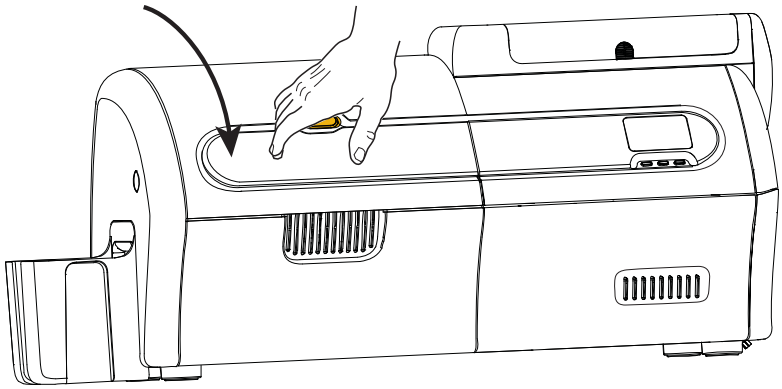


Step 10. Rotate the spools as required to take up excess slack in the ribbon.

Step 11. Close the Ribbon Drawer.



Step 12. Close the Print Cover, and press down until it latches securely.

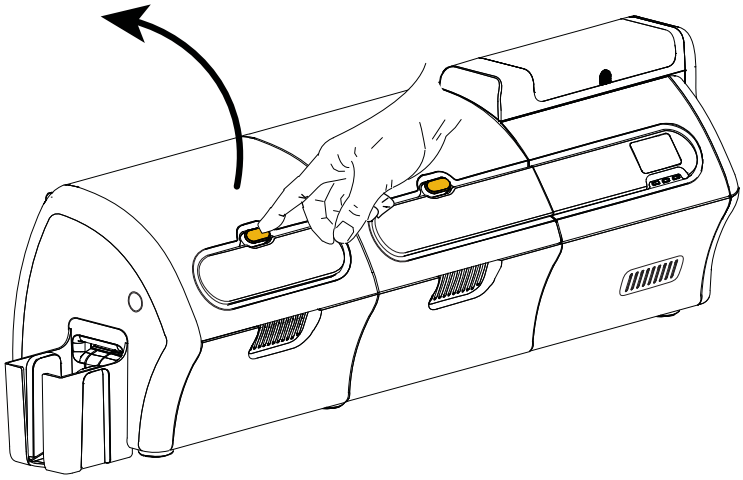


Loading the Laminate

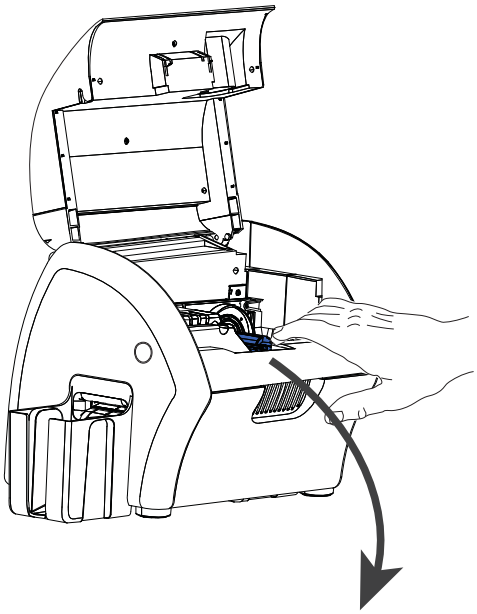
Opening the Laminator

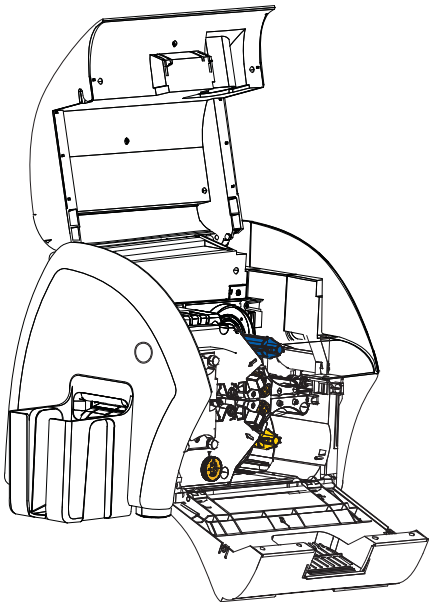
Note • The Lower Laminate Cassette is only present on the dual-sided laminator.

Step 1. Press the Laminator Cover Release Button, and lift the cover to its upright position. It will remain in that position.



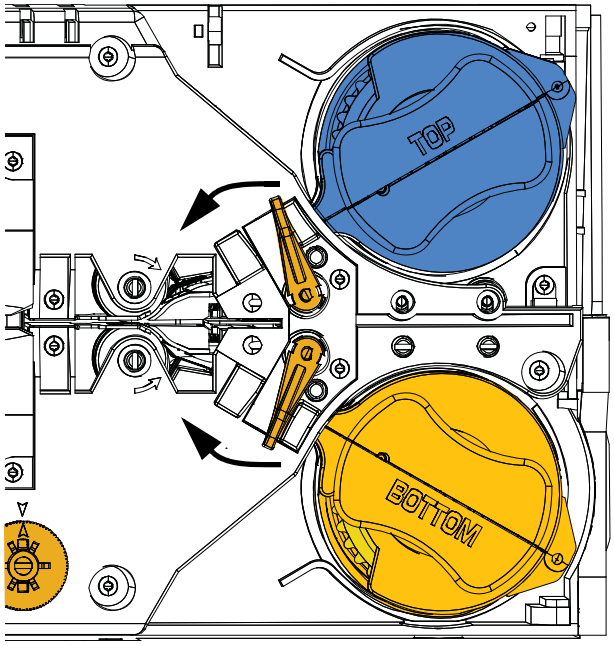
Step 2. Open the Laminator Bottom Cover.



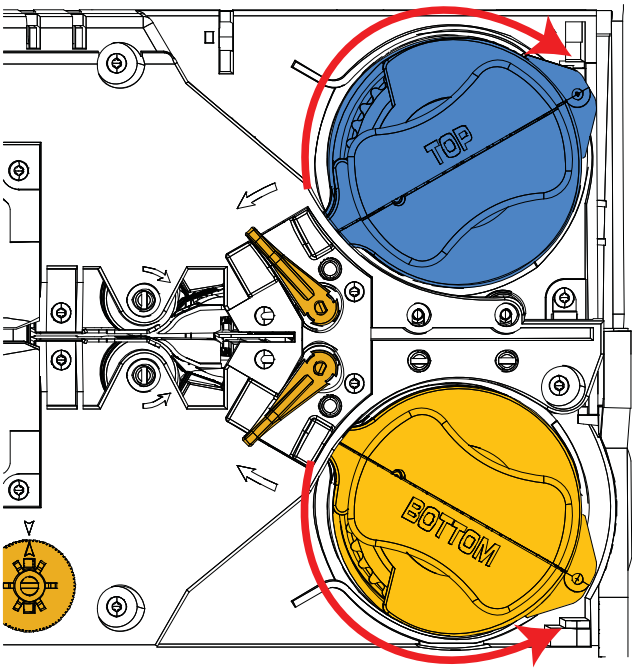


Removing the Laminate Cassette(s)

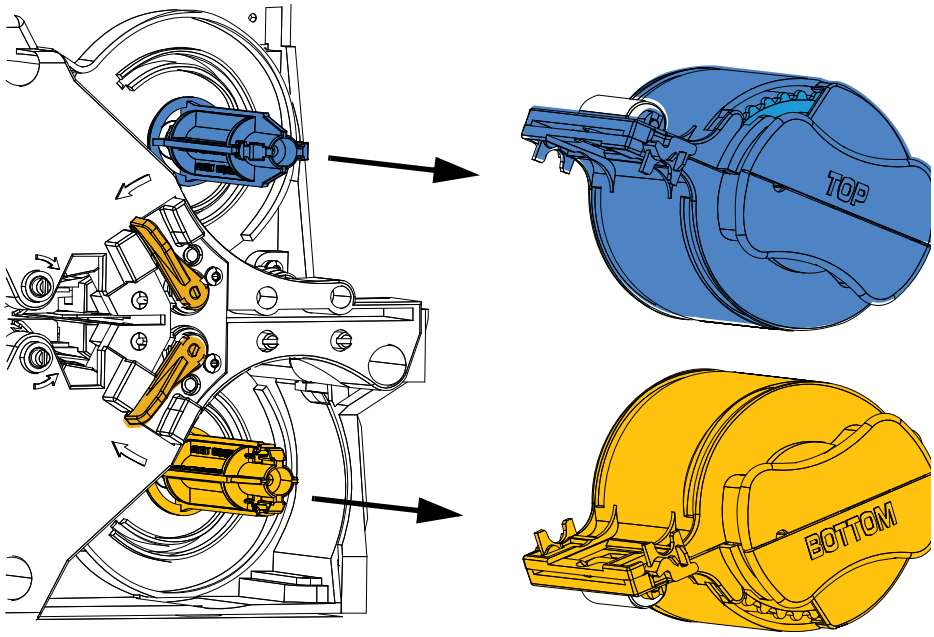
Step 1. Rotate the locking lever in the direction indicated in the figure below.



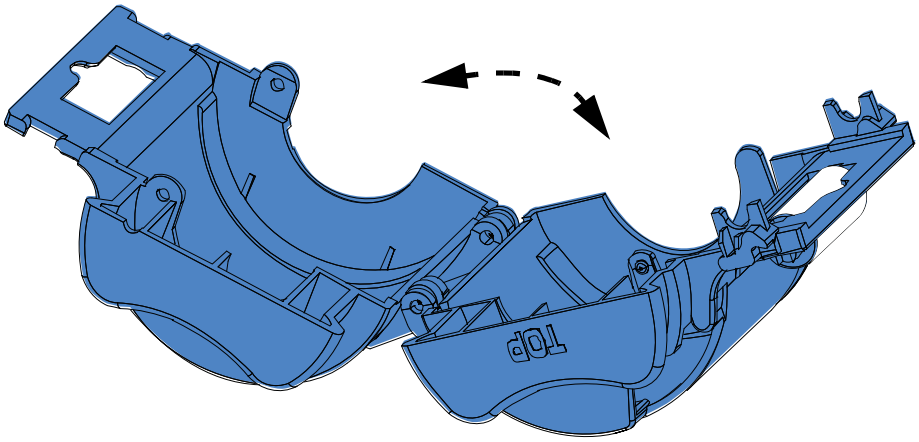
Step 2. Rotate the cassette to the mechanical stop in the direction indicated below.



Step 3. Remove the cassette(s) by pulling each cassette straight out from its spindle.



Step 4. Open the cassette(s), like a clam shell, by separating its two halves. Grasp the two halves firmly with your fingers, then pull it apart. ***Do NOT use tools***. (Upper Laminate Cassette shown.)



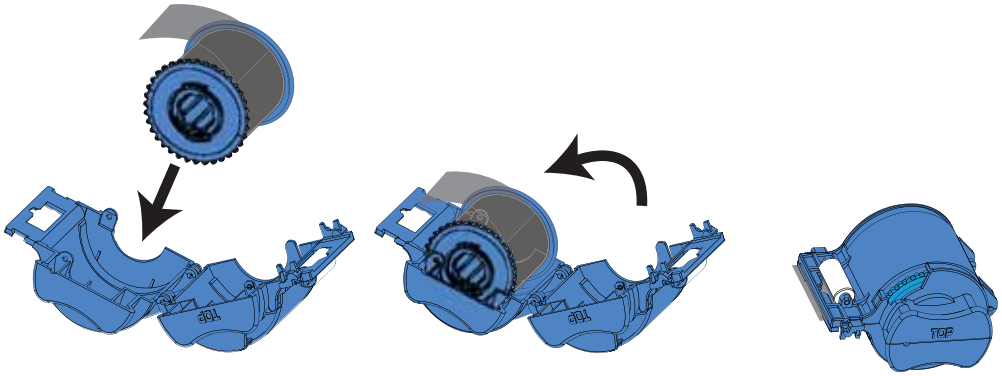
Step 5. If there is an empty laminate core in the cassette, remove it.

Loading the Laminate Cassette(s)

Step 1. Remove a new roll of laminate from its packaging. There are two different laminate rolls, one for the Upper Cassette (**Blue**) and one for the Lower Cassette (**Gold**).

Important • The geared flange on the laminate spool is removable, but **do not** remove it. If it does come off, snap it back onto the end of the spool.

Step 2. Place the roll of laminate in the **Upper Laminate Cassette** (present on both the single-sided laminator and dual-sided laminator). Note the orientation of the laminate spool with respect to the laminate cassette as shown in the figure below.

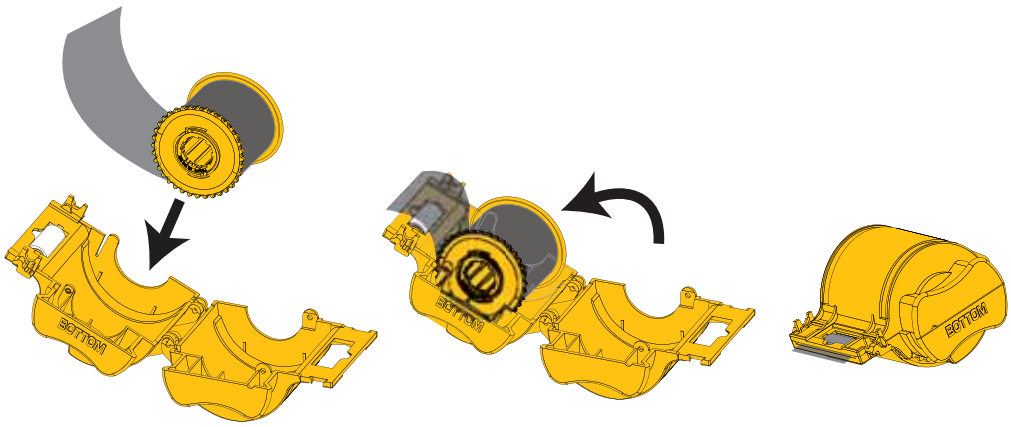


Step 3. Pull out an inch or two of laminate past the lip of the cassette.

Step 4. Close the cassette by firmly pressing the “clamshell” together. You will hear a click and feel a detent when the halves of the cassette seat together.

Step 5. Remove a second new roll of laminate from its packaging (for dual-sided laminator only).

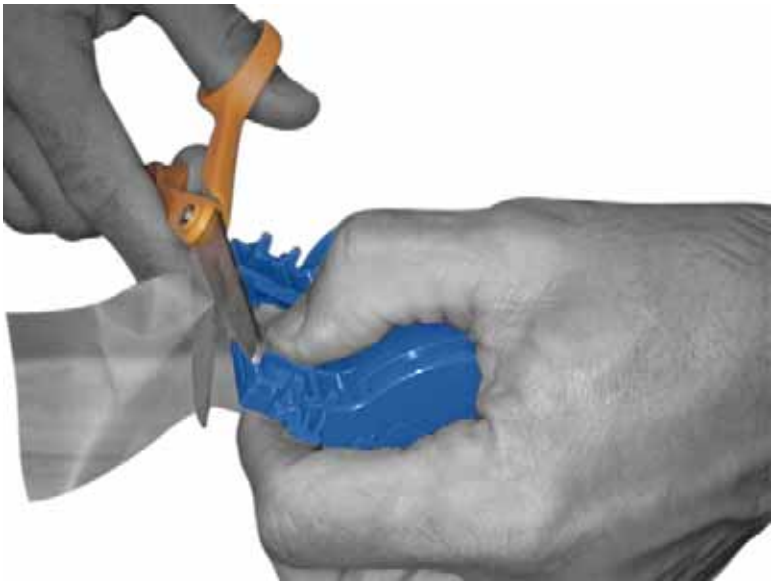
Step 6. Place the roll of laminate in the **Lower Laminate Cassette** (present on the dual-sided laminator only)**.** Note the orientation of the laminate spool with respect to the laminate cassette as shown in the figure below.



Step 7. Pull out an inch or two of laminate past the lip of the cassette.

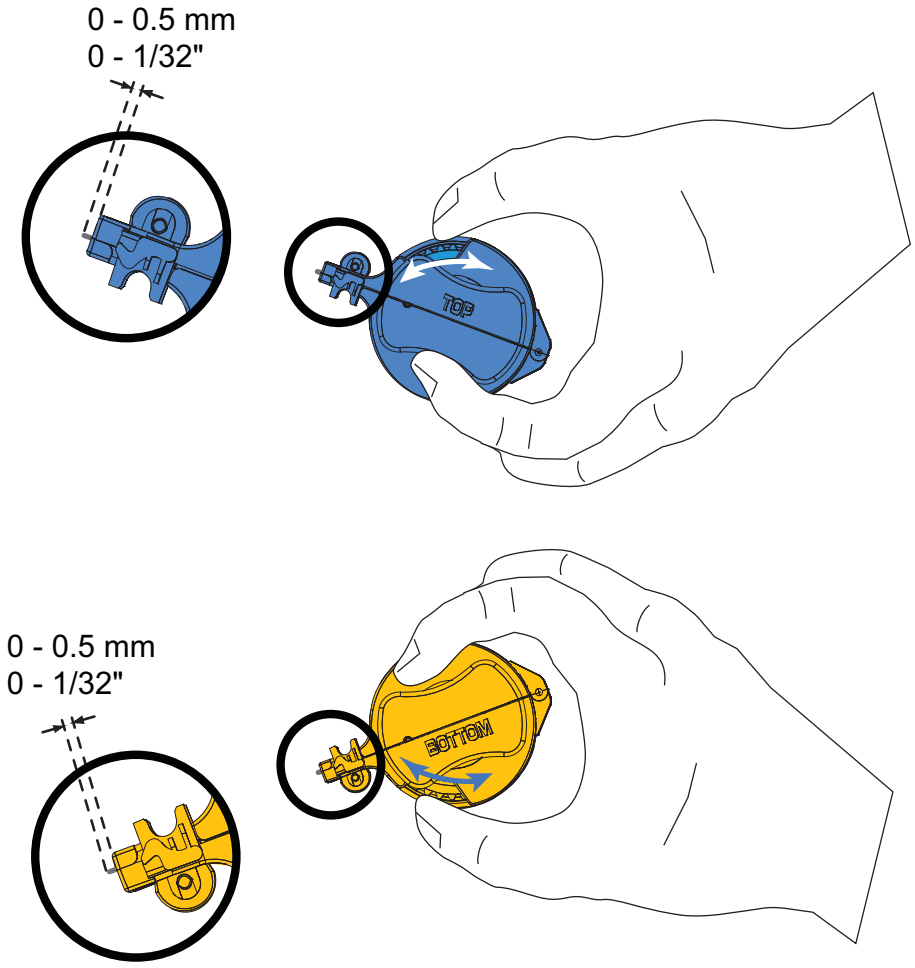
Step 8. Close the cassette by firmly pressing the “clamshell” together. You will hear a click and feel a detent when the halves of the cassette seat together.

Step 9. Cut the laminate square (as close to perpendicular as possible) with scissors. Hold the scissors in one hand. Hold the cassette with the other hand. Press the laminate firmly against the white roller thereby keeping the laminate from moving while cutting.



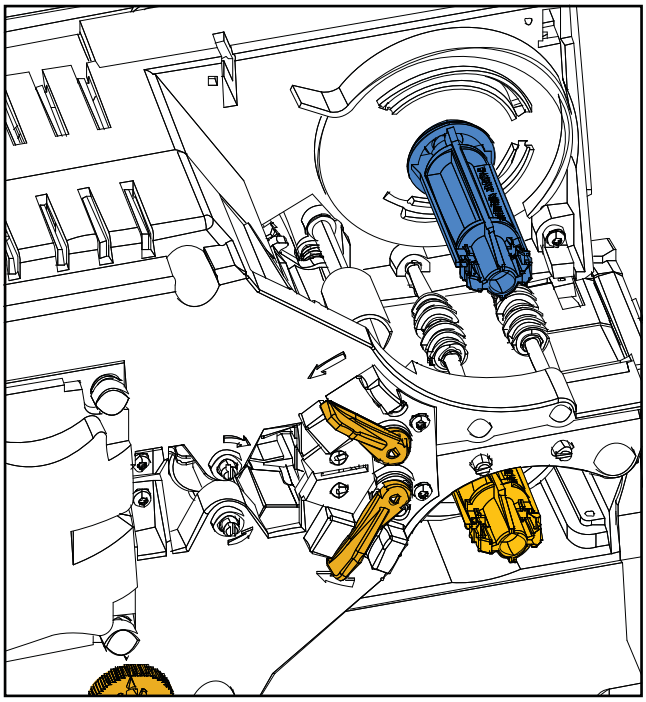
Step 10. Rotate the core to adjust the laminate overhang. Stop when the end of the laminate is just beyond the lip of the cassette, as shown below.

Important • Check for laminate overhang any time the locking lever is pressed or the cassette is removed.

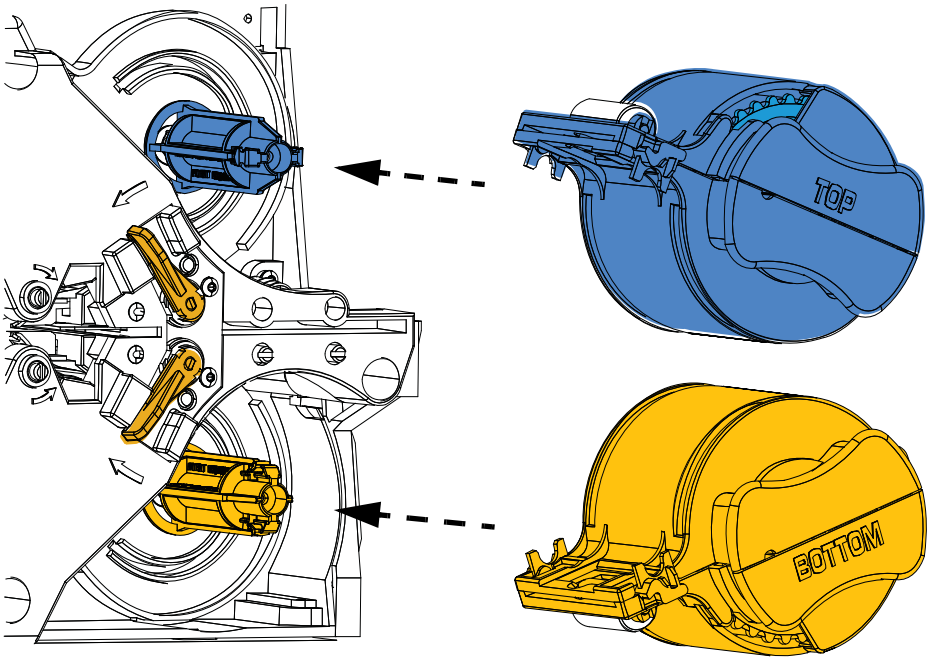


Installing the Laminate Cassette(s)

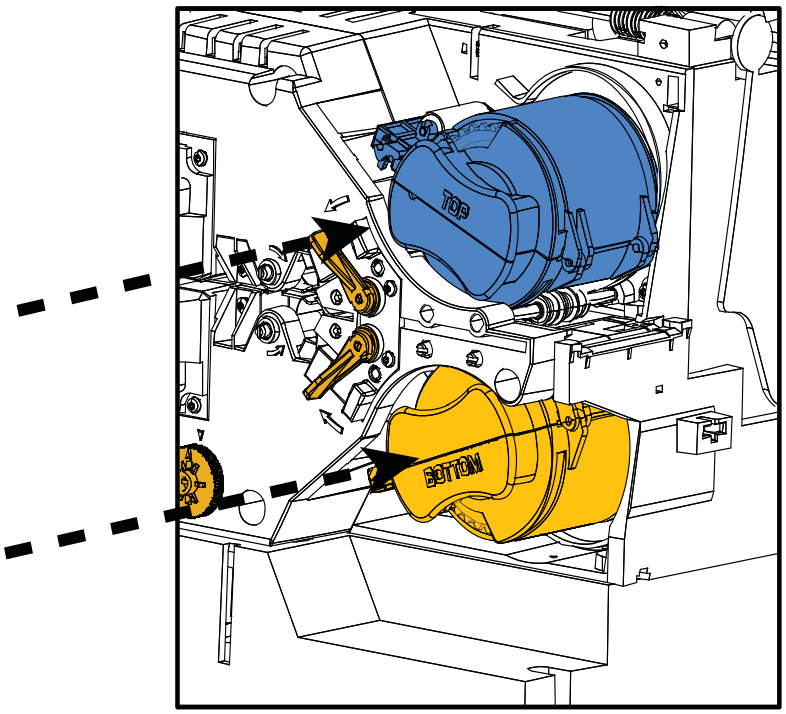
Step 1. If the laminate cassettes are not already removed, remove the cassettes.



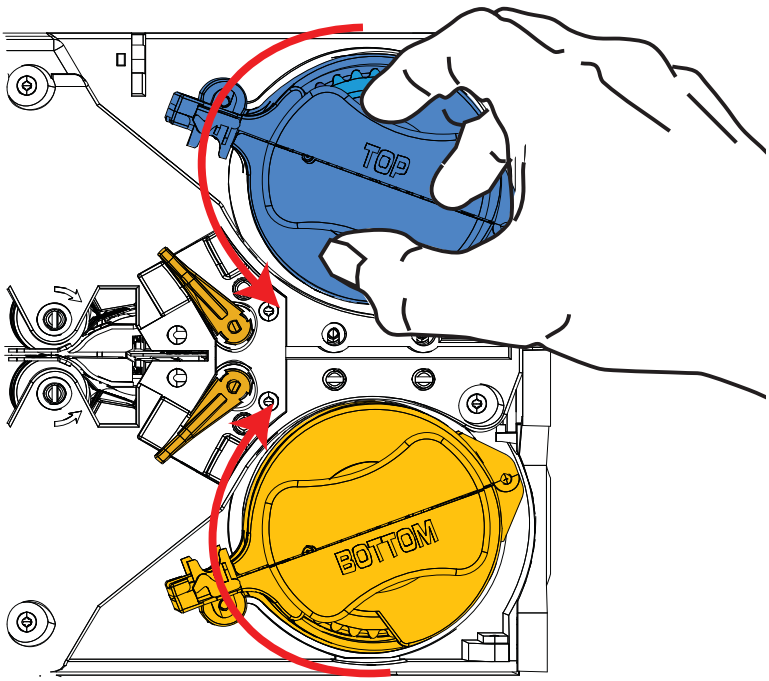
Step 2. Slide the cassette onto the spindle.



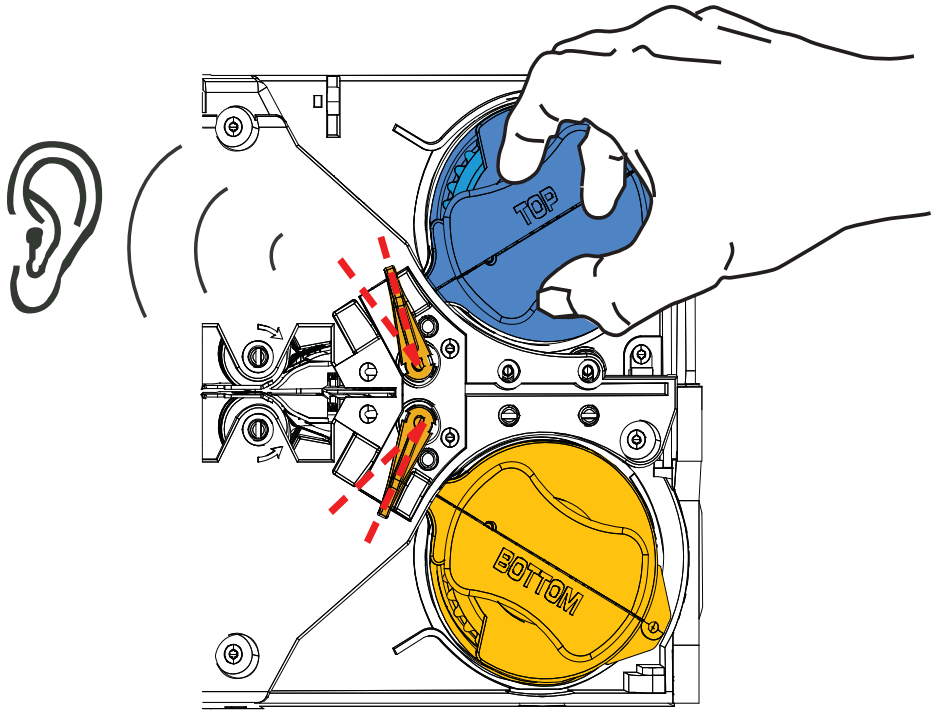
Step 3. Ensure the cassette is fully seated on the spindle. Gently press the cassette until it is flush against the laminator frame.



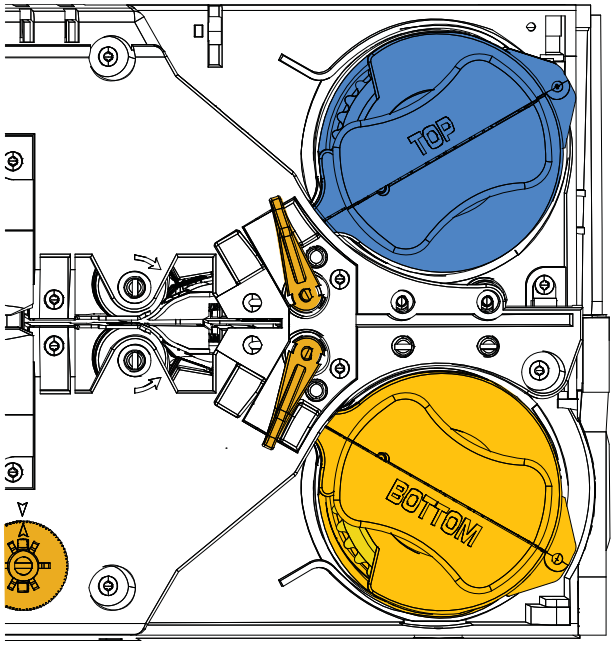
Step 4. Rotate each cassette (in the direction indicated in the figure below) until it stops.



Step 5. Apply increasing rotational pressure, and listen for the audible click when the locking lever snaps into place.

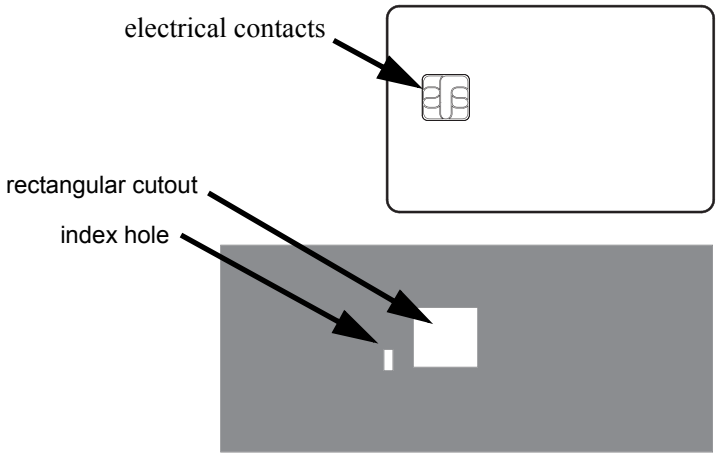


Step 6. The laminate is installed



Laminating Contact Smart Cards

Use registered laminate for the top surface of a contact smart card. This type of laminate has a repeating pattern of an index hole and a rectangular cutout to expose the card's electrical contacts.

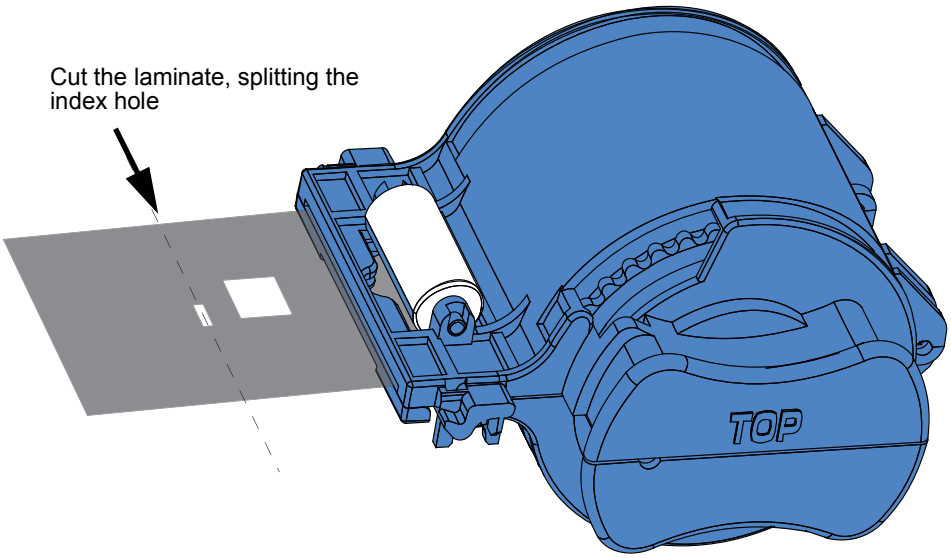


Step 1. Remove the Upper Laminate Cassette; see Page 19.

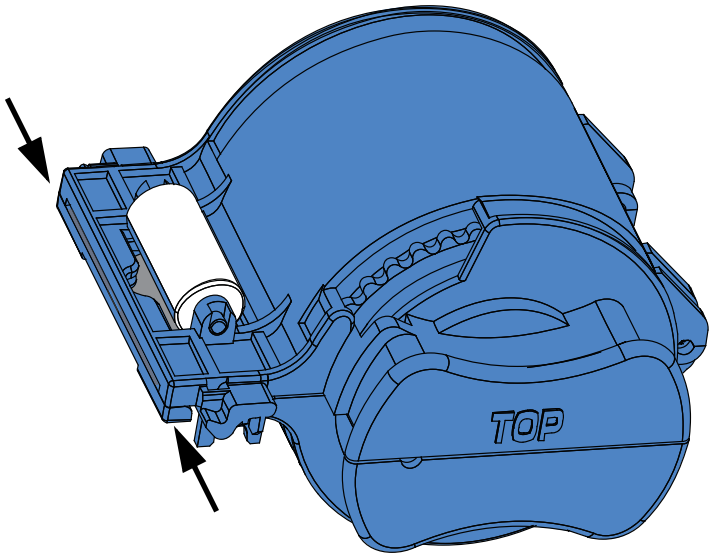
Step 2. Open the cassette, and remove the laminate if present.

Step 3. Load the smart card laminate into the cassette; see Page 21.

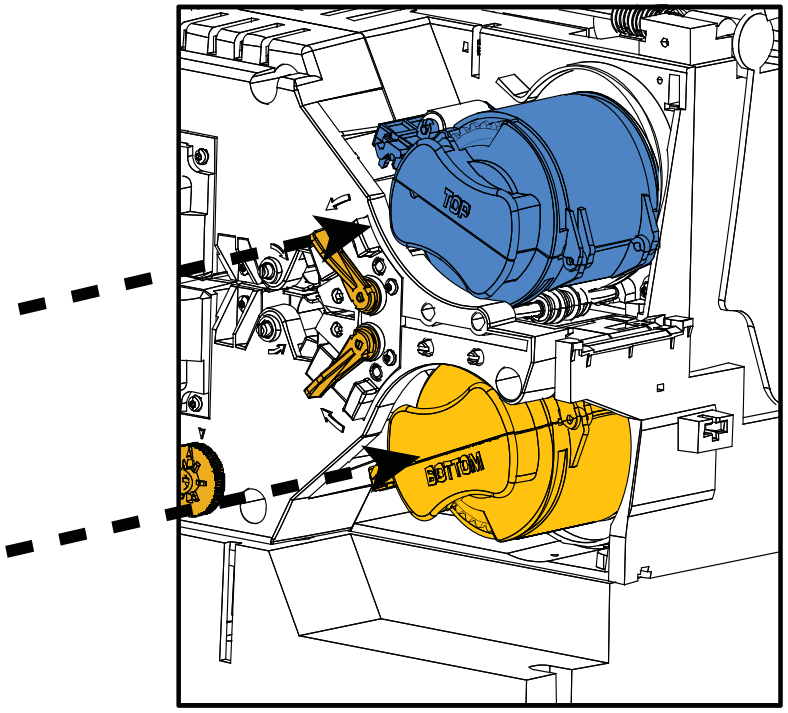
Step 4. Cut the laminate, splitting the index hole as shown.



Step 5. Rotate the core to adjust the laminate overhang. Stop when the end of the laminate (not the edge of the index hole) is just beyond the lip of the cassette, as shown on Page 22.



Step 6. Install the cassette; see Page 24 for details.



Using Partial-Width Laminate

Note • Since partial-width laminates are only used for the back (i.e., lower) surface of the card, this section only applies to the dual-sided laminator.

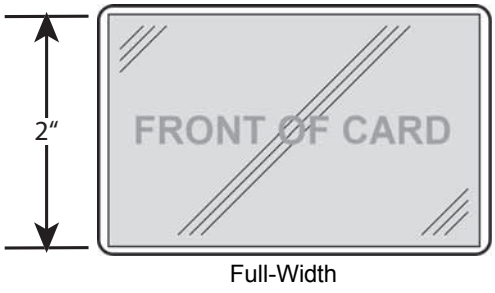
Laminates come in three widths:

"Full-Width" laminate is 2 in (51 mm) wide. The full-width laminate is used on the front (i.e., upper) or back (i.e., lower) surface of the card.

"Partial-Width" laminate is available in two widths:

- 1.66 in (42mm) wide laminate is used for cards with a writable signature panel
- 1.33 in (33 mm) wide laminate is used for cards with a magnetic stripe

For either partial-width laminate, a collar on the spool keeps the laminate positioned correctly.



Full-Width

Signature Panel

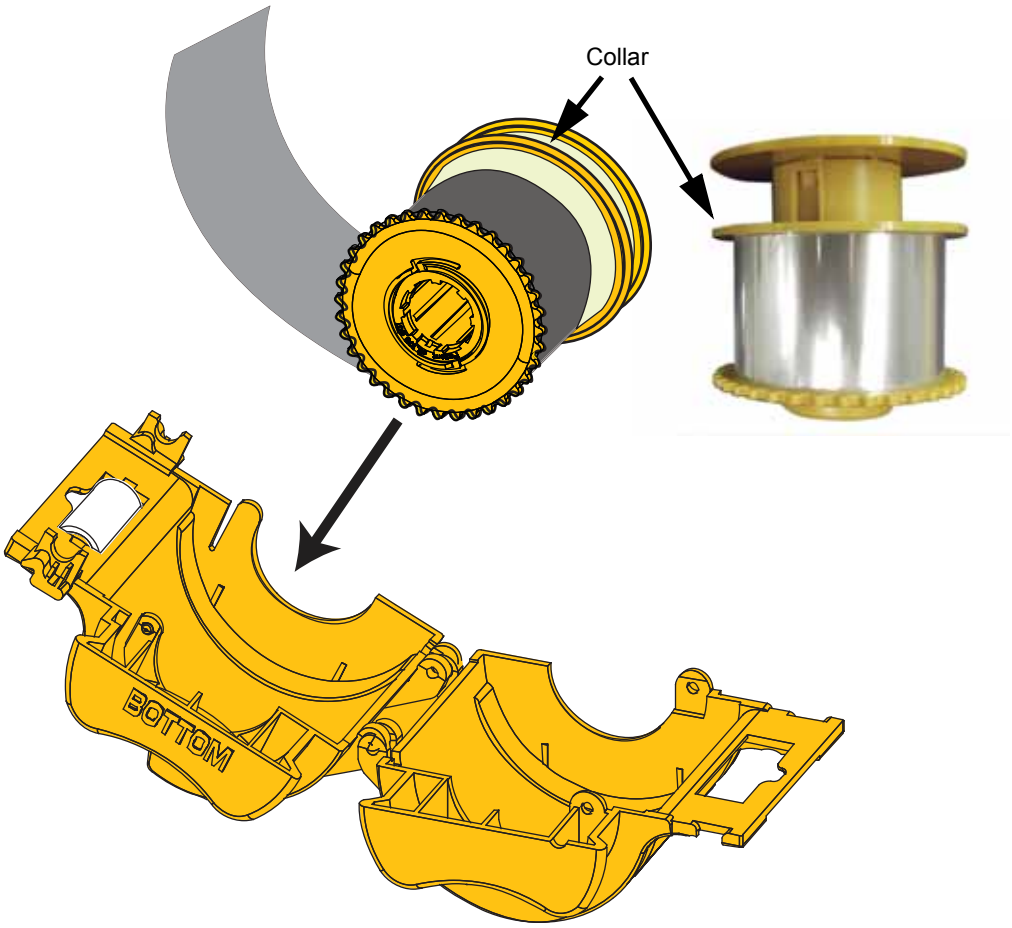
Magnetic Stripe

Using Partial-Width Laminate (continued)

Step 1. Remove the Lower Laminate Cassette; see Page 19.

Step 2. Open the cassette, and remove the laminate if present.

Step 3. Load the partial-width laminate into the cassette. Note that the collar on the laminate spool is on the end *opposite* the geared flange.



Step 4. Trim the partial-width laminate; see Page 22.

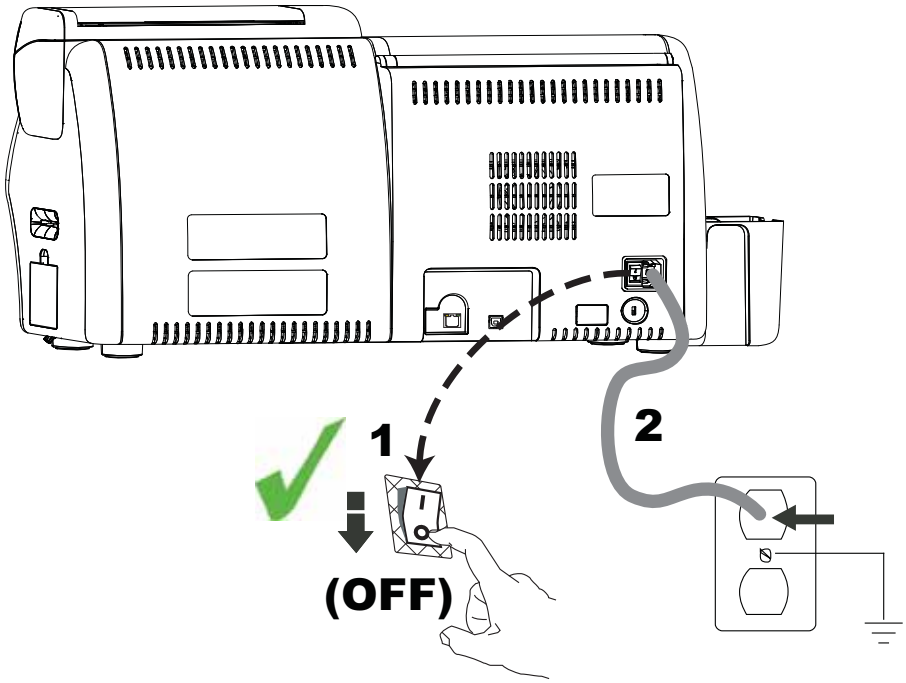
Step 5. Rotate the core to adjust the laminate overhang; see Page 23.

Step 6. Install the cassette; see Page 24.

Connecting Power

Electric Shock • Limit AC power supplied to the Printer to 90V~264V, 47-63Hz (50-60Hz nominal). Limit excess current draw to 16 amps or less, using an associated circuit breaker or other such device. Never operate the Printer in a location where operator, computer, or printer can get wet. Personal injury could result. The Printer must be connected to an earthed electrical power source and properly protected against electrical surges and grounding faults; the electrical reliability of the Printer is based on the reliability of the main power source and the earth connection.

The Printer's power supply is an internal unit that can only be serviced or replaced by trained and authorized personnel.



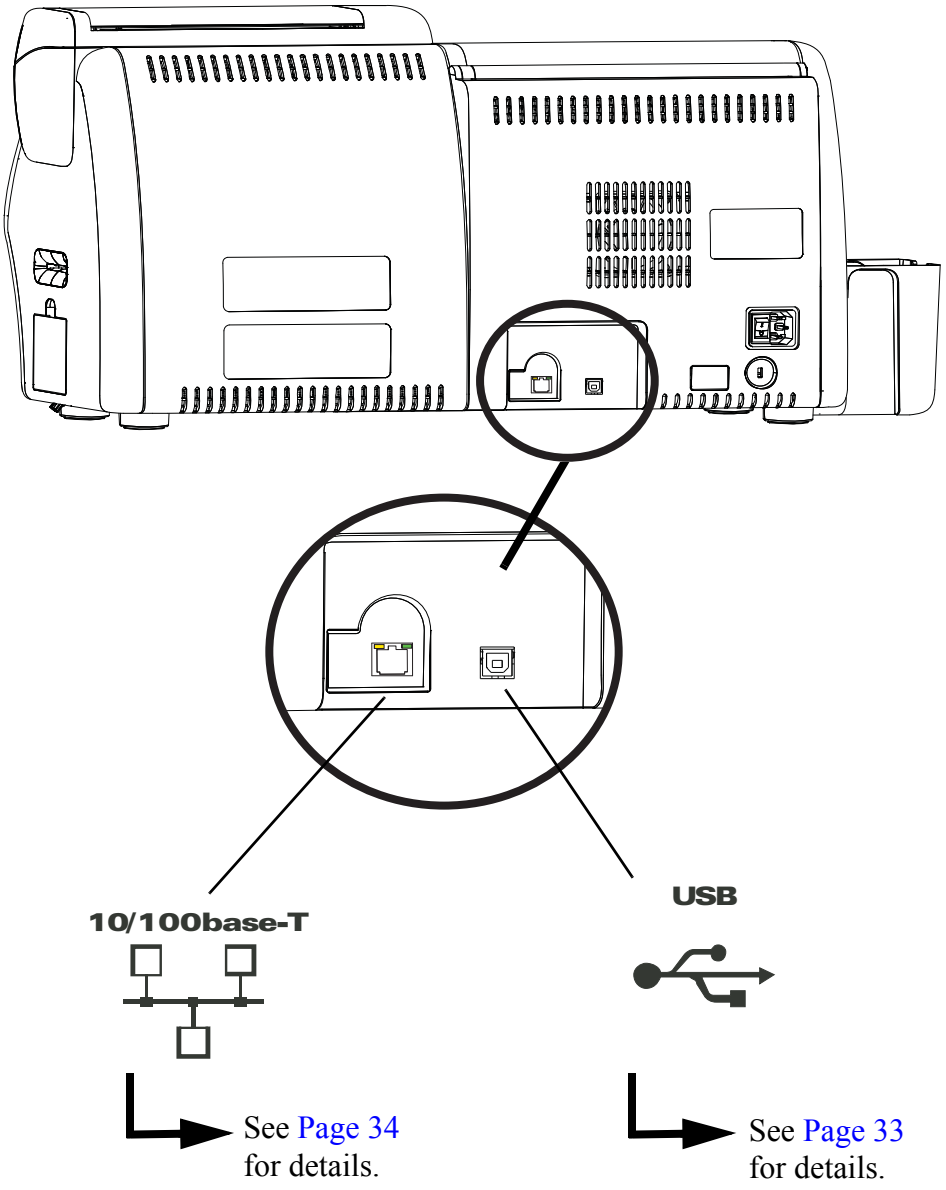
Step 1. Place the Printer's power switch in the OFF (○)position.

Step 2. Depending on your local AC voltage, plug the appropriate power cord into the Printer's power connector and a grounded AC power source connection.

Important • DO NOT switch the printer on.

Connecting the Printer to your Computer

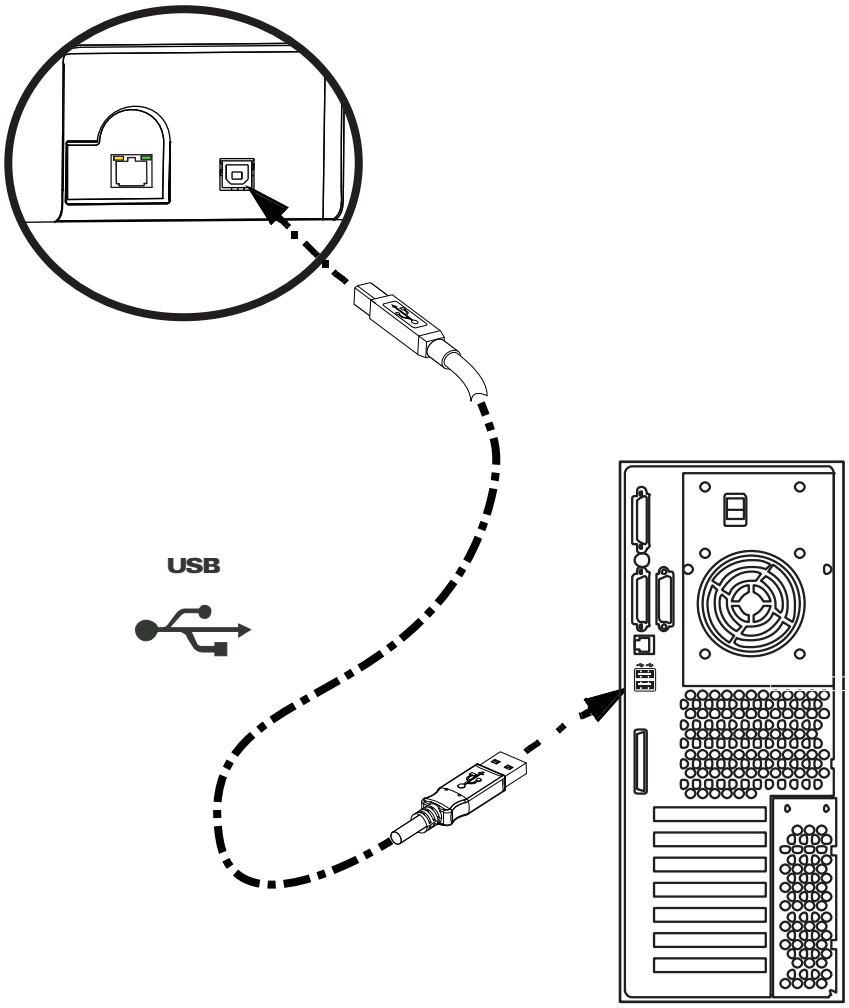
Interface Connector Locations



USB Connection

Step 1. Connect the USB cable to the printer and the computer.

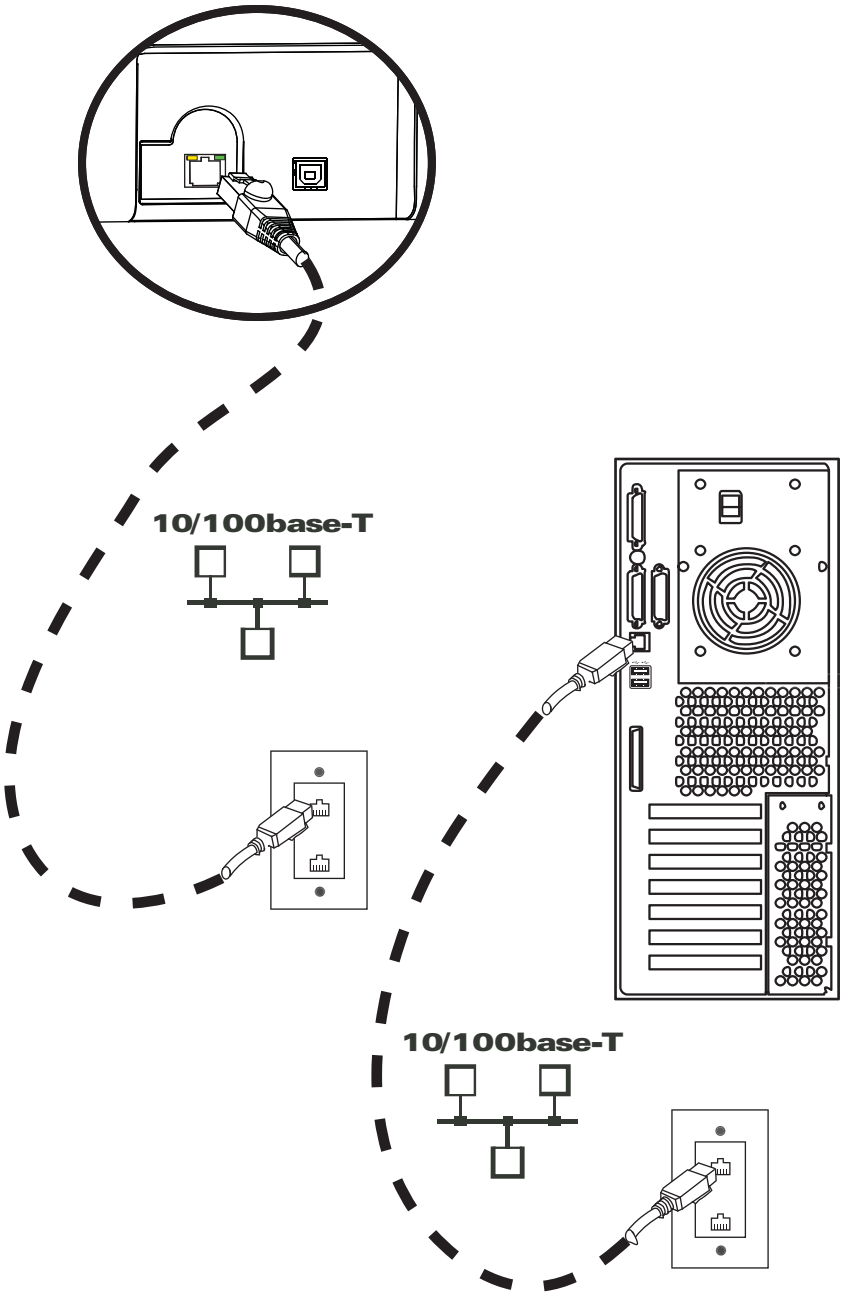
Step 2. Ensure that the printer's power switch in the OFF (○) position.



Ethernet Connection

Step 1. Connect the Ethernet Port on the rear of the printer to an Ethernet Network Port.

Step 2. Turn the printer's power switch to the ON (|) position.



Installing the Windows Printer Driver

Installing the USB Printer Driver

Note • To install the Ethernet driver, see Page 41.

Step 1. If not already done, connect power to the printer. Turn power OFF.

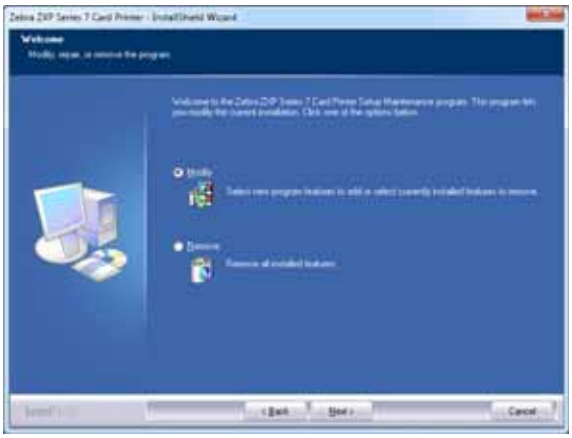
Step 2. Connect the USB port on the rear of the printer to the computer's USB port.

Step 3. Ensure that the Printer's power switch is in the OFF (O) position.

Step 4. Insert the **User Documentation and Drivers CD** into the CD drive of the host computer. The **Main Menu** will open.

Step 5. From the **Main Menu**, click **Install Zebra Printer Driver**.

Step 6. If a Printer and Driver is already installed on your computer, one of the following **Welcome** windows will be displayed; otherwise go to Step 8.



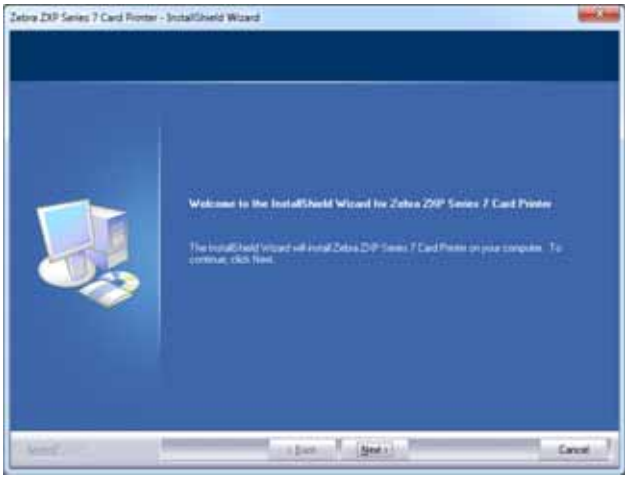
Step 7. Choose the maintenance operation to be performed:

a. If you are installing a newer version of the driver, select **Upgrade** to install the new driver.

b. If you are installing the same version driver, select **Modify** to install additional Ethernet or USB printer drivers.

c. Select **Remove** to remove the current printer driver. When asked about removing the smart card readers drivers, click **Yes** to remove them; click **No** to leave them installed. At the end of the un-install process, you will be asked to re-boot your computer.

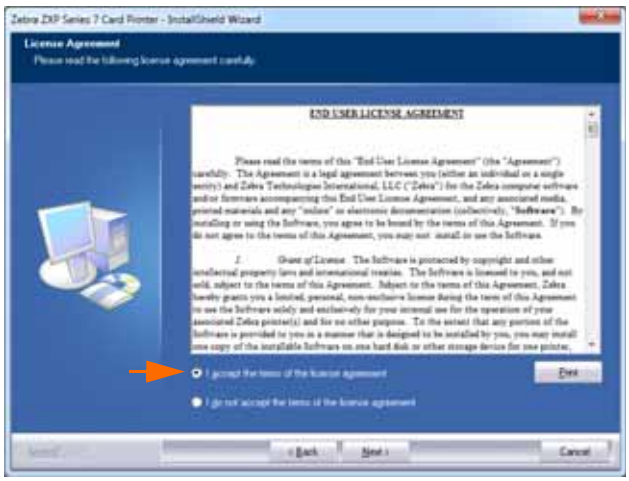
Step 8. The **InstallShield Wizard** window will open. To proceed with the installation, click the **Next** button.



Step 9. Select **Install USB printer drivers**, and click the **Next** button.

Step 10. Ensure that the printer's power switch is in the OFF (◯) position, and click the **OK** button. After installation of the driver, you will be prompted to turn on the printer.

Step 11. This will bring up the **License Agreement** window. To proceed, select the *I accept the terms of the license agreement* option; and click the **Next** button.



Step 12. This will bring up the **Customer Information** window. Enter your name and the name of the company for which you work, and click the **Next** button.

Step 13. This will bring up the **Choose Destination Location** window.

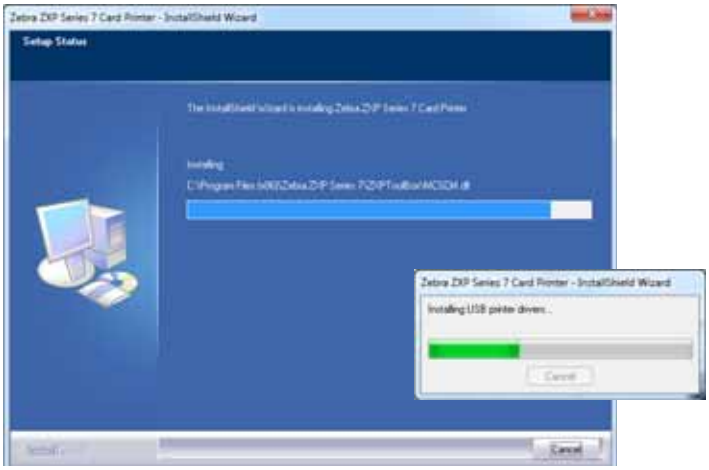
- To accept the default destination location where setup will install the files, click the **Next** button.

- or -

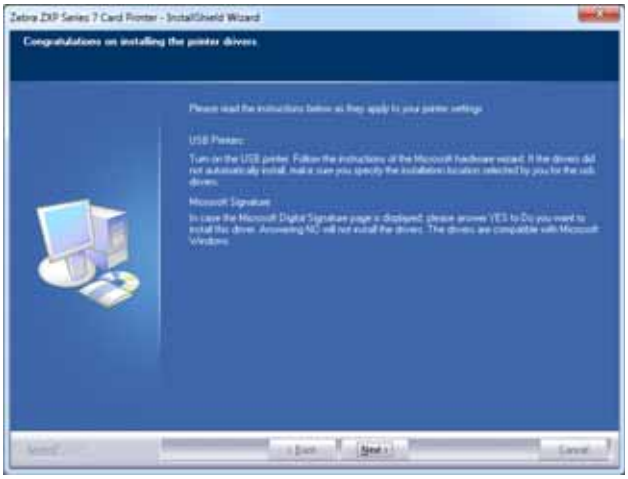
- Click the **Change** button, select a folder where setup will install the files, and click the **Next** button.

Step 14. This will bring up the **Ready to Install the Program** window. To continue, click the **Install** button.

Step 15. Observe the driver installation via **Setup Status** window.



Step 16. The **Congratulations** window will appear. Turn on the USB printer. Read the instructions carefully, and click the **Next** button.



Step 17. When the **InstallShield Wizard Complete** window appears, click the **Finish** button.

Step 18. This completes USB driver installation.

Note • For optimum performance, you may need to change the card setup (card type, orientation, etc.), encoding, and/or black panel settings via the Printer Driver; see *Printing Preferences* on page 75.

Installing the Ethernet Printer Driver

Note • To install the USB driver, see Page 35.

Preparation

Before proceeding with the installation, you will need the IP Address of the Printer.

Step 1. The IP Address is accessed via the Operator Control Panel (OCP).

Step 2. Press the INFO button on the OCP (arrow above) to view the **Printer Info** menu.

Step 3. Press the NEXT button to view the **Network Info** menu.

Step 4. Record the IP (IPv4) address; e.g., 10.1.24.66.

Step 5. Press the NEXT button again to view the IPv6 address.

Step 6. Record the IPv6 address; e.g., 207:4DFF:FE45:6B22.

Step 7. Press the EXIT button to return to the Operational Mode Display

Step 8. Whether you choose the IPv4 address or the IPv6 address depends on the network configuration in use.

Installation

Important • The Ethernet printer need not be in the same subnet as the host. It can be in a different subnet as long as it is reachable from the host.

Step 1. If not already done, connect power to the printer. Turn power ON (|).

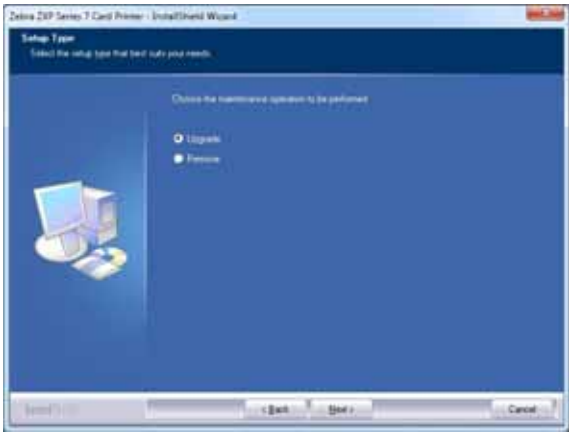
Step 2. Connect the Ethernet port on the rear of the printer to the Ethernet network connection or directly to the computer's Ethernet port.

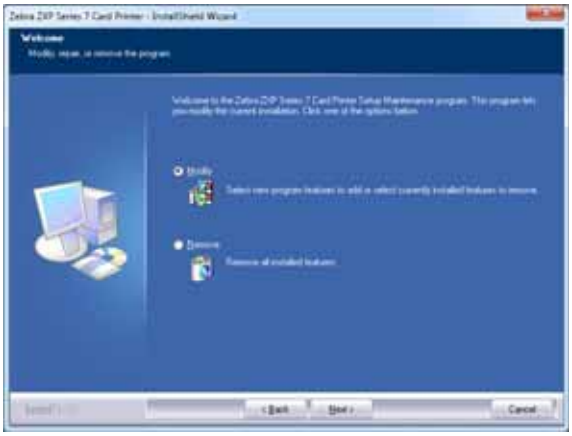
Step 3. Ensure that the Printer's power switch is in the ON (|) position.

Step 4. Insert the **User Documentation and Drivers CD** into the CD drive of the host computer. The **Main Menu** will open.

Step 5. From the **Main Menu**, click **Install Printer Driver**.

Step 6. If a Printer and Driver is already installed on your computer, one of the following **Welcome** window will be displayed; otherwise go to, Step 8.





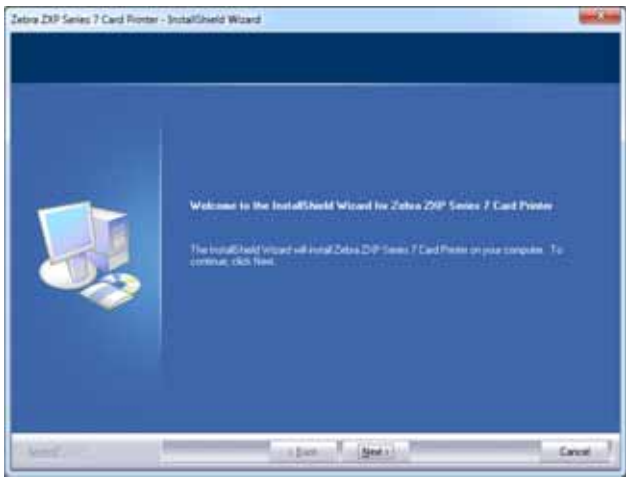
Step 7. Choose the maintenance operation to be performed:

a. If you are installing a newer version of the driver, select **Upgrade** to install the new driver.

b. If you are installing the same version driver, select **Modify** to install additional Ethernet or USB printer drivers.

c. Select **Remove** to remove the current printer driver. When asked about removing the smart card readers drivers, click **Yes** to remove them; click **No** to leave them installed. At the end of the un-install process, you will be asked to re-boot your computer.

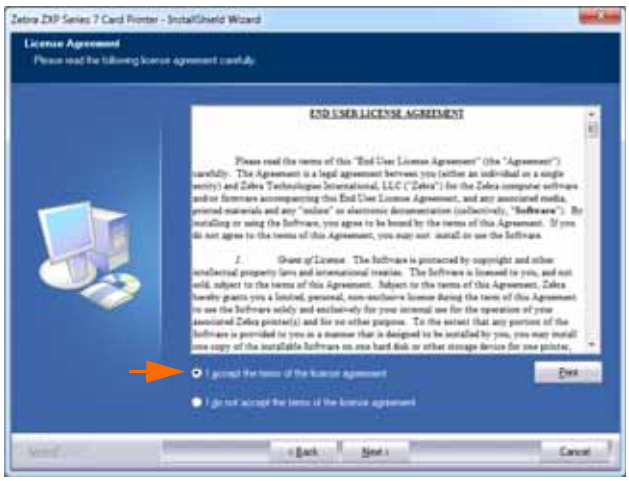
Step 8. The **InstallShield Wizard** window will open. To proceed with the installation, click the **Next** button.



Step 9. Select **Install Ethernet printer drivers**, and click the **Next** button.

Step 10. Ensure that the Printer's power switch is in the ON (|) position, and click the **OK** button.

Step 11. This will bring up the **License Agreement** window. To proceed, select the *I accept the terms of the license agreement* option, and click the **Next** button.



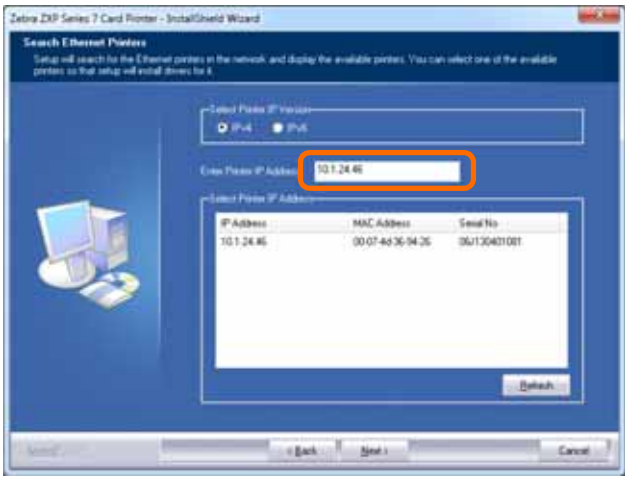
Step 12. This will bring up the **Customer Information** window. Enter your name and the name of the company for which you work, and click the **Next** button.

Step 13. This will bring up the **Search Ethernet Printers** window.

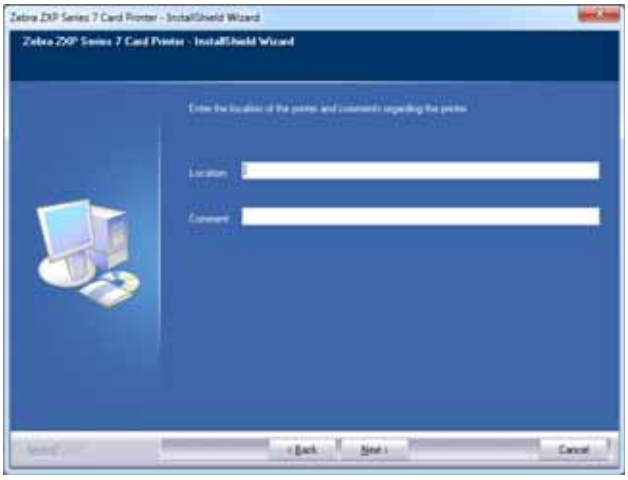
Based on the network configuration in use, select the Printer IP Version (IPv4 or ipV6); and click the **Refresh** button. Setup will search for the Ethernet printers on the network and display the available printers. Select the desired printer, and click the **Next** button.

- or -

If Ethernet printer is on a different subnet and is not discovered by the host, you can manually enter the Printer IP Address directly (circled below); and click the **Next** button.



Step 14. Enter the *Location* of the printer and any *Comments* regarding the printer, and click the **Next** button.



Step 15. This will bring up the **Choose Destination Location** window.

- To accept the default destination location where setup will install the files, click the **Next** button.

- or -

- Click the **Change** button, select a folder where setup will install the files, and click the **Next** button.

Step 16. This will bring up the **Ready to Install the Program** window. To continue, click the **Install** button.

Step 17. Observe the **Setup Status** window.

Step 18. When the **InstallShield Wizard Complete** window appears, click the **Finish** button.

Step 19. This completes Ethernet driver installation.

Note • For optimum performance, you may need to change the card setup (card type, orientation, etc.), encoding, and/or black panel settings via the Printer Driver; see *Printing Preferences* on page 75.

3

Operation

Introduction

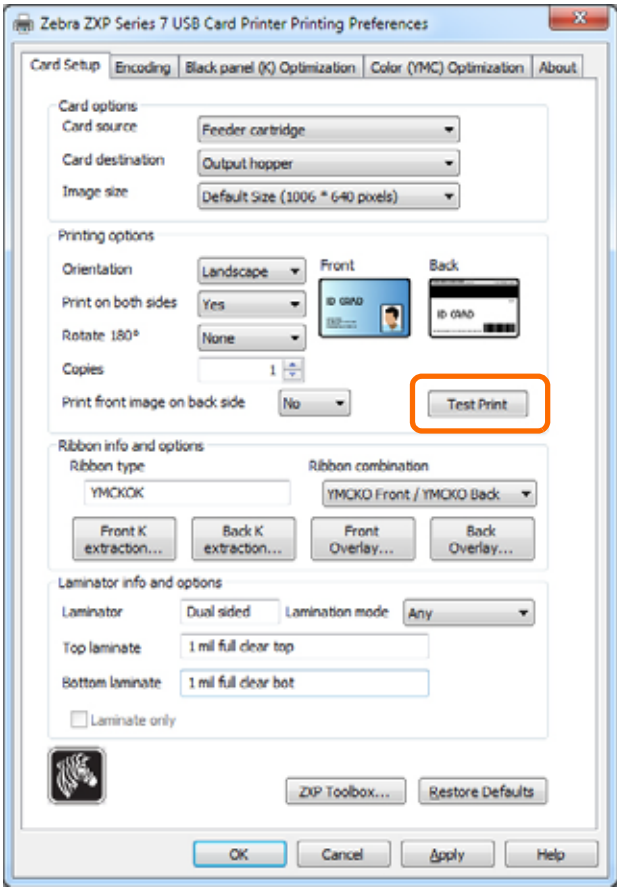
Printing with the Card Printer is similar to printing with any other printer in a Windows environment.

- Install the Printer Driver Software (Section 2, Installing the Windows Printer Driver).
- Connect the Printer to a power source and computer (Section 2, Connecting Power).
- Set the Printer Properties and Printing Preferences (default values will be appropriate for most applications).
- Select the Printer via either the Operating System or an appropriate application software program.
- Print a Test Card (you can print via a Microsoft Certified Windows driver or a custom application using the ZMotif SDK development tools).

Printing a Test Card

To print a test card:

1. Access the Card Setup Tab: Select *Start* > *Devices and Printers*. Then right click the *Zebra ZXP Series 7 Card Printer* listing, and select *Printing Preferences* > *Card Setup.*

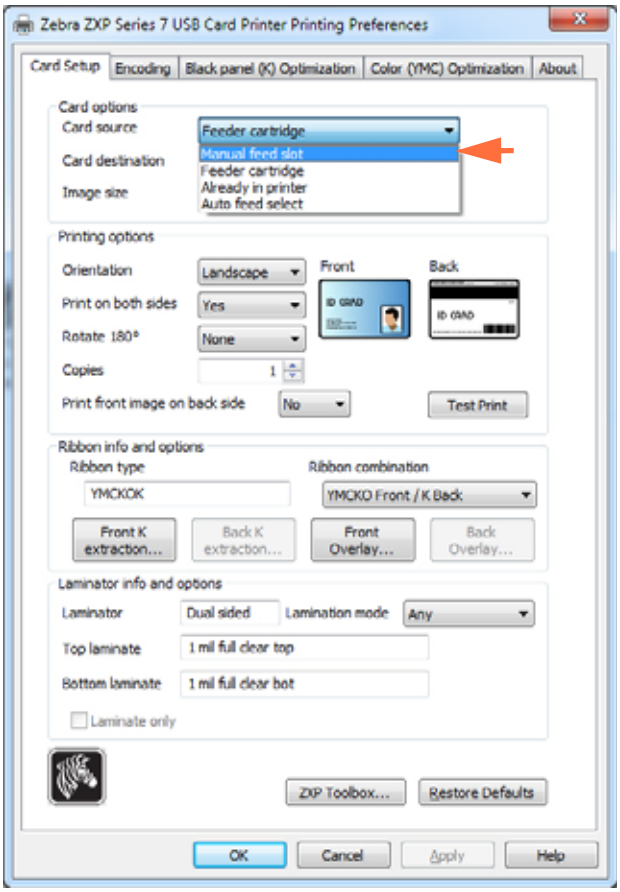


2. Ensure that cards are in the Feeder Cartridge.
3. Click the **Test Print** button (circled above).
4. The printer will feed in a card and start printing.
5. Once the printing job is finished, the card exits from the printer into the Output Hopper.

Manual Card Feed

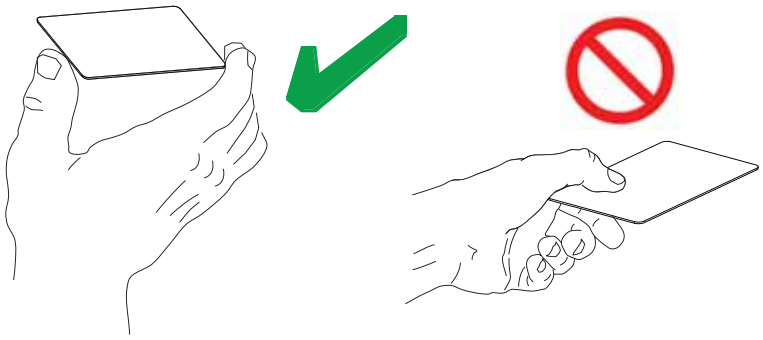
A Manual Feed Slot, located in the right-hand side of the Printer, is available for feeding single cards.

1. Access the Card Setup Tab: Select *Start* > *Devices and Printers*. Then right click the *Zebra ZXP Series 7 Card Printer* listing, and select *Printing Preferences* > *Card Setup.*

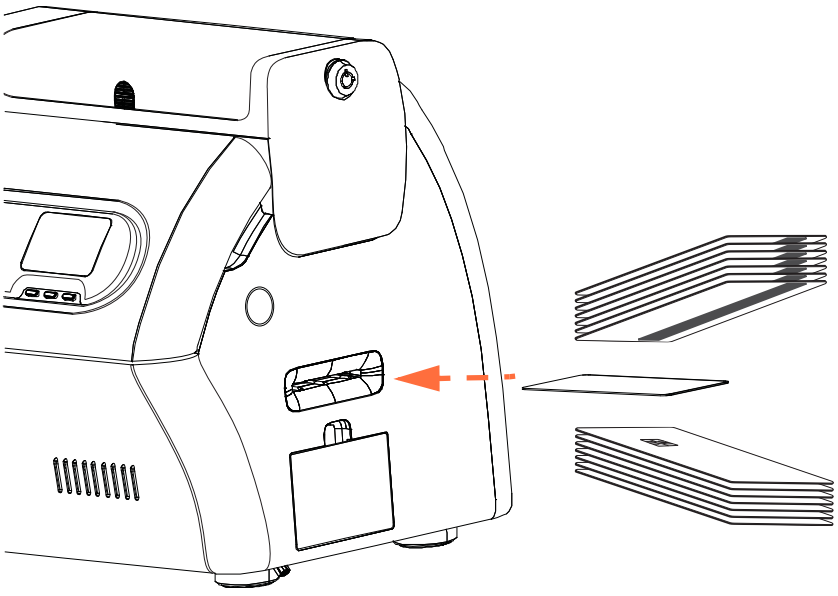


2. In the Card Setup tab, select the *Manual feed slot* from the dropdown menu (arrow above).
3. Click the **Apply** button.
4. Click the **OK** button.

5. Hold the cards by the edges only. Do not touch the printing surface as this can reduce print quality. The surface of the cards must remain clean and dust free.



6. Insert a card into the Manual Feed Slot in the correct orientation:
   - For Standard Cards, any orientation is acceptable.
   - For Magnetic Cards, the magnetic stripe is DOWN and to the REAR.
   - For Contact Smart Cards, the chip is UP and to the LEFT.
   - For Cards with a Barcode, see Appendix F for details.



7. Continue to insert the card until you feel a slight resistance when the printer “grabs” it.
8. The card will automatically be drawn into the printer when the print job is sent.

Operator Control Panel (OCP)

The printer is equipped with an OCP Display and three “soft” OCP Buttons which give access to the printer menus. The menus can be accessed when the printer status shows READY.

- Press the **MENU** button, to access the Main Menu.
- Press the **INFO** button, to access and view the Printer Settings Menu.

Messages

The OCP Display provides printer status information. The messages displayed fall into three categories:

- Operational, see Page 54.
- Warning, see Page 55.
- Error, see Page 55.

Operational

MESSAGE	DESCRIPTION
ALARM	An error message needs to be cleared before normal operations can resume.
CANCELING	The Cancel button was pressed, and the current operation is being terminated.
CONFIGURATION DATA	Configuration data is being transferred from the computer to the printer.
CONTACT OPERATION	Contact Smart Card is being encoded; i.e., the card is in position and data is being transferred.
CONTACTLESS OPERATION	Contactless Smart Card is being encoded; i.e., the card is in position and data is being transferred.
COOLING PRINTHEAD TEMPERATURE	Cooling printhead to temperature.
COOLING WAITING TO LAMINATE	Ready to accept a print job, laminator cooling.
DIAGNOSTIC	Diagnostic testing in progress.
JOB DATA	Data is being transferred from the computer to the printer.
LAMINATING	Print job received, laminating in process.
MAG OPERATION	A Magnetic Stripe Card is being encoded; i.e., card is in position and data is being transferred.
MANUALLY INSERT CARD	Waiting for manual card feed (this function is set via the *Card Setup Tab*; see Page 51 or Page 76.
OFFLINE	Status toggled (offline/online) via the OCP Advanced Settings Menu.
PAUSING	The Pause button was pressed.
PRINTING	Print job received, printing in process.
READY	Ready and at temperature.
STANDBY	Printer is in “sleep” mode; i.e., power save mode.
WAIT INITIALIZING	Performing a self test on startup.
WARMING WAITING TO LAMINATE	Ready to accept a print job, laminator warming; e.g., when switching from 1-sided laminating to 2-sided laminating, or when the printer has just powered up and the laminator is warming.
WARMING PRINTHEAD TEMPERATURE	Warming printhead to temperature.
WARNING	Indicates that additional OCP instructions need to be performed; e.g., RIBBON LOW, etc.

Warning Messages

Warnings alert the operator to action that should be taken; the printer will generally continue operation.

WARNING (Printer will still operate)	DESCRIPTION
BOTH LAMINATES LOW	Indicates that both Laminate cassettes (Top and Bottom) are low; see *Loading the Laminate* on page 18.
BOTTOM LAMINATE LOW	Indicates that the Bottom Laminate cassette is low; see *Loading the Laminate* on page 18.
CLEAN FEEDER	Indicates that the Feeder needs cleaning; see *Cleaning the Printer* on page 130.
CLEAN CARD PATH	Indicates that the Printer Card Path needs cleaning; see *Cleaning the Printer* on page 130.
CLEAN LAM CARD PATH	Indicates that the Laminator Card Path needs cleaning; see *Cleaning the Laminator* on page 134.
CLEAN LAM ROLLERS	Indicates that the Laminator Rollers need cleaning; see *Cleaning the Laminator* on page 134.
CLEAN LAM OVEN	Indicates that the Laminator Heated Rollers need cleaning; see *Clean the Laminator Oven (Heater Rollers)* on page 138.
RIBBON LOW	Indicates that the Ribbon spool is low; see *Loading a Print Ribbon* on page 15.
TOP LAMINATE LOW	Indicates that the Top Laminate cassette is low; see *Loading the Laminate* on page 18.

Error Messages

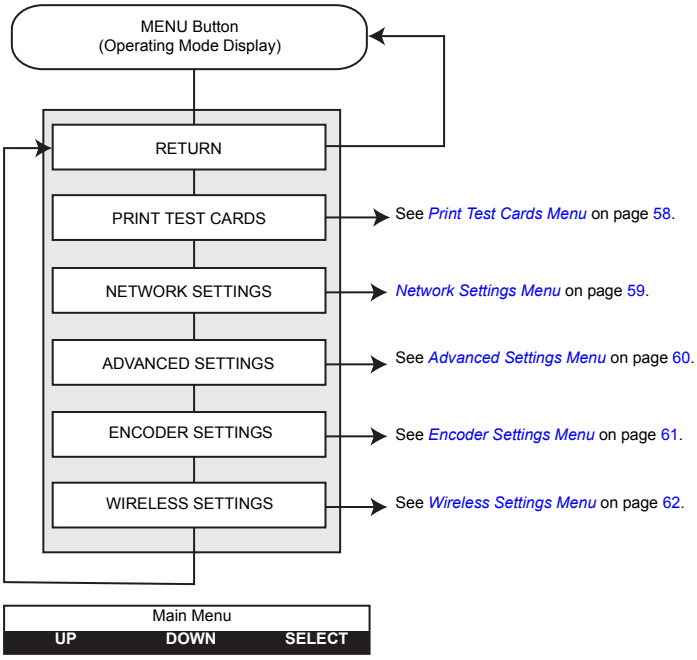
Refer to Section 7, Troubleshooting, for a list of the error messages, possible causes, and possible solutions.

Errors are displayed when a situation causes the printer to stop operating. Depending on the cause of the error message, restarting the printer or clearing the displayed error may return the printer to operational status; or the printer may require troubleshooting and repair.

Printer Menu Information

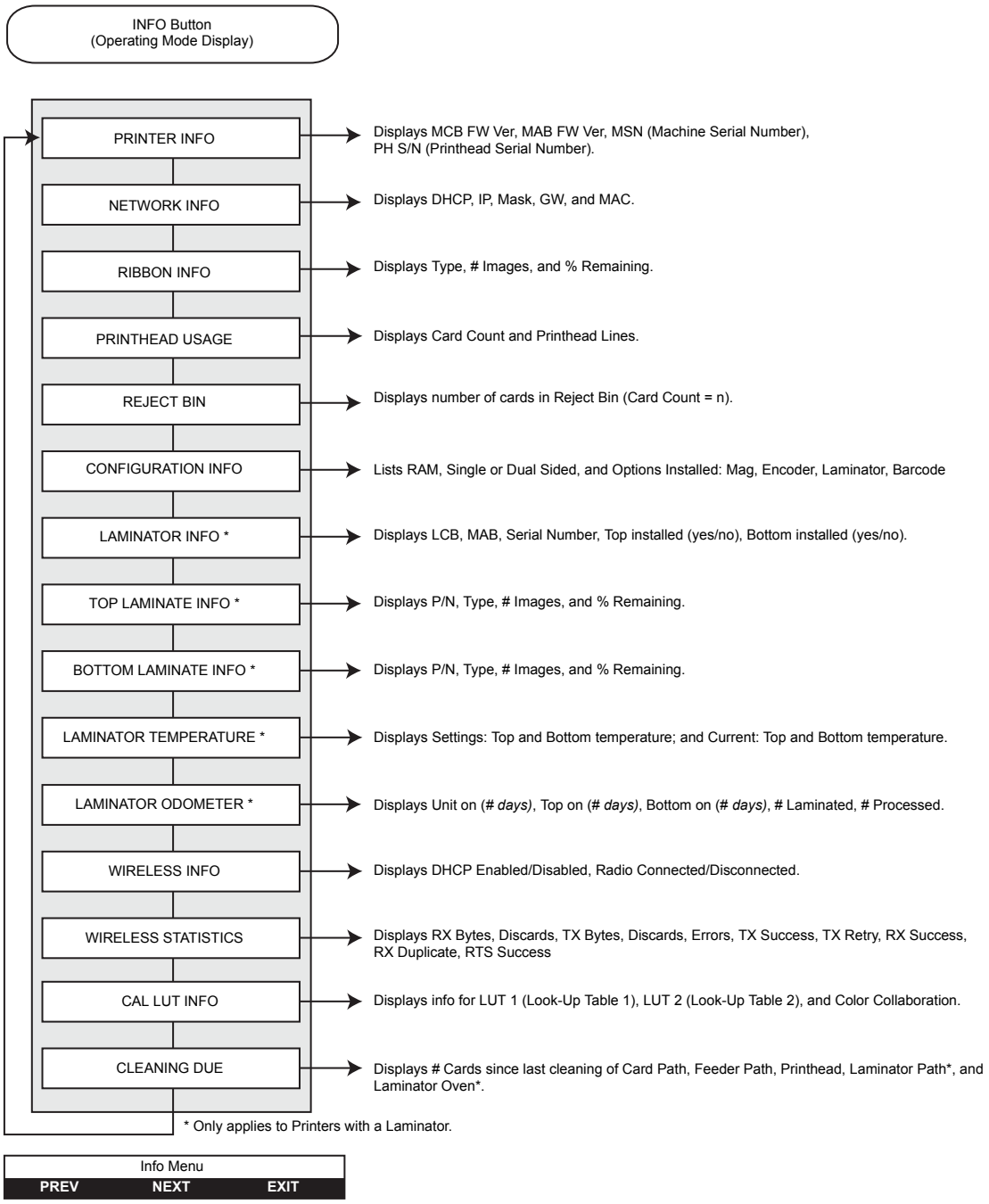
The OCP Display and three OCP Buttons give access to the printer menus.

Main Menu



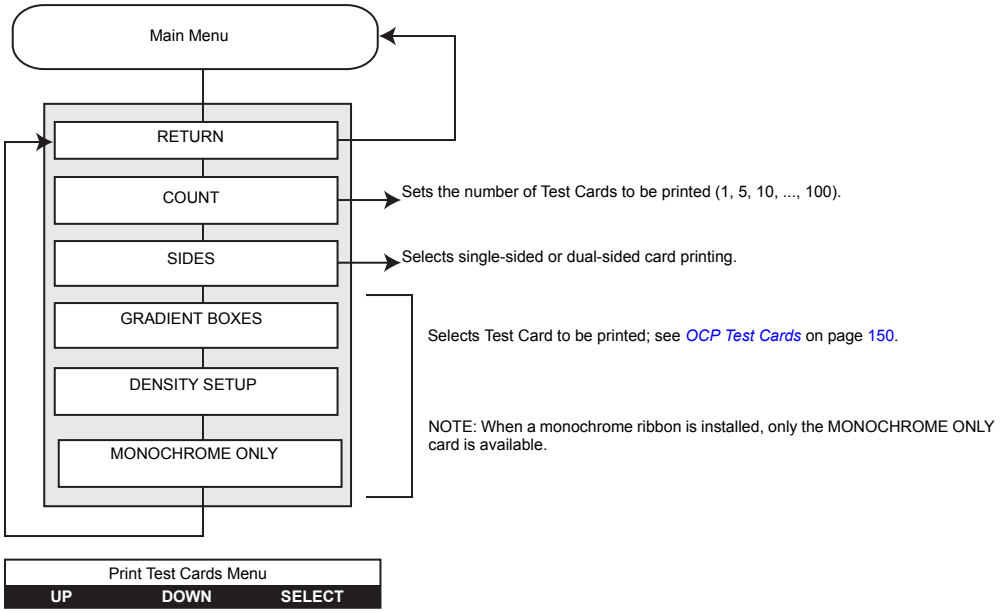
- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Info Menu



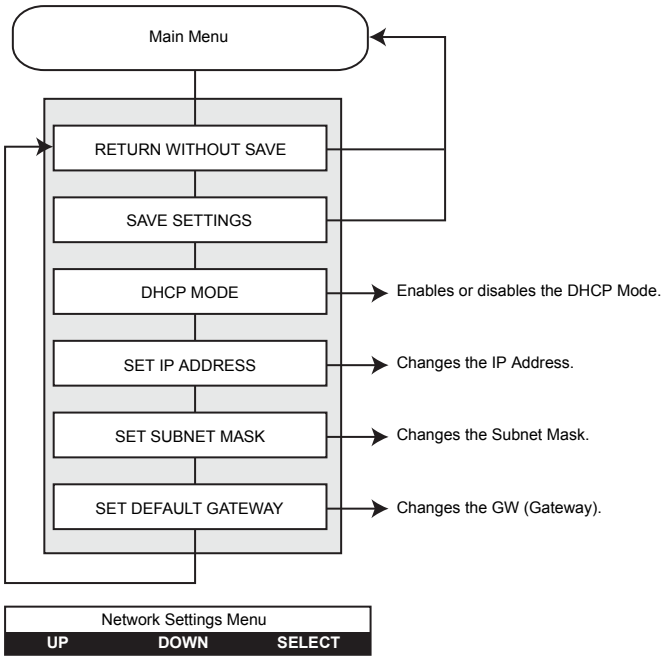
- Press the **PREV** button to move up the menu list
- Press the **NEXT** button to move down the menu list
- Press the **EXIT** button to return to the Operational Mode Display

Print Test Cards Menu



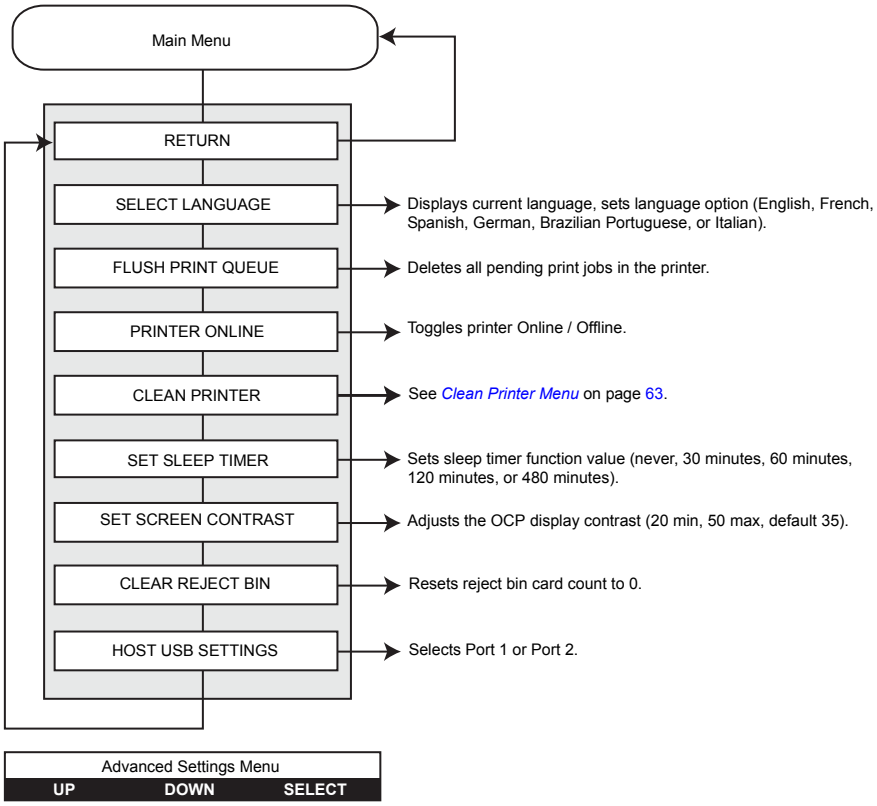
- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Network Settings Menu



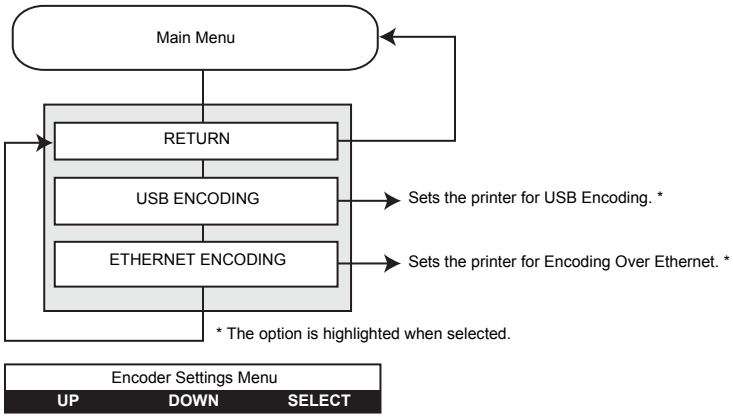
- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Advanced Settings Menu



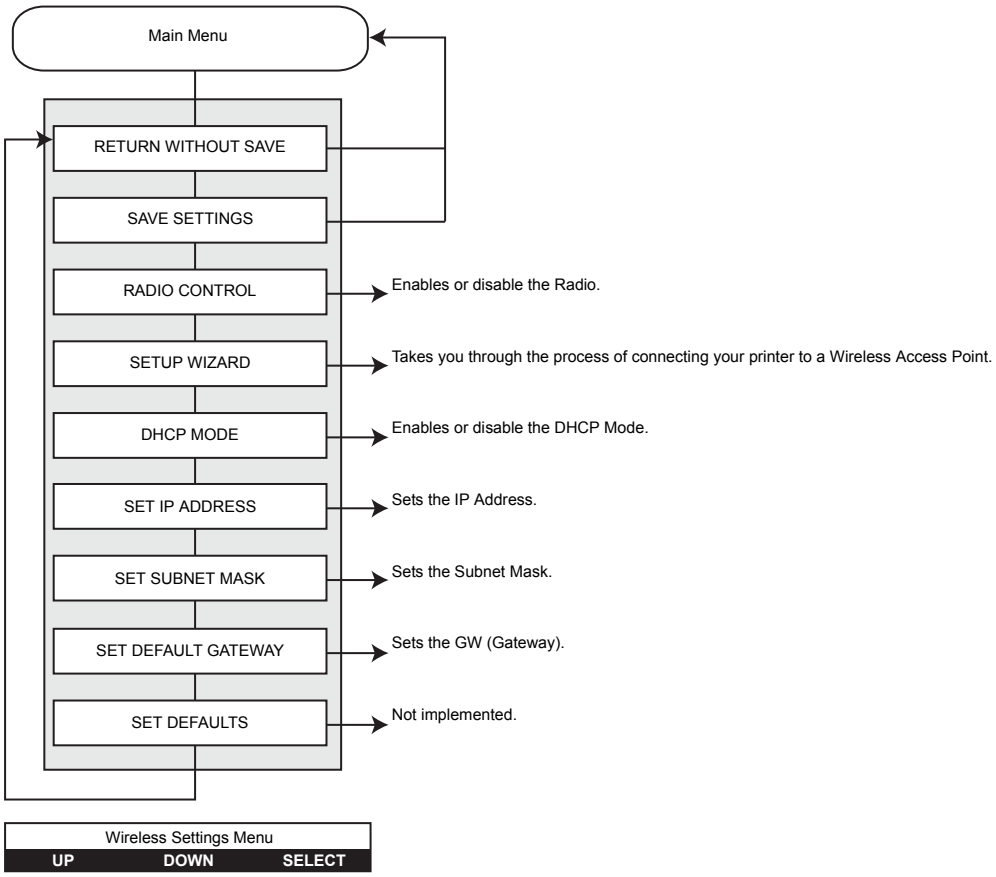
- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Encoder Settings Menu



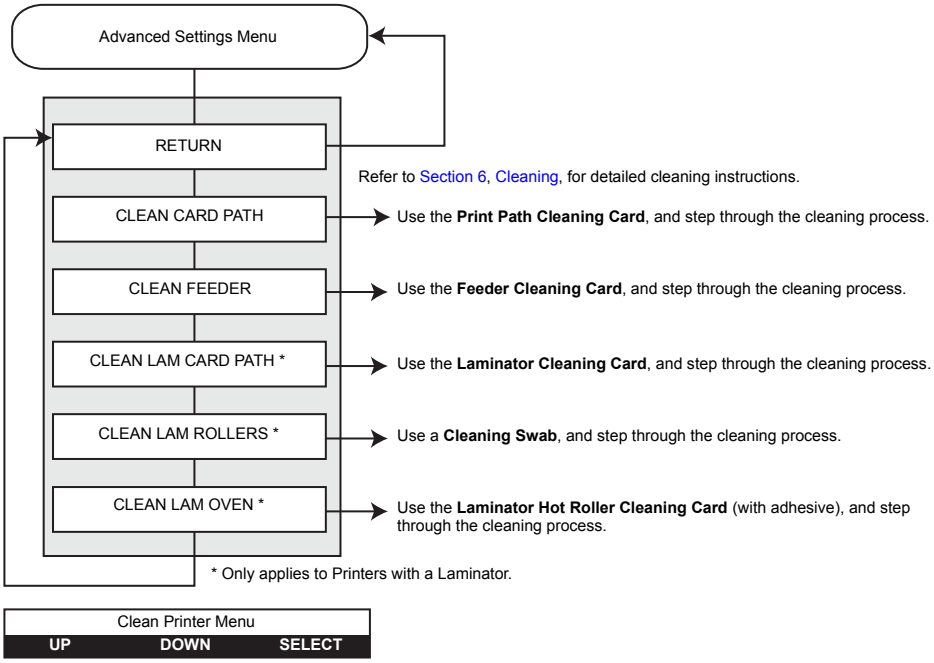
- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Wireless Settings Menu



- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

Clean Printer Menu



- Press the **UP** button to move up the menu list
- Press the **DOWN** button to move down the menu list
- Press the **SELECT** button to select the item from the list

4

Printer Settings and Adjustments

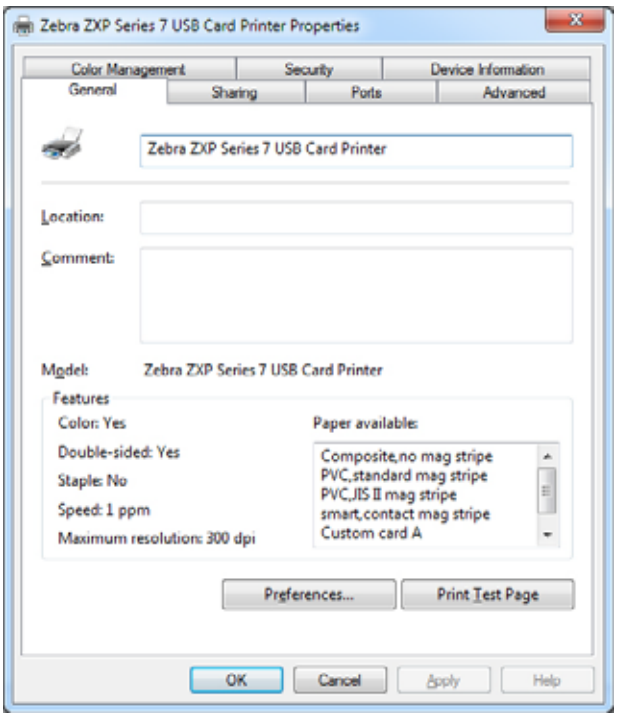
Introduction

This section describes settings and adjustments that can be made to your Windows Driver. This consists of two major topics:

Printer Properties 66
Printing Preferences 75

Printer Properties

Access to Card Printer Properties varies depending on your Operating System (OS); e.g., for Windows 7, select *Start* > *Devices and Printers*. Right click the *Zebra ZXP Card Printer* listing, then select *Printer properties.*



General Tab 67
Sharing Tab 68
Ports Tab 69
Advanced Tab 70
Color Management Tab 71
Security Tab 72
Device Information Tab 73

The **OK** button saves the settings and closes the printer properties pages.

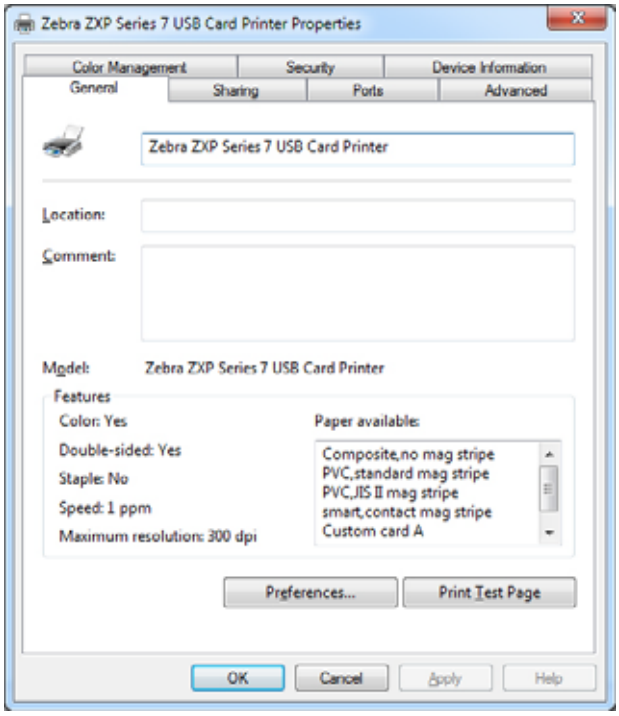
The **Cancel** button exits Printer Properties. Changes made are abandoned.

The **Apply** button saves the settings but does not close the printer properties pages.

The **Help** button enables you to view a corresponding page of help information.

General Tab

The General tab shows the name, location, model number, and features of the printer.



- **Location -** Lets you specify where the printer is physically located.
- **Comment** - Lets you specify general information about the printer, such as the type of print device and who is responsible for it. Once set, these fields can be displayed by applications.
- **Model** - Specifies the printer model number.
  - **Features** - Specifies whether various options are available on the printer.

The **Printing Preferences** button takes you to Printing Preferences used to set selected configuration parameters; see *Printing Preferences* on page 75.

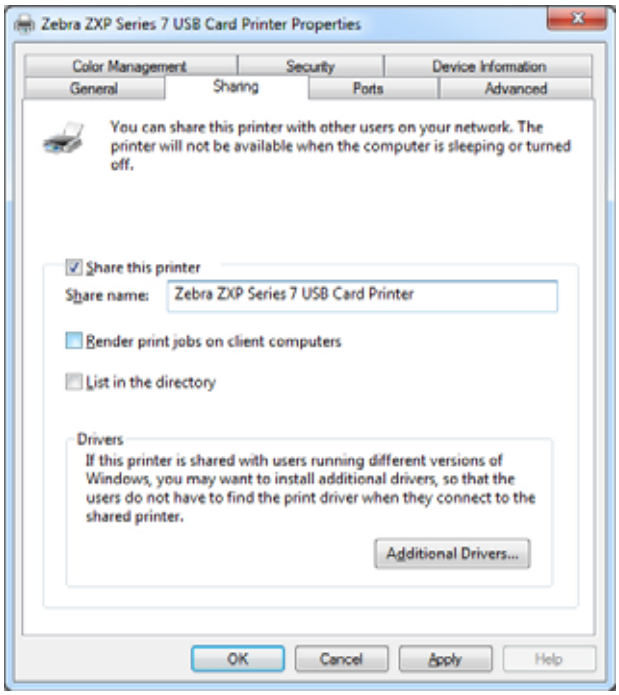
The **Print Test Page** button sends the standard Windows test page to the printer.

Sharing Tab

The Sharing tab lets you share the printer over the network and install additional drivers to accommodate different operating systems.

Note that for Windows Vista and above, the *Render print jobs on client computers* checkbox should be disabled.

Click the **Change Sharing Options** button to enable this tab.

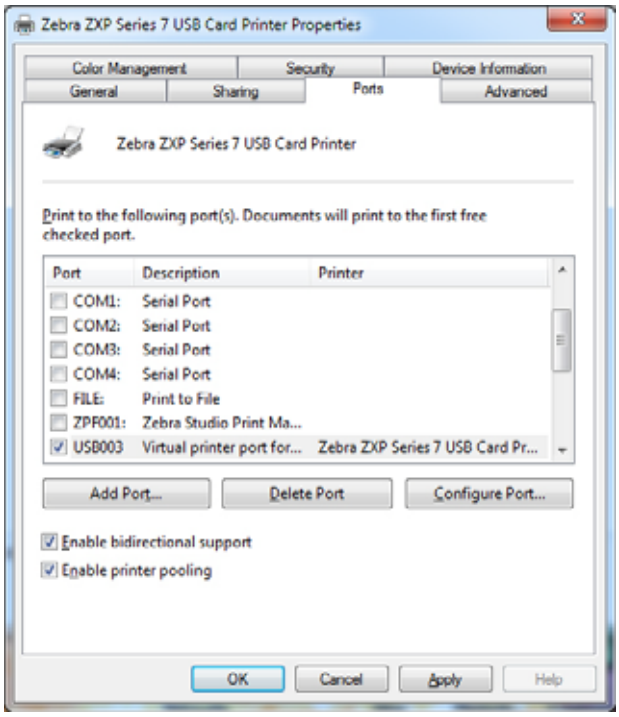


For details, see Windows-provided help for standard property pages.

Ports Tab

Important • Do not un-check the **Enable bi-directional support** option. If you modify this, you will lose the communication to the printer.

Use the Ports tab to specify the computer port to which the printer is connected. This will have been established at the initial installation of the printer and will not normally require attention.

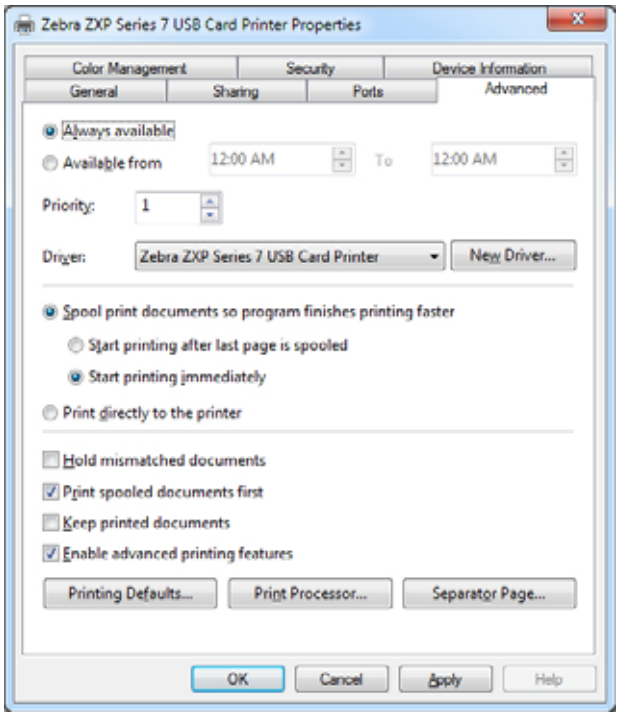


- Enable printer pooling; see Appendix A for details.

For details, see Windows-provided help for standard property pages.

Advanced Tab

The Advanced tab determines the spooling (queuing) of print jobs and determines how spooled jobs are handled relative to the most recent job.

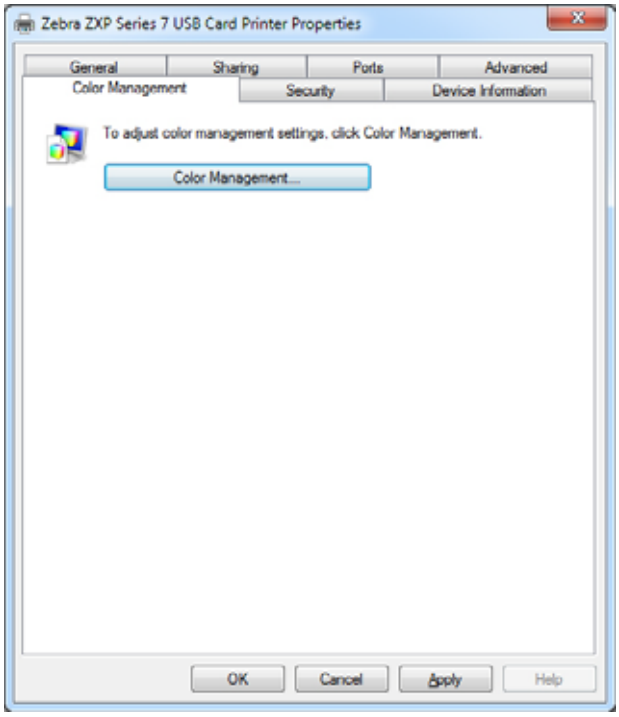


For details, see Windows-provided help for standard property pages.

Color Management Tab

This is the standard Windows color management screen, showing user access to various printer control options.

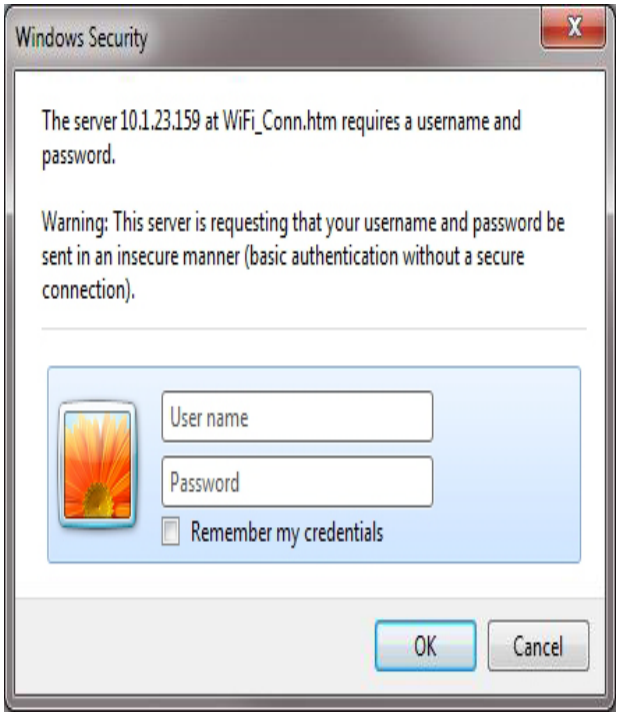
Click the **Color Management** button to enable this tab.



For details, see Windows-provided help for standard property pages.

Security Tab

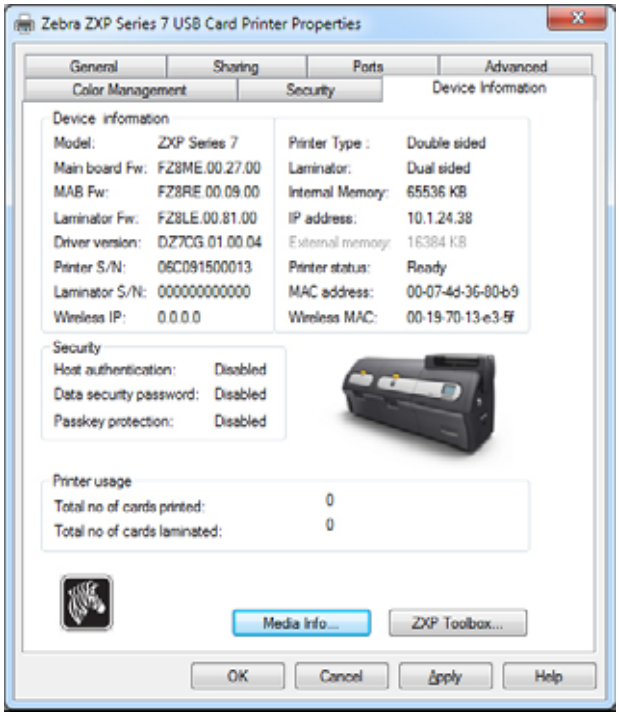
This is the standard Windows security screen, showing user access to various printer control options.



For details, see Windows-provided help for standard property pages.

Device Information Tab

The Device Information tab provides device information, security related information, and printer usage. Access to Media Info and ZXP Toolbox is included.

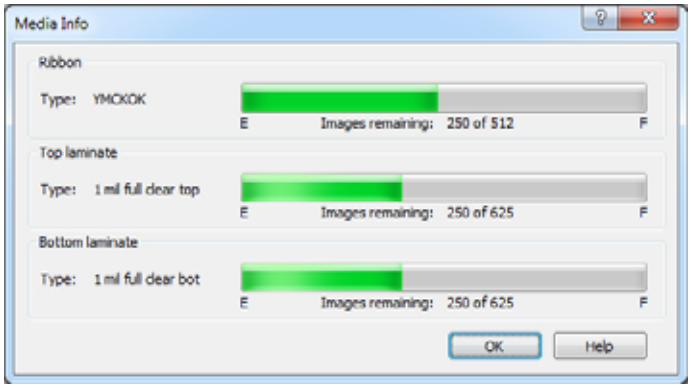


- The **Media Info** button takes you to the Media Info screen; see next page.
- The **ZXP Toolbox** button takes you to the ZXP Toolbox which provides advanced configuration capabilities and tools to manage the operation of your printer; see *Section 5*, *ZXP Series Toolbox*, for details.

  Note that the ZXP Toolbox relies on the Windows driver to communicate with the printer.

Media Info

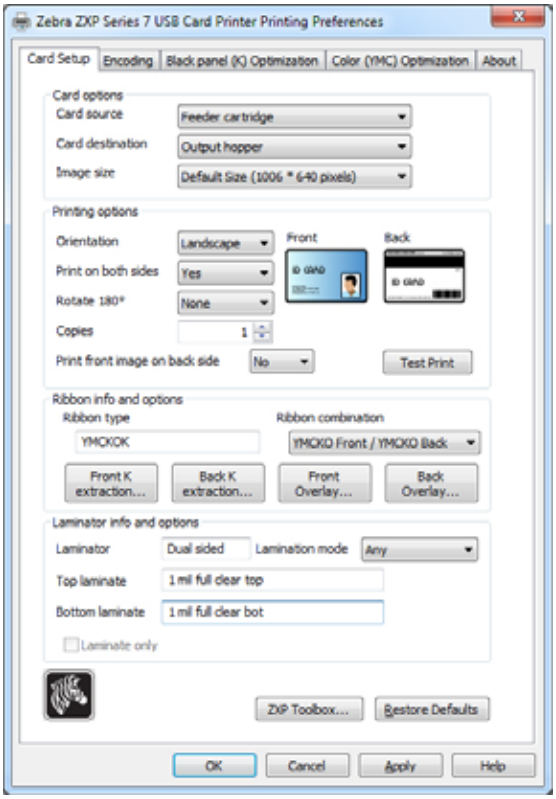
Media Info screen shows ribbon status and top and bottom laminate status.



- **Ribbon**: Shows the ribbon type installed and the number of ribbon sets remaining.
- **Top Laminate**: Shows the top laminate type and the number of laminate panels remaining.
- **Bottom Laminate**: Shows the bottom laminate type and the number of laminate panels remaining.

Printing Preferences

Access to Card Printing Preferences varies depending on your Operating System (OS); e.g., for Windows 7, select *Start* > *Devices and Printers*. Right click the *Zebra ZXP Card Printer* listing, then select *Printing preferences.*



Card Setup Tab 76
Encoding Tab 87
Black Panel (K) Optimization Tab 88
Color (YMC) Optimization Tab 92
About Tab 95

The **Toolbox** button launches the ZXP Toolbox; see *Section 5* for details.

The **Restore Defaults** button restores the default values for the page.

The **OK** button saves the settings and closes the printing preferences pages.

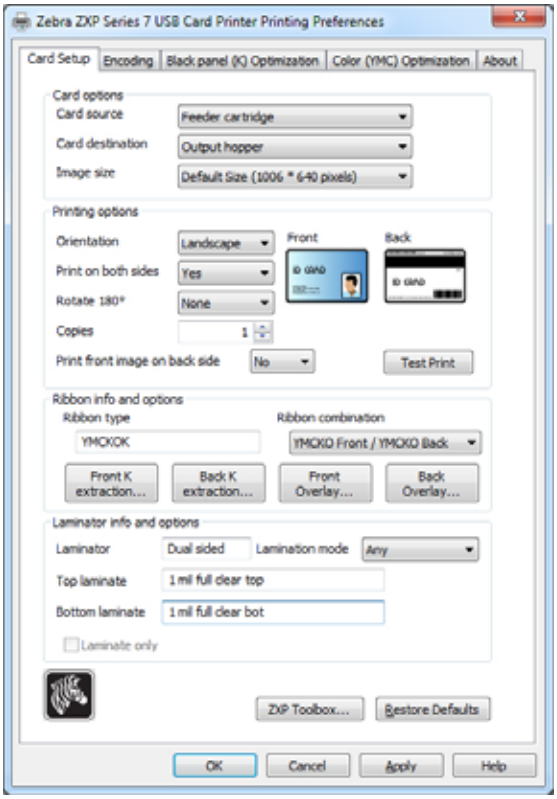
The **Cancel** button exits Printing Preferences. Changes made are abandoned.

The **Apply** button saves the settings but does not close the printing preferences pages.

The **Help** button enables you to view a corresponding page of help information.

Card Setup Tab

Card Setup tab allows the user to adjust selected card and print job parameters.



- **Card options** allows the user to select the Card Source and Card Destination.
  - **Card source**
    - Manual feed slot: If a card is in the manual feed slot when a print job is sent to the printer, that card will be printed; otherwise, a card from the feeder cartridge will be printed.
    - Feeder cartridge -- default
    - Already in printer (for SDK-enabled applications that use this feature)
    - Auto feed: When the print job is sent to the printer, the user is prompted to insert the card into the manual feed slot within X seconds, otherwise the card is fed from the feeder cartridge.
  - **Card destination**
    - Output hopper -- default
    - Reject tray
    - Leave in printer (for SDK-enabled applications that use this feature)

- **Card options** (continued)
  - Image size
    - Default Size (1006 * 640 pixels): Note that this setting should always be used unless you are printing images that were specifically designed for other Zebra card printer models.
    - The following selections are for Zebra P640i Card Printer compatibility.:
      - Compatibility 1 (578 x 952 pixels)
      - Compatibility 2 (610 x 968 pixels)
      - Compatibility 3 (600 x 952 pixels)

- **Printing options**:
  - **Orientation**: Selection for portrait or landscape printing.

  - **Print on both sides**: Selection for single-sided or dual-sided printing.
  - **Rotate 180°**: Selection for rotating the image 180°. The options are None, Front, Back, and Front & Back.

  - **Copies**: Specifies the number of copies to print.
  - **Print the front image on the back side**: Selections are Yes or No. This option can be selected to perform stripe-up magnetic encoding with single or dual-sided printers.

The **Test Print** button prints a test card.

- **Ribbon info and options**:
  - **Ribbon type** shows the type of ribbon (e.g., YMCKOK) installed in the printer. Note that this is automatically detected from the ribbon.
  - **Ribbon combination** allows you to select the combination of panels to be printed on each side (e.g., YMCKO Front/YMCKO Back).
  - Depending on the ribbon type installed, the **Front** and **Back** buttons let you set options for:
    - Black Panel Options on page 79
    - Overlay Varnish Options on page 82
    - UV Panel Options on page 83

- **Laminator info and options**:

  These options apply only to printers with laminator. This section automatically shows the presence of the laminator and laminate. You can select the **Lamination mode** via the dropdown menu.

  - *Any:* Any combination of laminate can be installed; i.e., top, bottom, or both (default).
  - *Top*: Top laminate only must be installed.
  - *Bottom*: Bottom laminate only must be installed.
  - *Top and bottom*: Both top and bottom laminate must be installed.
  - *Pass through*: Top and bottom laminate must be removed. This option allows a card to pass through the laminator without having laminate applied.

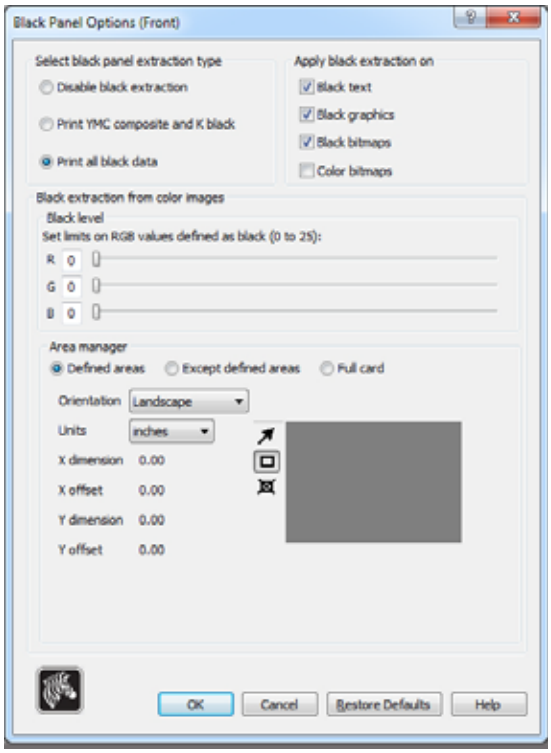
Laminate only can be used to laminate pre-printed cards. This is a special-purpose function that is enabled when the *Lamination mode* is set to Top, Bottom, or Top and bottom and the *Card destination* is set to Output hopper. When selected, the card is passed from the input hopper, through the printer without being printed, to the laminator for lamination, then to the output hopper.

Black Panel Options

The Black Panel Options pop-up window allows you to manage and configure the use of the Black Panel (K panel) extraction when the selected Ribbon Combination shows the K panel on the same side as the Y, M, and C panels (e.g. YMCK Front / K Back).

From the *Card Setup* tab, select a **Ribbon Combination** that has YMC and K all on the same side. The *Front K Extraction...* and/or *Back K Extraction...* buttons will become active. Press the appropriate button to open up the pop-up window.

The figure below shows settings for the front side of the card; settings for the back side of the card are identical.



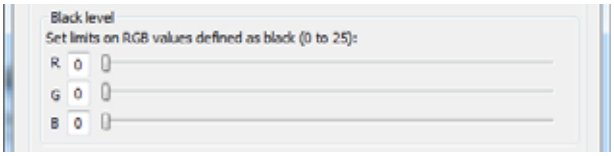
This feature determines whether black content will be printed with the black (K) panel or with color (YMC) panels. Note that black content appears dark gray when printed with color (YMC) panels.

To extract black areas from color images, several selections can be made.

- **Select black panel extraction type:**
  - **Disable black extraction** does not use the K panel for any part of the image. This selection will have the effect of rendering all black images as YMC composite.
  - **Print YMC composite and K black** uses both the K panel and the Y, M, and C panels to print the portions of the image that are identified as black. This selection will result in a dark, black image; but the edges will be smooth (due to the continuous tone nature of the YMC dyes), not the sharp edges typically desired for a barcode.
  - **Print all black data** uses only the K panel to print the portions of the image that are identified as being black.

- **Apply black extraction on:** Note that this function is dependent on the image having areas defined as text, graphics (lines, rectangles, and other non-text graphic objects), and bitmaps (color images, photos, pictures, etc). If the image is flattened, then this function does not apply.
  - **Black text** applies black extraction to areas of the image identified as text.
  - **Black graphics** applies black extraction to areas of the image identified as graphics.
  - **Color bitmaps** applies black extraction to black areas of a color bitmap. By default, only areas with a RGB level of 0,0,0 shall be treated as black. For adjustments, see *Black level* settings below.
  - **Black bitmaps** applies black extraction to areas of the image identified as bitmaps. This option will extract only black out of monochrome bitmaps, but not from color bitmaps.

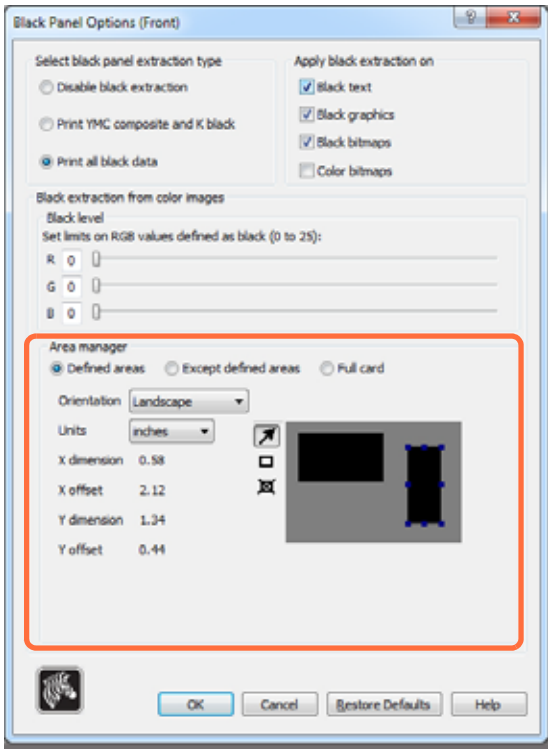
- **Black extraction from color images**
  - **Black level:**



Every dot of a printed image has an RGB color value that ranges from 0, 0, 0 (pure black) to 255, 255, 255 (pure white).

The black level setting allows the user to specify the threshold value for any given pixel to be treated as black. The maximum setting is 25, 25, 25.

- **Black extraction from color images** (continued)
  - **Area manager:** This option is enabled when the *Defined areas* (extract inside the zone) or the *Except defined areas* (extract outside the zone) radio button is selected.



    - **Defined areas** applies black extraction to areas of the image inside of the zones specified in the Area manager.
    - **Except defined areas** applies black extraction to areas of the image outside of the zones specified in the Area manager.
    - **Full card** applies black extraction to the entire image.
    - **Orientation**: The Orientation selection sets the image orientation to either Portrait or Landscape.
    - **Units**: The Units selection sets the units to either inches or mm (millimeters). The X-dimension, X-offset, Y-dimension, and Y-offset reflect these units.

To create a zone: Select the rectangle icon , click an area of the image to establish the first corner of the zone, drag the cursor until the zone is the desired size and shape, then release the mouse button. Note that multiple zones can be defined.

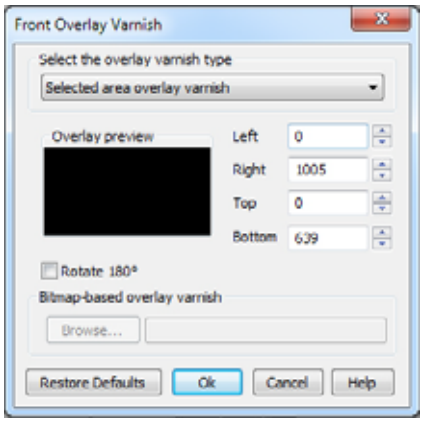
To select, move, or resize a zone: Select the arrow icon , click a zone to select it, then drag it to move it, or drag on the edges to resize it.

To delete a zone: Select the rectangle icon with an “X” through it , then click the zone that you want to delete.

Overlay Varnish Options

Overlay varnish is a durable layer of film applied to printed cards that reduces fading by protecting the image from UV exposure.

The Overlay Varnish pop-up window allows you to manage and configure the use of the Overlay when the selected Ribbon Combination shows the O panel (e.g. YMCKO).



Select the overlay varnish type - Option selection for applying overlay varnish ribbon to a card. Default setting is *Full overlay varnish*.

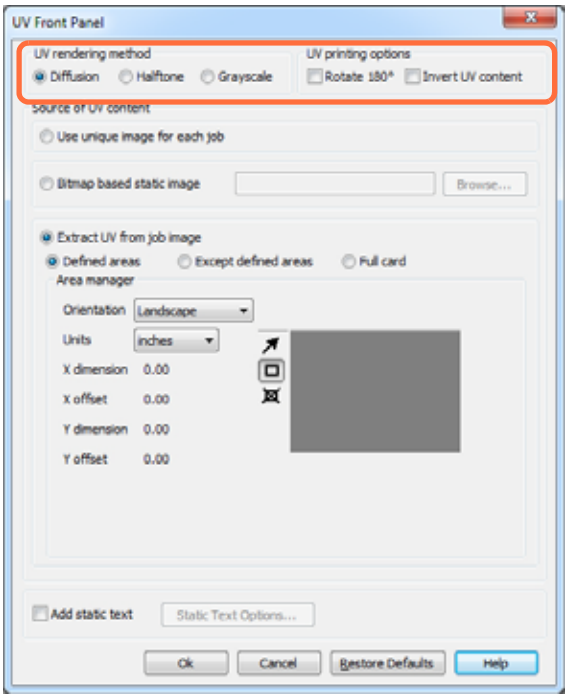
There are various varnish options. A preview pane is shown for each selection.

- **Disable overlay** - Disables the overlay option; i.e., does not apply any overlay.
- **Full overlay varnish** (default) - Applies an edge-to-edge overlay.
- **Selected area blank** - Applies overlay only outside the area selected by user.
- **Selected area overlay varnish** - Applies overlay only in the area selected by user.
- **Bitmap based overlay varnish** - Applies a user-defined 1-bit monochrome bitmap as an overlay.
- **Smartcard ISO** - Does not apply overlay on the area of the smartcard chip.
- **Smartcard AFNOR** - Does not apply overlay on the area of the smartcard chip.
- **Magnetic Stripe** - Does not apply overlay on the area of the magnetic stripe.

When **Bitmap based overlay varnish** is selected, click the **Browse** button to locate and select the desired bitmap.

UV Panel Options

A UV Panel is used to print images (text or graphics) that will glow in the visible spectrum when exposed to a UV Light. The UV Panel pop-up window is only available when using UV ribbons (e.g., YMCUVK).



UV rendering method:

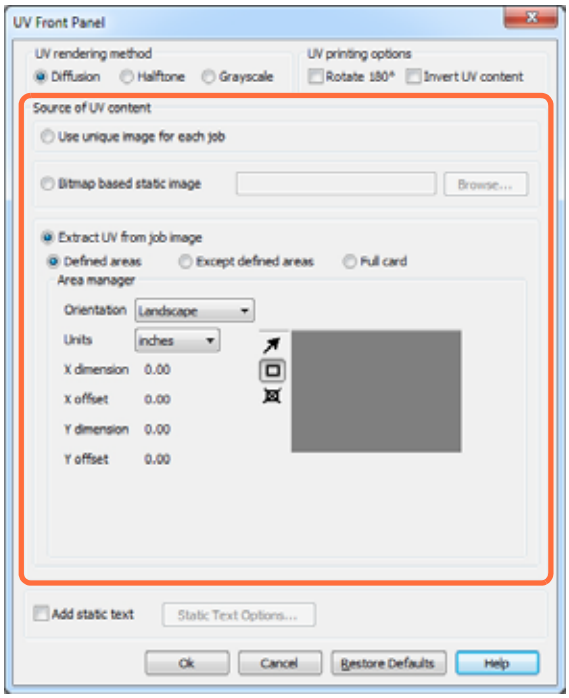
- **Diffusion:** This mode will render the UV content using error diffusion.
- **Halftone:** This mode will render the UV content using half-toning.
- **Grayscale** prints the bitmap image as a grayscale image, which is composed of shades of gray, varying from black to white.

UV printing options:

- **Rotate 180°** rotates the provided bitmap image 180°.
- **Invert UV content** inverts the bitmap image if not inverted in the application.

Source of UV content

- **Use unique image for each job:** Each print job will send a unique UV image along with the YMCK content.



- **Bitmap based static image**: Imports the bitmap image to print on the UV panel; e.g., import a security seal. The UV image that is selected will be the same for all jobs.

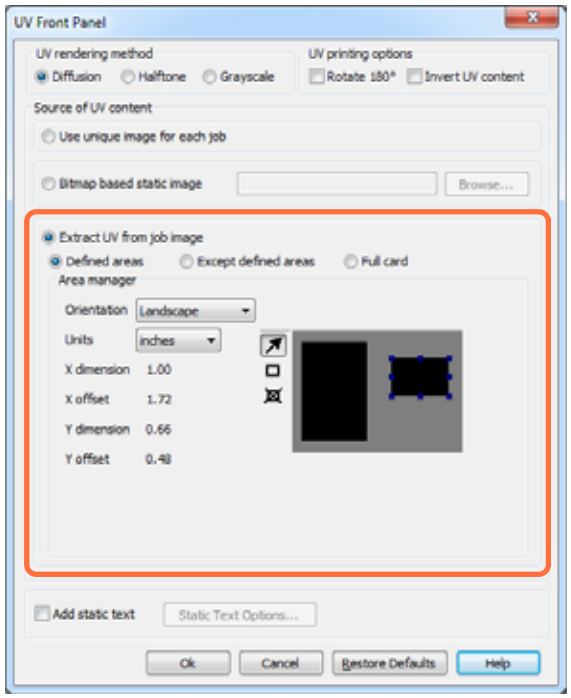
  1. Select the *Bitmap based static image* radio button.
  2. Click the **Browse** button to bring up a dialog box for choosing the file.
  3. Locate and select the file (a specific .bmp file on local drive). Note that the UV image can be any standard .bmp image supported by windows applications like *Paint* or *Fax Viewer*. (24-bit, 1-bit etc.).
  4. Select the **UV rendering method**; see previous page.
  5. Select the **UV printing options**; see previous page.
  6. Click the **OK** button to close the UV Panel pop-up window.
  7. The Driver applies this .bmp image as full UV print on all print jobs sent to printer.

- **Extract UV from job image**

  Similar to K extraction, this mode allows you to print a selected portion of the YMC image using the UV panel. Options include *Defined areas*, *Except defined areas*, and *Full card*. These options are selected via their associated radio buttons.

  Defined areas allows you to specify what areas will also be printed with YMC and UV. *Undefined areas* will print YMC with UV in all areas except those that are indicated. *Full card* will print the entire image with YMC and UV.

  - **Area manager**: This section is enabled when either *Defined areas* or *Undefined areas* is selected.
    - The **Orientation** selection sets the image orientation to either Portrait or Landscape.
    - The **Units** selection sets the units to either inches or mm (millimeters). The X dimension, X offset, Y dimension, and Y offset reflect these units.



To create a zone: Select the rectangle icon , click an area of the image to establish the first corner of the zone, drag the cursor until the zone is the desired size and shape, then release the mouse button. Note that multiple zones can be defined.

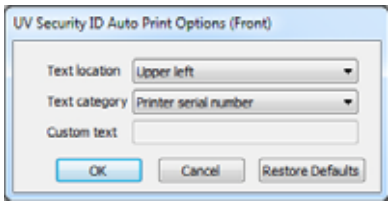
To select, move, or resize a zone: Select the arrow icon , click a zone to select it, then drag it to move it or drag on the edges to resize it.

To delete a zone: Select the rectangle icon with an “X” through it , then click the zone that you want to delete.

Add static text:

When the *Add static text* checkbox is selected (checked), the **Static Text Options** button is enabled. This option automatically prints a unique text value in a fixed location on a card using the UV panel.

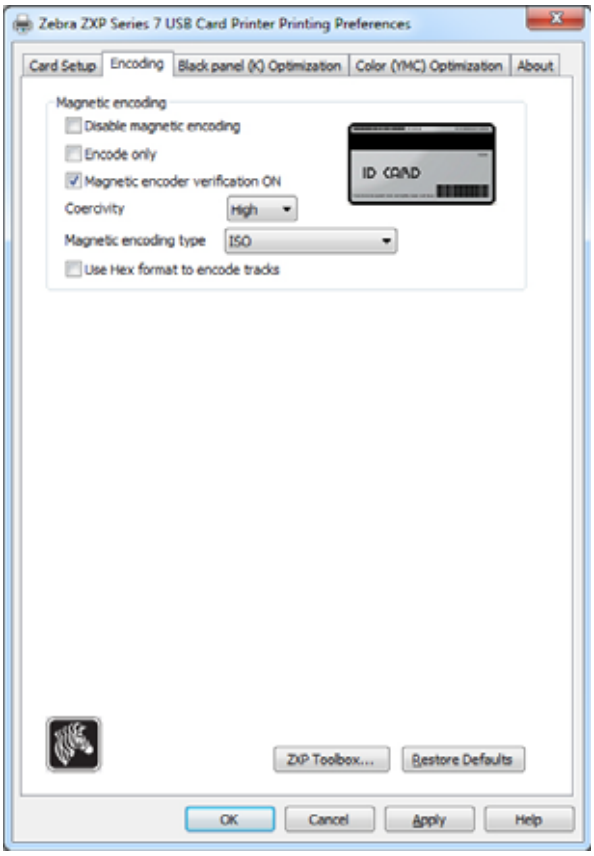
1. Click the **Static Text Options** button to activate this option.
2. Observe the UV Panel popup.



3. Specify the *Text location*. Select the location from four pre-defined areas of a card (Upper left, Upper right, Lower left, Lower right).
4. Specify the *Text category* (MAC address, Printer serial number, or Custom Text). If Custom Text is specified, enter the text in the Custom Text field, up to 32 characters.
5. Click the **OK** button to close the UV Panel pop-up window.

Encoding Tab

The Encoding tab lets you manage the various magnetic and smart card encoding options.

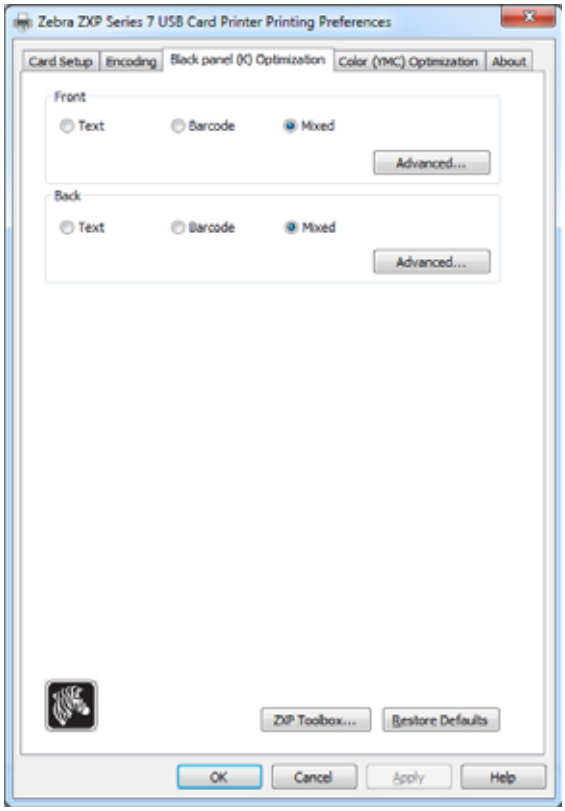


- **Magnetic encoding**:
  - **Disable magnetic encoding**: Prevents the printer from encoding a card, whether the job has magnetic encoding data in it or not.
  - **Encode only**: Disables printing, whether the job has an image to be printed or not.
  - **Magnetic encoder verification ON**: Verifies the data that is written to the card before declaring the encoding action to be successful.
  - **Coercivity**: Selections are High and Low to match the card type.
  - **Magnetic encoding type**: Selections are ISO, AAMVA, CUSTOM, and BINARY. ISO is the default. Custom settings are adjusted using the *ZXP Series Toolbox*.
  - **Use Hex format to encode tracks**: Select this option to encode the tracks using hexadecimal format.

Black Panel (K) Optimization Tab

Note • This tab also applies to monochrome ribbons (red, blue, green, etc.). The tab title will change depending on the type of ribbon used; e.g., for a red monochrome ribbon, the tab title will be *Monochrome Red Optimization*.

The Black Panel (K) Optimization tab displays two identical adjustment sections (Front and Back) to optimize black panel printing for the type of image being printed. The front side and back side options are enabled based on the availability of K panel in the ribbon combination or the presence of a monochrome ribbon.



- **Optimize for:** Black panel printing can be optimized to improve the quality of individual elements that comprise the image. There are separate optimization settings for Text, Barcodes, and Mixed content.
  - **Text** sharpens the edges of fonts. This setting will make barcodes appear darker.
  - **Barcode** sharpens fine lines to improve barcodes for scanning. This setting will make text and graphics appear lighter.
  - **Mixed** combines the optimum settings for text, barcode, and graphics printing in most applications.

Click the **Advanced** button for additional black (K) panel optimization options to further fine tune black (K) panel printing; see next page.

Advanced Black Panel (K) Optimization

The Advanced Black Panel (K) Optimization tab optimizes black panel printing for the type of image being printed; i.e., text, barcode, or mixed.

- **Monochrome conversions**: This section is used to control multi-tone printing when using a monochrome ribbon or K Panel.

  Options are *Dither error diffusion*, *Dither 6x6 halftoning*, and *Threshold* (also known as *Dither pure black on white*); see next page for details.

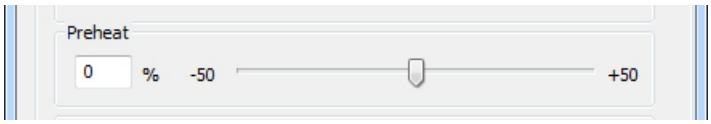
  The conversion option selected determines which of the controls is enabled; i.e., selecting Threshold enables the Threshold, Preheat, and Intensity controls.

  - **Threshold** sets the transition point between black (0) and white (255); i.e., pixel values less than the threshold value would be black, and pixel values greater than the threshold value would be white. Default is 128.

  - **Brightness** controls overall the brightness of the image. Move the slider to the right to lighten the image or to the left to darken the image.

  - **Contrast** controls the difference between the light and dark areas of the image. Move the slider to the right to increase the contrast and vice versa.

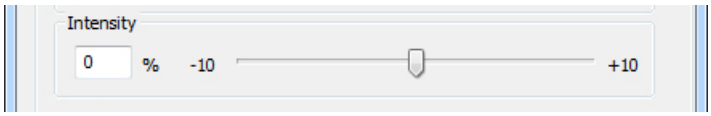
- **Monochrome conversions** (continued)
  - **Preheat** affects the edges of the printed image. Adjustments range from -50 to +50, default = 0.



Increase the value to enhance edges. Reduce the value if bleeding is present.

Note that the Preheat setting has no effect on the preview image but is applied to the image during the printing process.

  - **Intensity** adjusts the lightness or darkness of the image. Adjustments range from -10 to +10, default = 0.



Intensity can be used to lighten or darken the entire printed color image. It can be used to eliminate ribbon wrinkling or ribbon sticking/ripping in hot or humid environmental conditions.

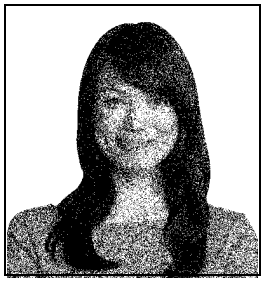
Note that the Intensity setting has no effect on the preview image but is applied to the image during the printing process. This adjustment remains set until changed.

Monochrome Conversion

The monochrome panels in the ribbon can only print binary (pure on or off) images. Monochrome conversion is used to convert continuous tone 8-bit-per-pixel RGB or gray image content into binary1-bit-per-pixel content.

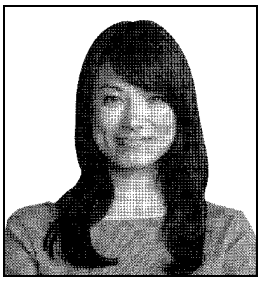
- **Dither error diffusion (default)**

  Error diffusion is a dithering technique to convert full color or gray images into a binary image that when printed simulates having a continuous tone response. The error diffusion technique is usually preferred on pictorial images since it produces a sharper and more detailed image.



- **Dither 6x6 halftoning**

  Halftoning is a dithering technique to convert full color or gray images into a binary image that when printed simulates having a continuous tone response. The halftoning technique is coarser looking than error diffusion but does not have the inherent image structure seen with error diffusion.



- **Threshold**

  Threshold (also know as *Dither pure black on white*) converts full color or gray images into a binary image by a threshold comparison. If a gray pixel value is above the threshold, it converted to a white pixel; and if its below the threshold, its converted to a black pixel.This method will not simulate shades like error diffusion or halftoning does and is thus not recommend to be used with pictorial content. However, it will accurately preserve straight edges on graphics, barcodes, and text and is the preferred conversion for those types of images.

SUMMARY

Error diffusion/halftoning: Use on pictures. Image content dictates if error diffusion or halftoning would look best. For the majority of time, error diffusion is better.

Threshold: Use on text, barcodes, line art, and simple graphics.

Color (YMC) Optimization Tab

These color adjustments modify only how the pictures *print*. These adjustments have no effect on the image files. (That type of adjustment would be made in an image processing application program.) These adjustments are not available for Monochrome or KrO ribbons.

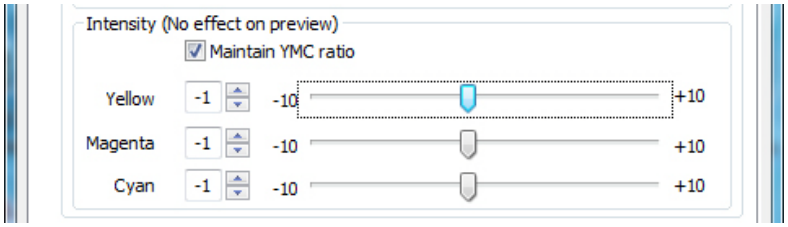
- **Full color printing:**
  - **Brightness** and **Contrast** adjustments range from -25 to +25, default = 0. Changes are reflected in the preview image.
  - **Sharpening filter** options are None, Low, Normal (default), and High. Adjustments are not reflected in the preview image.

    By default, the image file is automatically sharpened; i.e., edges are enhanced within the image. If sharpening has already been done, this function can be turned off (None). The Low and High options are available if additional sharpening adjustment is required.

  - **Preheat** adjustment ranges from -50 to 50, default = 0. Increasing the preheat value will darken up edges of fonts, fine lines, and color edges that are against a white or very near white background.

    In some cases, increasing the preheat value too much can cause the white or near white images to print with a light color cast. Increasing the preheat might also improve color-to-color mis-registration that may occur.

- **Intensity** adjustments for Yellow, Magenta, and Cyan range from -10 to +10.



By default, the Maintain YMC ratio checkbox is selected; so all three sliders move at the same time. With the checkbox unselected, the sliders move independently. Note that by moving the sliders independently the tones of the image will shift.

Intensity can be used to lighten or darken the entire printed color image. It can be used to eliminate ribbon wrinkling or ribbon sticking/ripping in hot or humid environmental conditions.

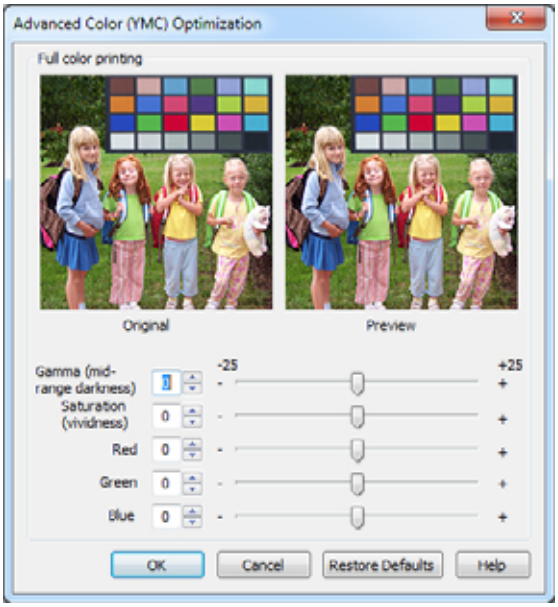
Note that the Intensity setting has no effect on the preview image but is applied to the image during the printing process. These adjustments remain set until changed.

Click the **Advanced** button to access to the Advanced Color (YMC) Optimization pop-up window; see next page.

Advanced Color (YMC) Optimization

Full color printing adjustments range from -25 to +25 and are reflected in the preview image.

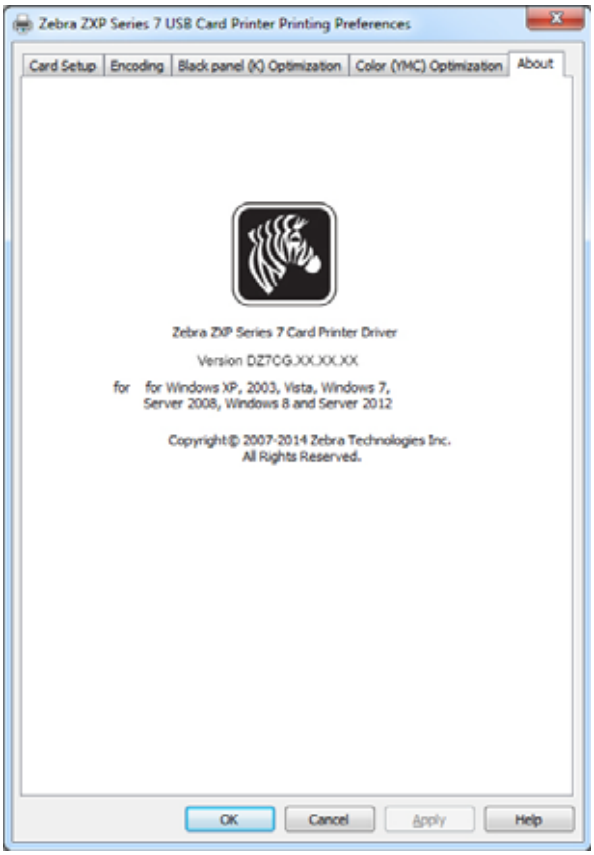
All the changes to the image are only done to the image that gets sent to the printer and are not saved to the image on the host computer. So the original input image bitmap is not permanently changed.



- The Gamma slider adjusts the mid-range darkness of the image.
- The Saturation slider controls the vividness. of the image
- The Red, Green, and Blue sliders adjust their associated color levels. The boxes show the amount of each color, -25 to +25, that is added to or subtracted from the image while you move the sliders.
  - Move the Red slider to the right to add red to the image. Note that as red is increased, cyan (red's complement) is decreased and vice versa.
  - Move the Green slider to the right to add green to the image. Note that as green is increased, magenta (green's complement) is decreased and vice versa.
  - Move the Blue slider to the right to add blue to the image. Note that as blue is increased, yellow (blue's complement) is decreased and vice versa.

About Tab

The About Tab shows the copyright and the driver version for the *Zebra ZXP Series 7 Card Printer*.



5

ZXP Series Toolbox

Introduction

Important • Use of the ZXP Series Toolbox is intended only for advanced users and system administrators.

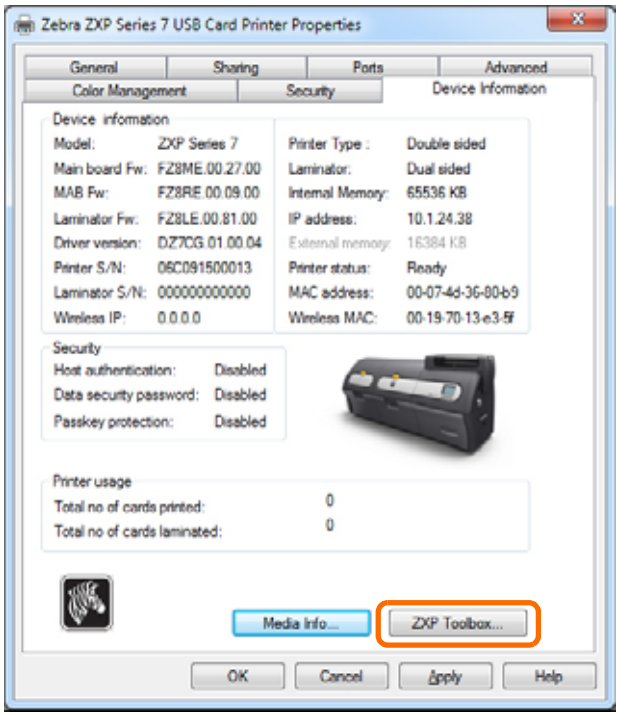
The ZXP Series Toolbox provides advanced configuration capabilities and tools to manage the operation of the printer. Note that the ZXP Series Toolbox works in conjunction with the printer driver.

The ZXP Series Toolbox has seven functional sections:

Information 99
Configuration 104
Cleaning 112
Print Test Card 115
Technology 120
Advanced Security 124
Print Viewer 127

ZXP Series Toolbox Access

To access the ZXP Series Toolbox from the printer driver, select *Start* > *Devices and Printers*. Then right-click the *Zebra ZXP Series 7 Card Printer* listing, and select *Properties* > *Device Information.* Click the **ZXP Toolbox** button (circled below).



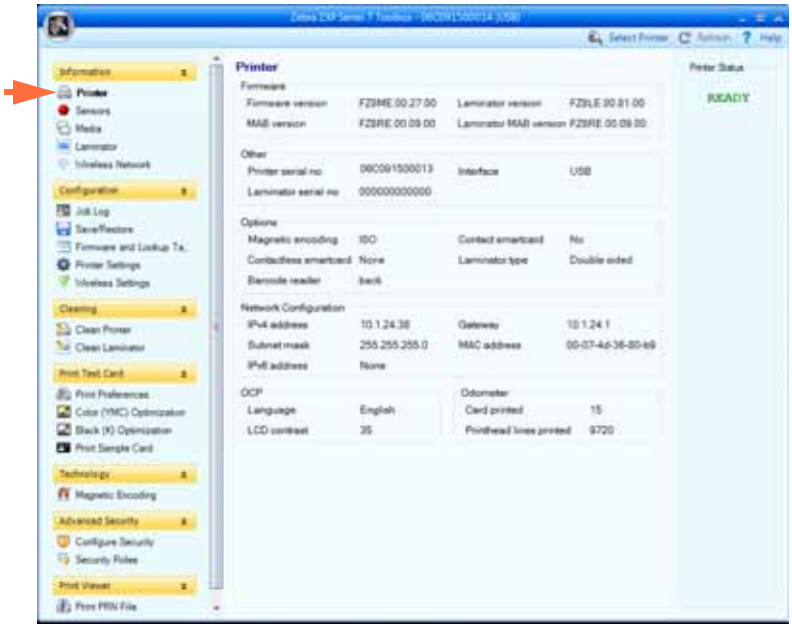
The ZXP Series Toolbox can also be accessed via *Start* > *All Programs* > *Zebra ZXP Series 7 Card Printer* > *ZXP ToolBox*.

Information

Printer

Printer information cannot be edited or changed by the user; however, this information may be useful for Zebra trained and certified personnel in diagnosing or evaluating printer status.

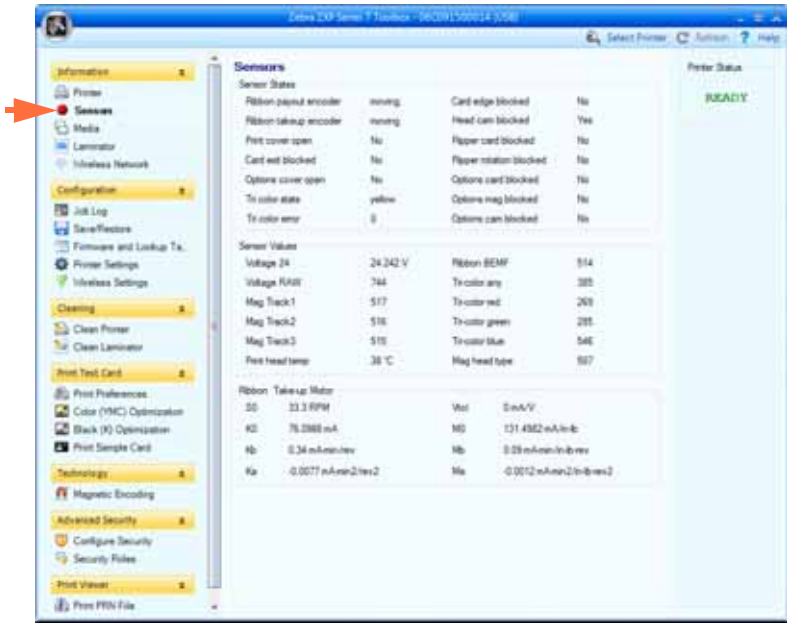
- **Printer Status** shows the current operational state of the Printer; e.g., Ready, Offline, etc.



- **Firmware** shows the versions of the Firmware, Laminator, MAB, and Laminator MAB.
- **Other** shows the Printer serial number, the Interface, and the Laminator serial number.
- **Options** shows the options installed -- Magnetic encoding, Contact smartcard, Contactless smartcard, Laminator type, and Barcode reader.
- **Network Configuration** information includes the IPv4 address, Gateway, Subnet mask, MAC address, and IPv6 address,.
- **OCP** shows the Language displayed in the Operator Control Panel and the LCD contrast level selected.
- **Odometer** shows the number of Cards printed and the number of Printhead lines printed.

Sensors

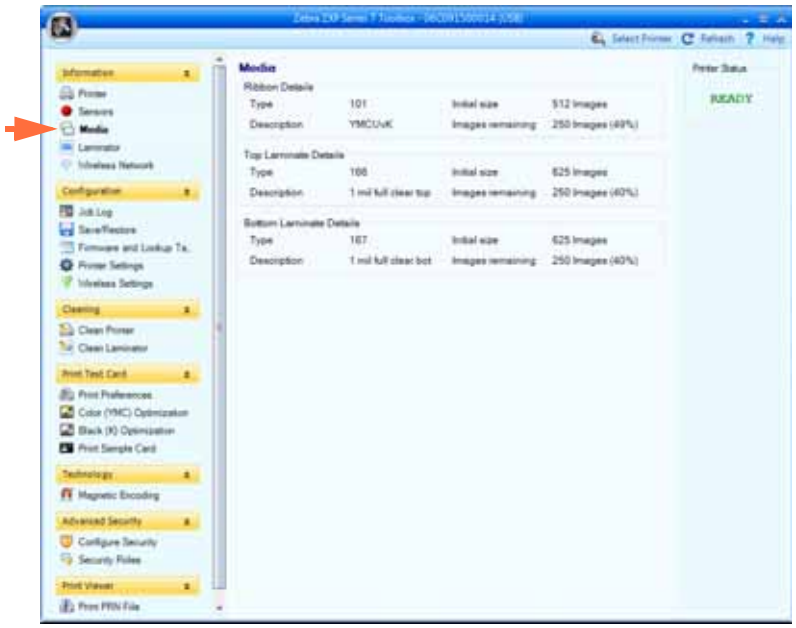
Sensors information cannot be edited or changed by the user; however, this information may be useful for Zebra trained and certified personnel in diagnosing or evaluating printer status.



- **Sensor States** displays “live” sensor states.
- **Sensor Values** displays “live” sensor values.
- **Ribbon Take-up Motor** shows various electrical characteristics of the motor.

Media

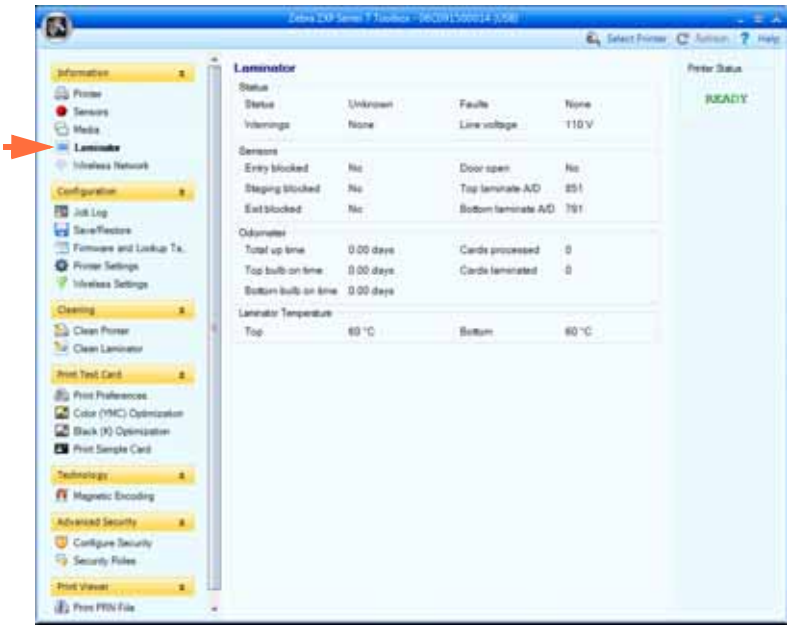
Media characteristics cannot be edited or changed by the user; however, this information may be useful for Zebra trained and certified personnel in diagnosing or evaluating media status.



- **Ribbon Details** include Type, Initial size, Description, and Images remaining.
- **Top Laminate Details** include Type, Initial size, Description, and Patches remaining.
- **Bottom Laminate Details** include Type, Initial size, Description, and Patches remaining.

Laminator

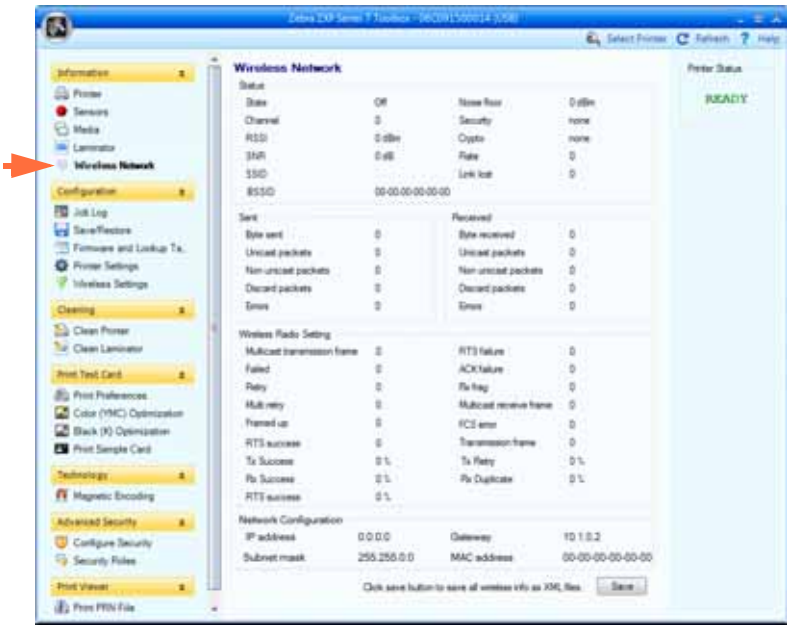
Laminator information cannot be edited or changed by the user; however, this information may be useful for Zebra trained and certified personnel in diagnosing or evaluating laminator status.



- **Status** information includes Status, Warnings, and Faults, and Line Voltage.
- **Sensors** shows the state of each laminator sensor.
- **Odometer** shows Total up time, Top bulb on time, Bottom bulb on time, the number of Cards processed, and the number of Cards laminated.

Wireless Network

This information cannot be edited or changed by the user; however, this information may be useful for network administrators in diagnosing or evaluating wireless network status; see *Wireless Reference Manual P1035089-003* for details.



- The **Save** button saves your wireless settings as XML files.

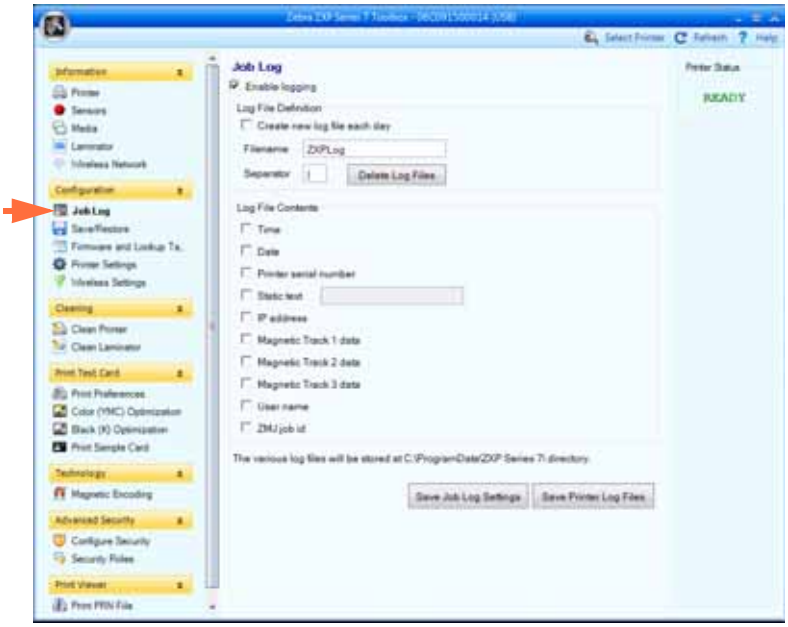
Configuration

Job Log

Note • Access to this feature is controlled via Advanced Security > Security Roles.

The Job Log is a utility that builds a database of card transactions in the printer's host computer. The Job Log records the data encoded on the card's magnetic stripe, together with date, time, and the printer's serial number.

The data set can be uploaded at any time to a central archive, thus providing a means for security officers to validate a card by comparing it with tamper-proof *real data*.



- **Enable logging -** If this box is checked, the logging feature is enabled.
- **Log File Definition -** Choose one of the following options:
  - If the "Create new log file each day" box is **not checked**, the data is saved to a log file of your choice (Filename).
  - If the "Create new log file each day" box is **checked**, the data is saved to log file *ZXPLog* with the day's date; e.g., *ZXPLog_2013_12_12*.

In addition to the Filename, you may wish to enter a special field Separator Character. The default field Separator Character is the "|" character.

Click the **Delete log Files** button to delete all the saved log files.

- **Log File Contents** - The Log File Contents group selects the data to be logged in the file you specified above. The data will be logged in the order displayed on the screen, with each field being separated by the character specified in the Logfile Definition, Separator.

  Log File Contents selections include:

  - **Time**: Logs the time at which the card was sent to the printer in the HH:MM:SS format. The 24-hour clock is used, so 13:00:00 = 1:00 pm, and 05:00:00 = 5:00 am.
  - **Date**: Logs the date the card was sent to the printer in the YY:MM:DD format.
  - **Printer serial number**: Logs the serial number of the printer that printed the card.
  - **Static text**: Adds to the record text in the box at right, 16 characters maximum.
  - **IP address**: Logs the IP address of the PC that sent the card to the printer.
  - **Magnetic Track 1, 2, 3 Data**: Logs the data sent to the printer to be encoded on the card's magnetic stripe.
  - **Application will send data with "~L=xxx" TextOut**: Allows third-party applications to send data to be logged in much the same way as they would send magnetic data.
  - **Spooler job number**: Logs the number which the card print job was assigned in the Windows print spooler.
  - **User name**: Logs the username of the person submitting the card print job.
  - **ZML Job ID**: Logs the UUID; or, in a Windows environment, the GUID.

The **Save Job Log Settings** button saves the Job Log settings.

The **Save Printer Log Files** button creates the following XML Log Files:

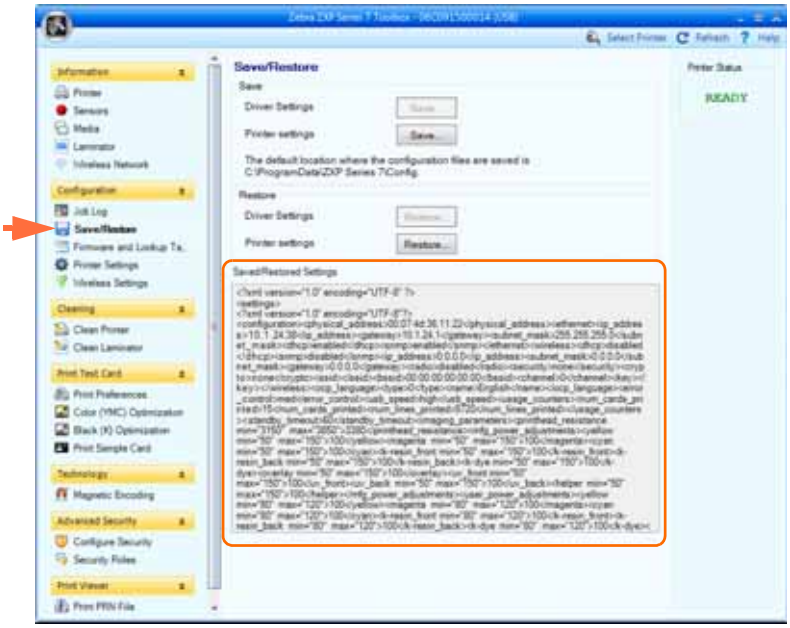
- GetLogCleanHistory.xml
- GetLogErrors.xml
- GetLogEventHistory.xml
- GetLogServiceHistory.xml

Save/Restore

Note • Access to this feature is controlled via Advanced Security > Security Roles.

When you set up a printer, you should save the printer and driver configuration settings; then, when you restore or add additional printers, you can use the saved configuration to ensure configuration consistency.

Note that the Saved/Restored Settings (circled below) are for the Printer.



- The **Save** button saves the Driver Settings and/or Printer Settings in an XML file format.
  - The printer configuration settings are stored as P_<filename>
  - The driver configuration settings are stored as D_<filename>

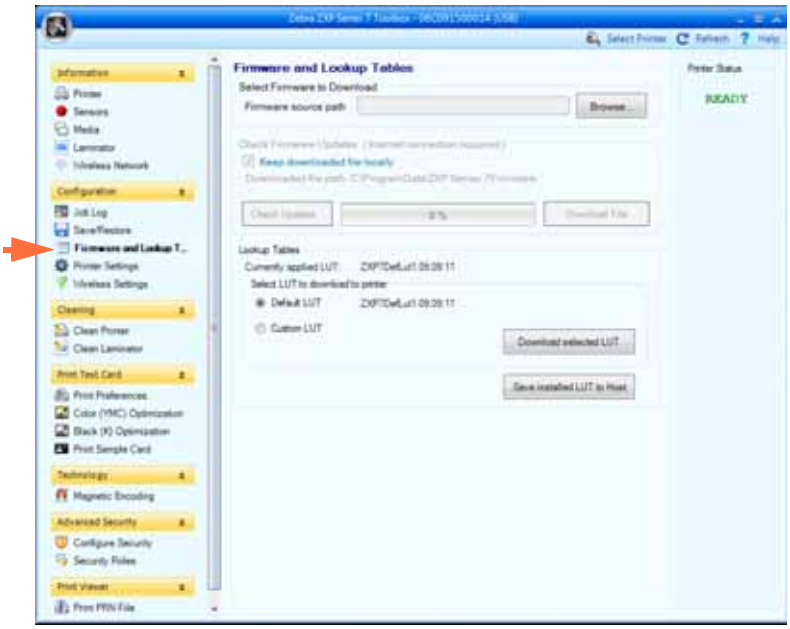
- The **Restore** button restores the saved Driver Settings and/or Printer Settings. Note that Driver Settings options are grayed out (not available) if the Toolbox is launched from the Start menu. They are available if the Toolbox is launched from the Driver.

Firmware and Lookup Tables

Note • Access to this feature is controlled via Advanced Security > Security Roles.

The Firmware and Lookup Tables screen allows you to install firmware and check for firmware updates. This screen also allows you to download and select custom Lookup Tables.

Caution • Do not turn power OFF while the printer is downloading and configuring the new firmware.



- **Select Firmware to Download**: Use this option to install the firmware downloaded from the Zebra web site at http://zebra.com under *Support & Downloads*.

  1. Click the **Browse** button.
  2. From the Browse window, locate the downloaded firmware (BIN file type); and click the **Open** button.
  3. Read the *ZXP Toolbox* caution message. If you are satisfied with the download, click the **OK** button to install the firmware; otherwise, click the **Cancel** button to abandon the firmware installation.

- **Check Firmware Updates:** To use this option, you must have an internet connection.

  1. Click the **Check Updates** button; then enter the Server name, User name, and Password in the *Ftp Login* pop-up; and click the **OK** button.
  2. Observe the firmware update file(s) displayed in the Filename listing; then select the desired update file from the list; and click the **Download File** button.
  3. As the file is downloaded, observe the % complete bar.
  4. Click the **OK** button when the *Download completed* pop-up appears.
  5. Read the *ZXP Toolbox* caution message. If you are satisfied with the download, click on the **OK** button to install the firmware; otherwise, click the **Cancel** button to abandon the firmware installation.

- **Lookup Tables**

  A Look-Up Table (LUT) is used to transform a range of input colors into a range of output colors. Use this Toolbox option to save and install LUTs, either Default or Custom.

  To install a Custom LUT:

  1. Click the **Custom LUT** radio button.
  2. Click the **Download selected LUT** button.
  3. From the Browse window, locate and select the Custom LUT; e.g., *C:\ProgramData\ZXP Series 7\LUTs\ <filename >*.
  4. Click the **Open** button.
  5. Click the **OK** button when the *LUT installed successfully* pop-up appears.

  To save the current LUT, either Default or Custom:

  1. Click the **Save Installed LUT to Host** button.
  2. From the Browse window, name the LUT, and specify the desired saved-file location e.g., *C:\ProgramData\ZXP Series 7\LUTs.*
  3. Click the **Save** button.

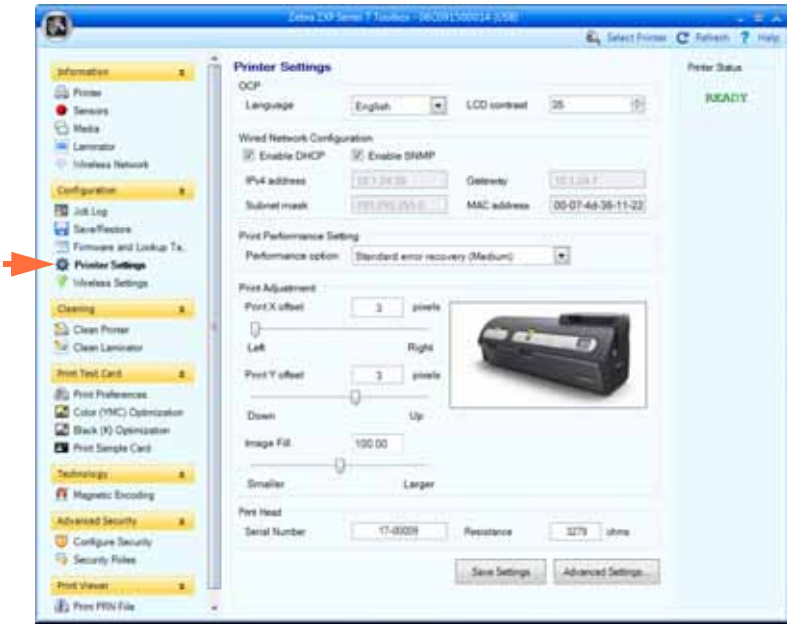
  To install/reinstall the Default LUT:

  1. Click the **Default LUT** radio button.
  2. Click the **Download selected LUT** button.
  3. Click the **OK** button when the *LUT installed successfully* pop-up appears.

Printer Settings

The Printer Settings screen allows you to change the OCP settings, set the network configuration parameters, change print performance settings, adjust the print offset and image fill, and change the printhead serial number and resistance.

Note • Access to Print Adjustment and Print Head options is controlled via Advanced Security > Security Roles.



- **OCP**: This section allows you to change the Language displayed in the Operator Control Panel (English, French, Spanish, German, Portuguese, or Italian) and adjust the LCD Contrast level selected (the level ranges from 20 to 50).
- **Network Configuration**: This section allows you to change the various network configuration parameters (DHCP, SNMP, IPv4 address, Gateway, and Subnet mask). Note that the MAC address cannot be changed.

- **Print Performance Setting**: Performance options from the dropdown menu include:

  - **No error recovery (None):** The printer provides high throughput with a hands-off error recovery policy. This allows the host to have full control over how failed jobs are retried, if at all. In this mode, there can be more than one job in the system at any time. If there is any job in the system (i.e., printer or laminator) and an error occurs, the job will not be automatically retried by the system after the error is cleared. In addition, jobs already in the printer that were sent after the job that had the error are aborted. Jobs ahead of the one with the error are not affected and are allowed to proceed to completion if possible. This mode would be used in applications requiring, for example, uniquely-serialized cards and having no automated means of validating the mating of a job to a card.

  - **Standard error recovery (Medium):** The printer provides high throughput with a reasonable-effort error recovery policy. In this mode, there can be more than one job in the system at any time. If a job suffers an error it will be automatically retried after the error is cleared. Card jams, for example, are handled this way – after the printer is opened, the jammed card removed, and the printer closed and re-initialized, a fresh card is fed and the job reprocesses without host intervention. Jobs ahead of the job that had the error are not affected and are allowed to proceed to completion if possible. Jobs behind the one with the error are paused until the error is cleared, and then they also proceed to completion.

  - **Full error recovery (High):** The printer provides reduced throughput so that it can recover any job automatically. In this mode, only one job is allowed into the system at a time; and if a job errors anywhere in the system, the job will automatically be retried by the system after the error is cleared.

- **Print Adjustment:**

  Print X offset and **Print Y offset** sliders position the image on the card. The Print X offset slider values range from Minimum 3 to Maximum 150. The Print Y offset slider values range from Minimum -16 to Maximum 16. Note that changing the offset can cause the printer to print off the edge of the card and can cause ribbon ripping/tearing.

  Image Fill is used to resize the image (smaller or larger) to best fit the card. The Image Fill slider values range from Minimum 98 to Maximum 102. Note that changing the image fill can cause the printer to print off the edge of the card and cause ribbon ripping.

- **Print Head** (Access is controlled via Security Roles)

  - **Serial Number**: When you replace the printhead, change this field to match the serial number of the replacement printhead.

  - **Resistance** (Minimum: 2200 ohms, Maximum: 3300 ohms): When you replace the printhead, change this value to match the resistance of the replacement printhead. Note that the values must match for the algorithms to work properly. This value is located on a label on the printhead; e.g., R = 3000.

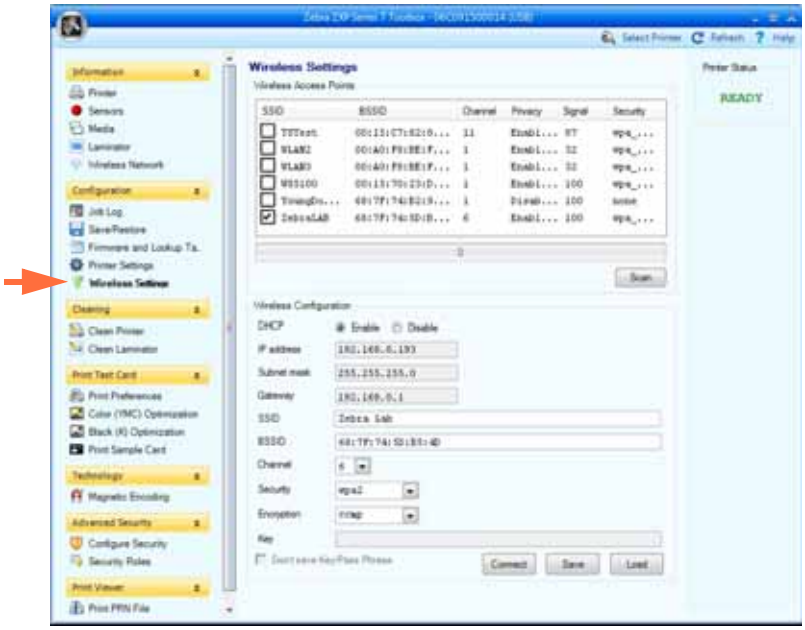
The **Save Settings** button saves any changes you have made to this screen.

The **Advanced Setting** button provides access to service-related tests and adjustments. Use is password protected and limited to Zebra-authorized service personnel; see or higher, for details.

Wireless Settings

Note • Access to this feature is controlled via Advanced Security > Security Roles.

The Wireless Settings screen allows you to connect a printer to a wireless network, or change the printer or network settings after you have installed the printer; see *Wireless Reference Manual P1035089-003* for details.



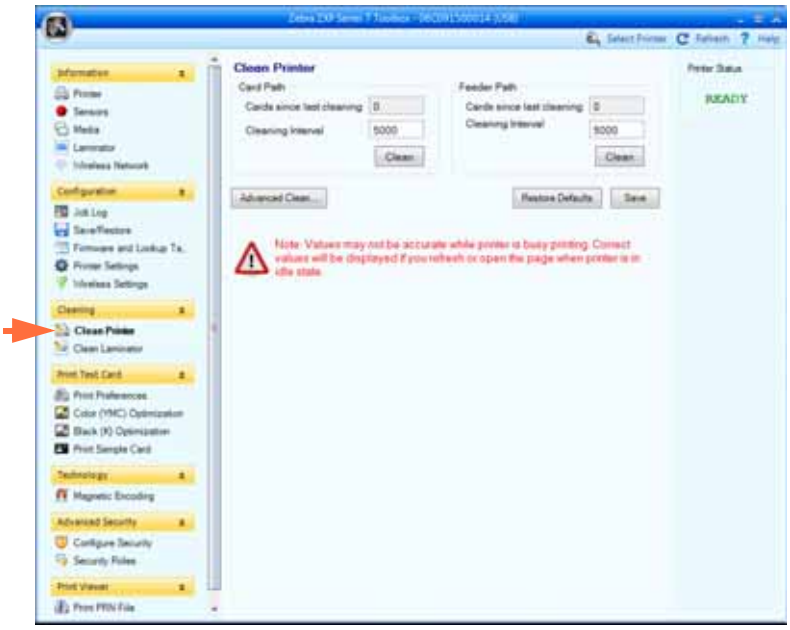
There are two approaches that can be used to configure the printer's wireless settings:

- If all the necessary information is known (SSID, BSSID, Channel, Security, Encryption and Key), enter these parameters directly into the Wireless Configuration.
- The alternate approach is to request that the printer scan for wireless access points and select one. This automatically fills in most of the Wireless Configuration parameters.

Cleaning

Clean Printer

The Clean Printer screen gives you the option to clean the printer via the Toolbox; refer to Section 6, for cleaning via the OCP.



- **Card Path:** The Card Path cleaning interval can be adjusted depending on the printer operation environment. The default cleaning interval is every 5,000 cards. A running card count is displayed indicating the number of cards printed since last cleaning. Click on the **Clean** button to start the cleaning process. For details, see Clean the Card Path on page 131.
- **Feeder Path:** The Feeder Path cleaning interval can be adjusted depending on the printer operation environment. The default cleaning interval is every 5,000 cards. A running card count is displayed indicating the number of cards printed since last cleaning. Click the **Clean** button to start the cleaning process. For details, see Clean the Feeder Path on page 132.

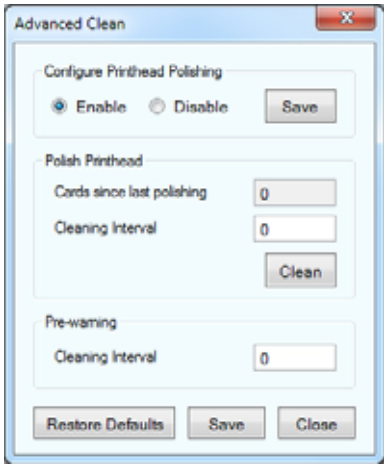
The **Restore Defaults** button resets the cleaning interval settings to the factory defaults.

The **Save** button saves any changes you have made to this screen.

The **Advanced Clean** button provides access to the printhead polishing function. Use is password protected and limited to Zebra-authorized service personnel. See the next page for details.

Advanced Cleaning

The Advanced Cleaning screen gives you the option to polish the printhead via the Toolbox. Printhead polishing is used when “ghosting” artifacts appear on a printed card.



- **Configure Printhead Polishing:** Click the appropriate to radio button to enable or disable printhead polishing. Click the **Save** button to save the setting. When enabled, printhead polishing can also be done via the OCP.
- **Polish Printhead**: Printhead polishing should occur every 5,000 cards. A running card count is displayed indicating the number of cards printed since last polishing. Click the Clean button to start the polishing process as follows:

  1. Open the printer cover and ribbon drawer, remove the ribbon, and then click the **Next** button.
  2. Close the ribbon drawer and printer cover, and click the **Next** button.
  3. Insert a Lapping Card (grit up) in the Manual Feed Slot, and click the **Clean** button.
  4. Wait until the cleaning process completes. The card will be ejected through the same slot.
  5. Observe the message, *Printhead cleaning has been completed successfully.*
  6. Click the **Close** button to conclude the printhead cleaning process.
  7. Reinstall the ribbon.

- **Pre-warning:** Pre-warning is used to set a threshold to alert the user that polishing will be required *soon*; e.g., after the next 250 cards have been printed.

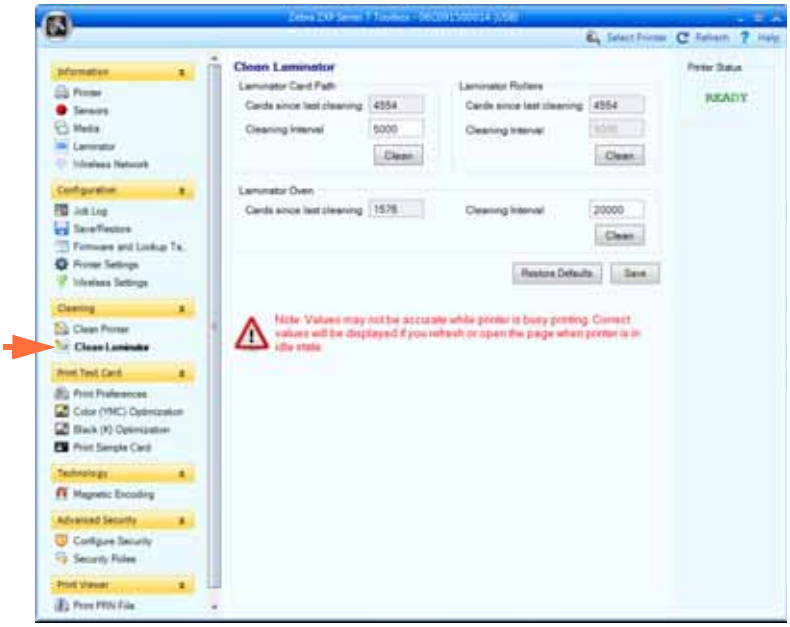
The **Restore Defaults** button resets the cleaning interval settings to the factory defaults.

The **Save** button saves any changes you have made to this screen.

The **Close** button returns you to the Clean Printer screen.

Clean Laminator

The Clean Laminator screen gives you the option to clean the laminator via the Toolbox; refer to Section 6, for cleaning via the OCP.



- **Laminator Card Path** cleaning interval can be adjusted depending on the printer operating environment. The default cleaning interval is every 5,000 cards. A running card count is displayed indicating the number of cards printed since last cleaning. Click the **Clean** button to start the cleaning process. For details, see Clean the Laminator Card Path on page 135.
- **Laminator Roller** cleaning interval can be adjusted depending on the printer operation environment. The default cleaning interval is every 5,000 cards. A running card count is displayed indicating the number of cards printed since last cleaning. Click the **Clean** button to start the cleaning process. For details, see Clean the Laminator Media Rollers on page 136.
- **Laminator Oven** (Heater Rollers) cleaning interval can be adjusted depending on the printer operation environment. The default cleaning interval is every 20,000 cards. A running card count is displayed indicating the number of cards printed since last cleaning. Click the **Clean** button to start the cleaning process. For details, see Clean the Laminator Oven (Heater Rollers) on page 138.

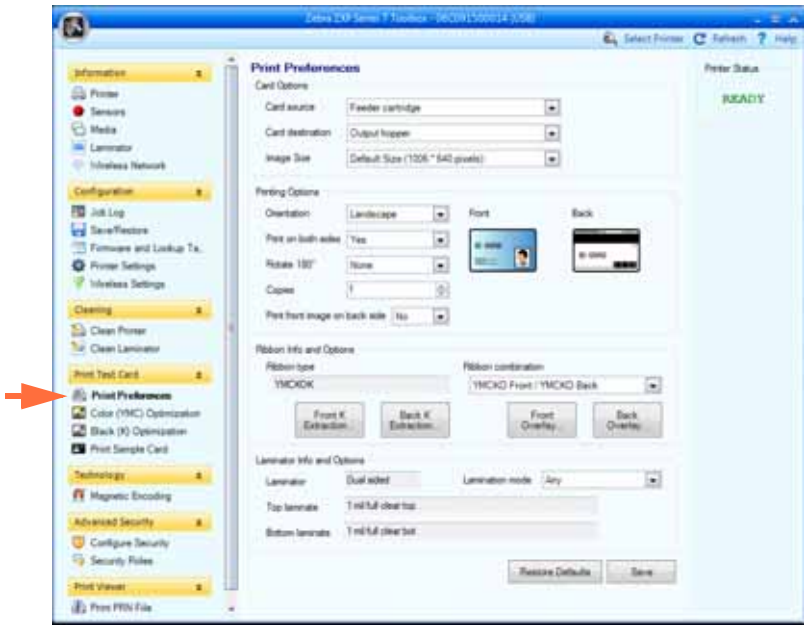
The **Restore Defaults** button resets the cleaning interval settings to the factory defaults.

The **Save** button saves any changes you have made to this screen.

Print Test Card

Print Preferences

The controls in this section function he same way as the controls for the Card Setup Tab on page 76; see that section for details.



Advanced Black Panel Options

The controls in this section function he same way as the controls for the Black Panel Options on page 79; see that section for details.

Overlay Varnish Options

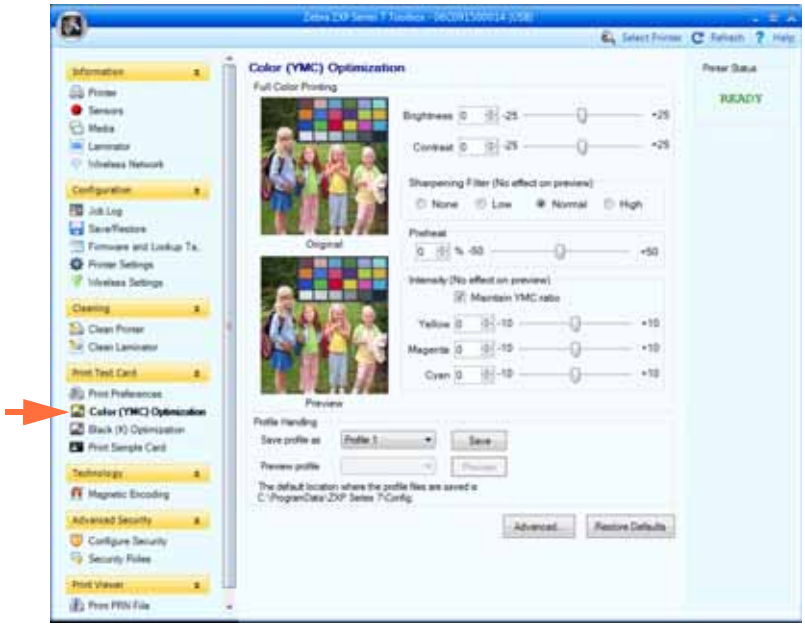
The controls in this section function he same way as the controls for the Overlay Varnish Options on page 82; see that section for details.

Uv Panel Screen

The controls in this section function he same way as the controls for the UV Panel Options on page 83; see that section for details.

Color (YMC) Optimization

The controls in this section function he same way as the controls for the Color (YMC) Optimization Tab on page 92; see that section for details.



Profile Handling: You can save and use up to five profiles (a profile is a set of color optimization settings):

To save a profile:

1. Make the necessary full color printing adjustments (Brightness, Contrast, etc.).
2. Select a profile from the *Save profile as* dropdown menu.
3. Click the **Save** button.

To load a saved profile:

1. Select the desired profile from the *Preview profile* dropdown menu.
2. Click the **Preview** button to load the profile.

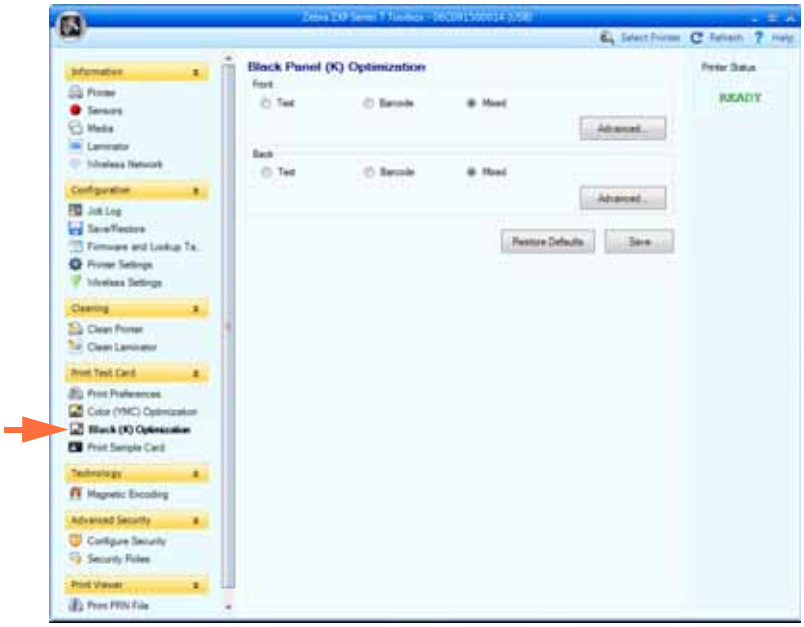
Click the **Advanced** button to access to the Advanced (YMC) Color Optimization pop-up window.

Advanced Color (YMC) Optimization

The controls in this section function he same way as the controls for the Advanced Color (YMC) Optimization on page 94; see that section for details.

Black Panel (K) Optimization

The controls in this section function he same way as the controls for the Black Panel (K) Optimization Tab on page 88; see that section for details.



Click the **Advanced** button to access to the Advanced Black panel (K) Optimization pop-up window.

Advanced Black Panel (K) Optimization

The controls in this section function he same way as the controls for the Advanced Black Panel (K) Optimization on page 89; see that section for details.

Print Sample Card

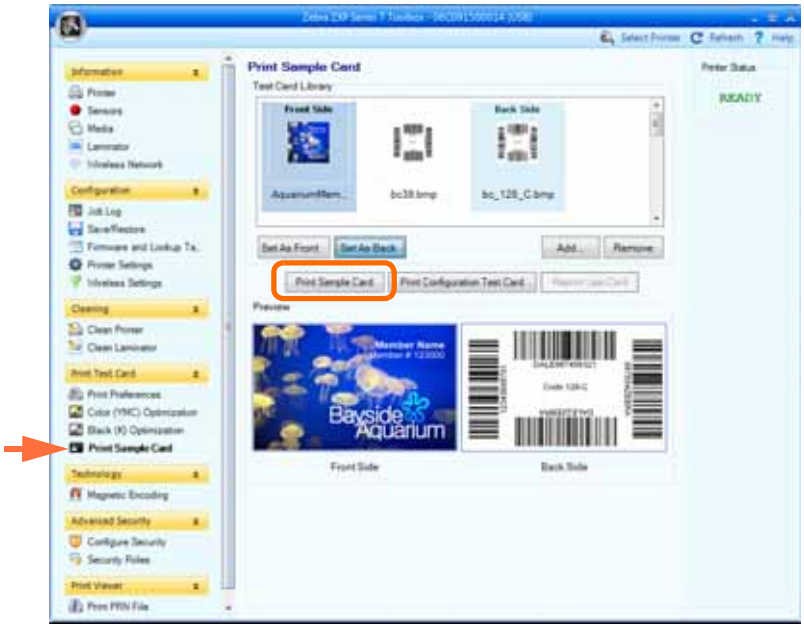
When printing a sample card, all the settings from Printing Preferences, Color (YMC) Optimization, and Black Panel (K) Optimization are applied.

All the sample cards in the Test Card Library are .bmp images.

Printing

The following steps detail how to print a sample card.

1. View the **Test Card Library**. Use the scrollbar to view all the selections.



2. Set the front side:
   a. Select (click) a card from the Test Card Library.
   b. Click the **Set As Front** button.
   c. View the selected card in the Preview. Note that to remove the selected card from the Preview, click the **Set As Front** button.
   d. To change your selection, repeat Steps Step a through Step c.

3. Set the back side: same as Step Step 2, except click the **Set As Back** button.
4. View your sample card selections (front and back) in the Preview.
5. When satisfied with your selection, click the **Print Sample Card** button (circled above) to print the sample card.

Test Card Library

Cards can be added to or removed from the Test Card Library.

To add a card.

1. Click the **Add** button.
2. In the Browser, locate the desired card.
3. Click the **Open** button.
4. The selected card will be copied to the Test Card Library.

To remove a card:

1. Select (click) the card to be removed.
2. Click the **Remove** button to remove the card

The **Print Sample Card** button prints the sample card selected above.

The **Print Configuration Test Card** button provides printer configuration data on a card. Note that single-sided printers will print information on two cards, dual-sided printers will print information on both sides of one card.

The **Reprint Last Card** button sends a command to the printer to print the last card.

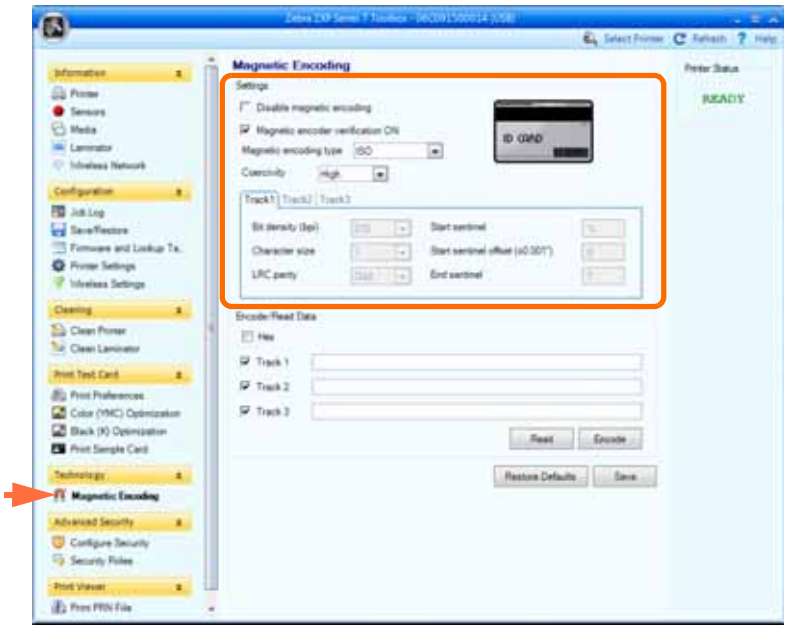
Technology

Magnetic Encoding

Note • Access to this feature is controlled via Advanced Security > Security Roles.

The Magnetic Encoding screen allows the user to set various magnetic encoding options. For more information on magnetic encoding, refer to Appendix D.

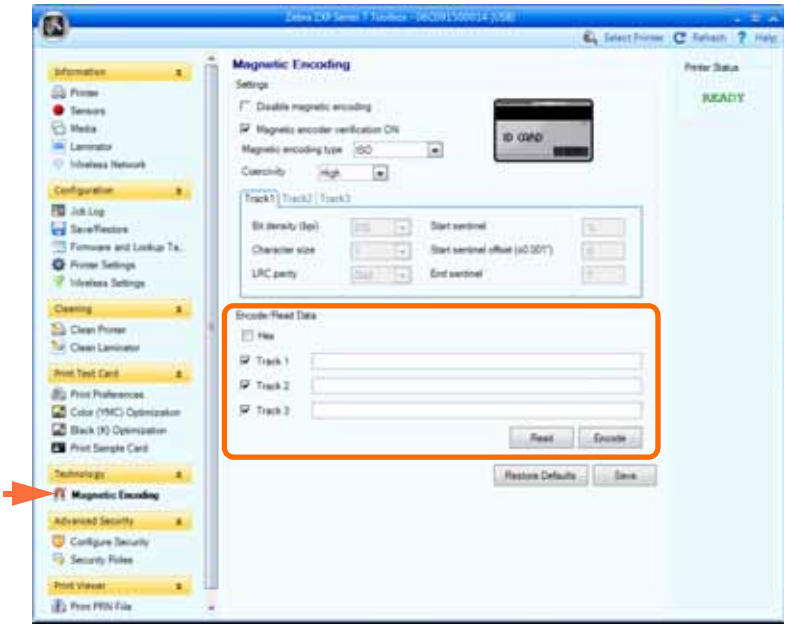
- **Settings**



Before using this screen, set the following magnetic encoding properties:

1. Select the operation checkboxes as required:
   - Disable magnetic encoding.
   - Magnetic encoder verification ON.
2. Select the magnetic encoding type. Encoding types supported are ISO, AAMVA, CUSTOM, BINARY. Track 1, Track 2 and Track 3 settings will be enabled only for **Custom** mag encoding format.
3. Select Coercivity: *High* or *Low* based on card type.

- **Encode/Read Data**



Hex: Select this checkbox to encode the tracks using hexadecimal format.

Track selection:

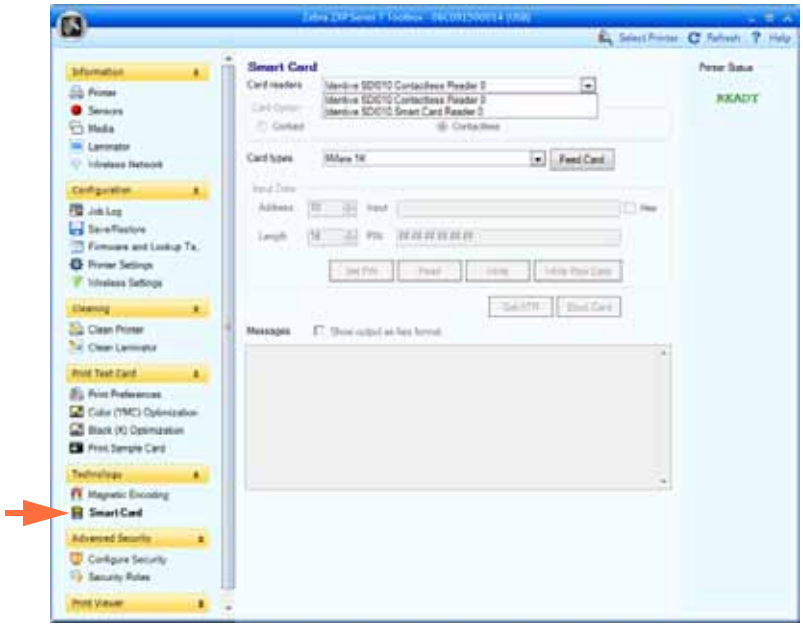
- For reading: Click the checkboxes to select *Track 1*, *Track 2*, and/or *Track 3*; click the **Read** button, and validate the data read.
- For encoding: Click the checkboxes to select *Track 1*, *Track 2*, and/or *Track 3*; enter the data to be written; and click the **Encode** button.

The **Restore Defaults** button restores the Magnetic Encoding default values.

The **Save** button saves the Magnetic Encoding values.

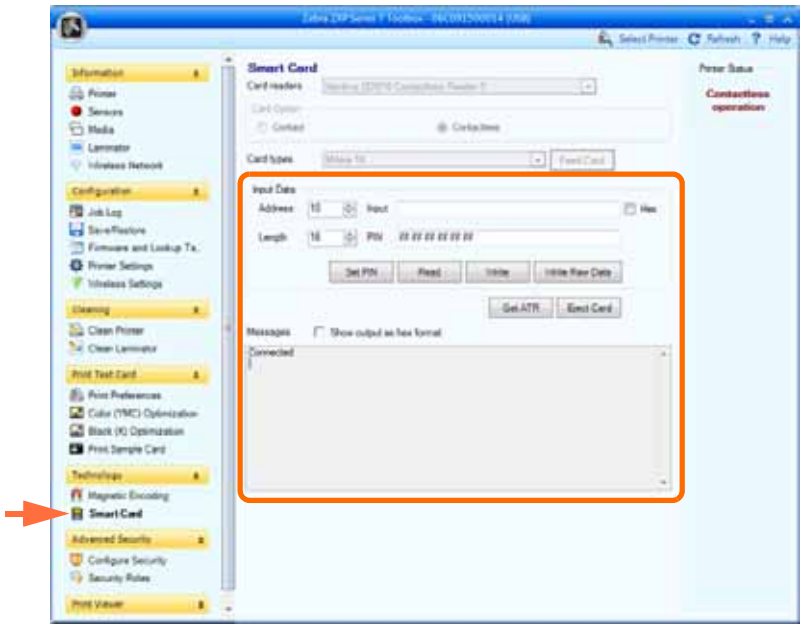
Smart Card

The Smart Card screen allows the user to test various smart card encoding options. For more information on smart card encoding, refer to Appendix E.



- Card Readers:
  - Select the card reader from the drop-down menu.
  - Card Option: Select either Contact or Contactless.
- Card Types:
  - Select the appropriate card type from the drop-down menu.
  - Place a card in the Feeder Cartridge, and click **Feed Card** button.

- Card Types (continued):
  - **Input Data:** Includes address, length, input, and PIN.



    - Writing Data: Set the address, set the length, enter data in *Input* field, and click the **Write** button.
    - Reading Data: After writing data (above), click the **Read** button. “Read successful” and the value read from the smart card will be displayed in the Messages section.
    - Click the **Set PIN** button to set the security code for the card.
    - Click the **Write Raw Data** button to write “raw data” to a card.

    The **Get ATR** button returns the ATR (Answer To Reset) result from the card reader. This is useful to identifying the type of smart card inserted into the printer.

    The **Eject Card** button ejects the card.

  - Click the **Messages** checkbox to show the output in hex format.

Advanced Security

Configure Security

Important • To manage this Advanced Security section, you are required to be the administrator of the computer or have administrative privileges.

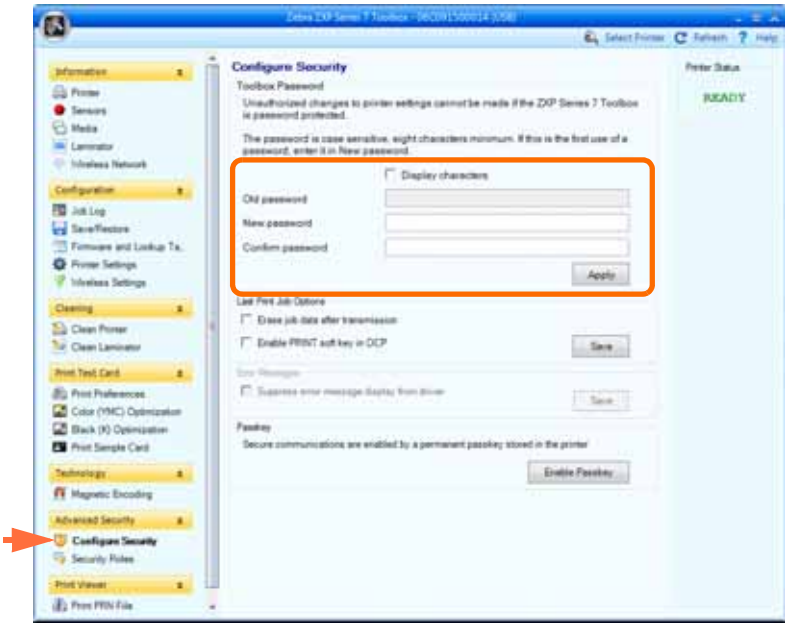
- **Toolbox Password**

  Enabling driver password protection prevents unauthorized persons from changing the printer configuration settings. Access to various Toolbox screens can be selectively disabled based on the Windows User Login.

  The user will be prompted with this password when the Toolbox is launched.

  - To enter a new password:

    1. Enter the new password on the *New password* field. The password is case sensitive, eight characters minimum.



    2. Repeat the password in the *Confirm password* field.
    3. Click the **Apply** button.

- **Toolbox Password** (continued)

  - To change the password:

    1. Enter your password in the *Old password* field.
    2. Enter the new password in the *New password* and the *Confirm password* fields.
    3. Click the **Apply** button.

  - To deactivate password protection:

    1. Enter your password in the *Old password* field.
    2. Leave the *New password* and the *Confirm password* fields blank.
    3. Click the **Apply** button.

- **Last Print Job Options**

  - The *Erase job data after transmission* option erases the job data after it has been transmitted to the printer.
  - The *Enable PRINT soft key in OCP* option allows the last print job to remain in memory for multiple reprints via the OCP.

  The **Save** button saves the selection.

- **Error Messages**

  Select the checkbox to suppress error message display from the driver.

- **Passkey**

  The **Enable Passkey** button provides access to advanced security settings (i.e., Host Authentication, Data Encryption, and Printer Lock Key); see *ZXP Series 7 Service Manual P1036102-005* or higher for details.

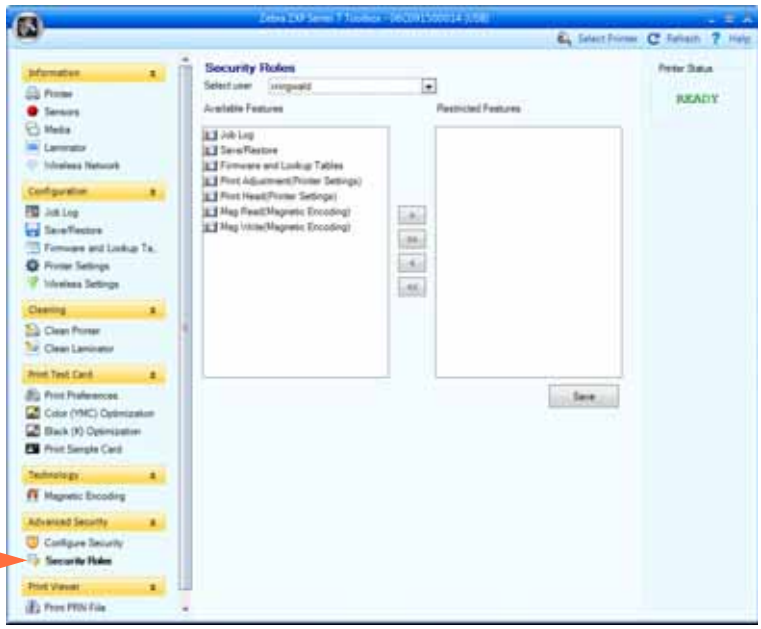
Security Roles

Important • To manage this Advanced Security section, you are required to be the administrator of the computer or have administrative privileges.

Use this section to establish security roles; i.e., grant and restrict access to various ZXP Series Toolbox features. The list of users in the drop-down menu (e.g., Guest, HelpAssistant, Local User, localfix, etc.) is derived from the list of users on the system.

- **To set security access roles:**

1. Select a user from the drop-down menu.



2. Use the arrow buttons (>, >>, <, and <<) to make specific features available to or restrict specific features from the selected user role.
3. When satisfied with the selection, click the **Save** button.

At the next login, the user will only see or have access to the features previously granted.

Print Viewer

When a PRN file is printed, printer drivers are bypassed; but the print spooler is still required since communication to the printer is via the print spooler. This diagnostic utility can be used to ensure that your printer is working properly by isolating it from driver-related and other issues.

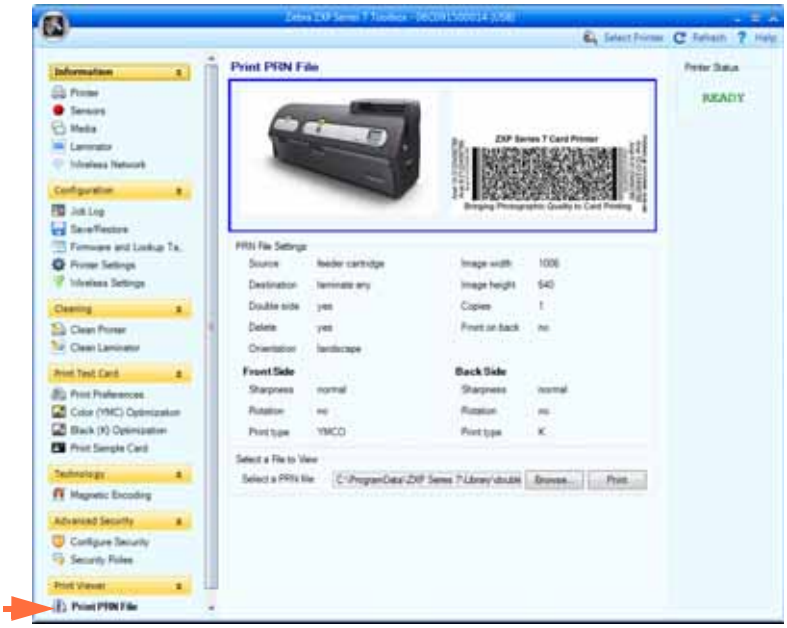
Print PRN file

- **To send a PRN file to the printer:**

1. Click the Print button to print the default PRN file.

   - or -

   Click the **Browse** button to select and print a PRN file of your choice.



2. From the Browse window, locate and select the PRN file.
3. Click the **Open** button.
4. View the PRN file.
5. Click the **Print** button.

Successfully printing the PRN file indicates that the printer and data communications to the printer are set up and configured properly.

6 Cleaning

Caution • PROTECT YOUR FACTORY WARRANTY!

The recommended cleaning procedures must be performed to maintain your factory warranty. Allow only Zebra authorized technicians to service the Printer for all tasks other than the recommended cleaning procedures described in this manual.

NEVER loosen, tighten, adjust, bend, etc., any part or cable inside the printer.

NEVER use a high pressure air compressor to remove particles in the printer.

6.1 Introduction

The regular use of cleaning cards will clean and maintain important parts of your printer that cannot be reached: including the Printhead, the Transport Rollers, and the Magnetic Encoder Station (optional feature).

To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

Printer usage (total number of cards printed and total number of cards laminated) can be found on the printer's Properties, Device Information tab.

Cleaning the Printer

NOTE • To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

When to Clean

Cleaning requirements vary according to the environment. For a typical office environment, the recommended cleaning cycle is:

- Card Path cleaning should occur every 5,000 cards.
- Feeder Path cleaning should occur every 5,000 cards.

Initiate the Cleaning Process

Step 1. Press the MENU button on the Operator Control Panel (OCP). The OCP will display the **Main Menu**.

Step 2. Scroll through the Main Menu, and select Advanced Settings. The OCP will display the **Advanced Settings Menu**.

Step 3. Scroll through the Advanced Settings Menu, and select Clean Printer. The OCP will display the **Clean Printer** Menu.

Clean the Card Path

NOTE • Do not use previously used cleaning cards. To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

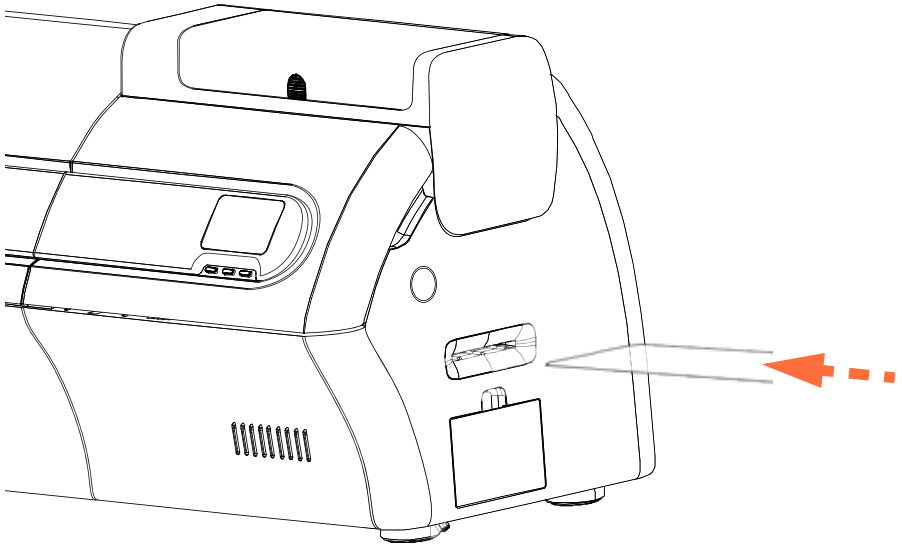
Step 1. From the Clean Printer Menu, select *CLEAN CARD PATH*.

Step 2. Use the Printer Cleaning Card, and follow the OCP instructions.

Step 3. Open the print cover, open the ribbon drawer, remove the ribbon, and press *Next*.

Step 4. Close the ribbon drawer, close the print cover, and press *Next*.

Step 5. Insert the long cleaning card in the Manual Feed Slot, and press *Clean*.



Step 6. Wait while the cleaning process completes. The card will eject through the same slot.

Step 7. Flip the cleaning card over, reinsert it in the Manual Feed Slot, and press *Clean*.

Step 8. Wait while the cleaning process completes. The card will eject through the same slot.

Step 9. Replace the ribbon, and press *Next*.

Step 10. The OCP will return to the Clean Printer Menu.

Clean the Feeder Path

NOTE • Do not use previously used cleaning cards. To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

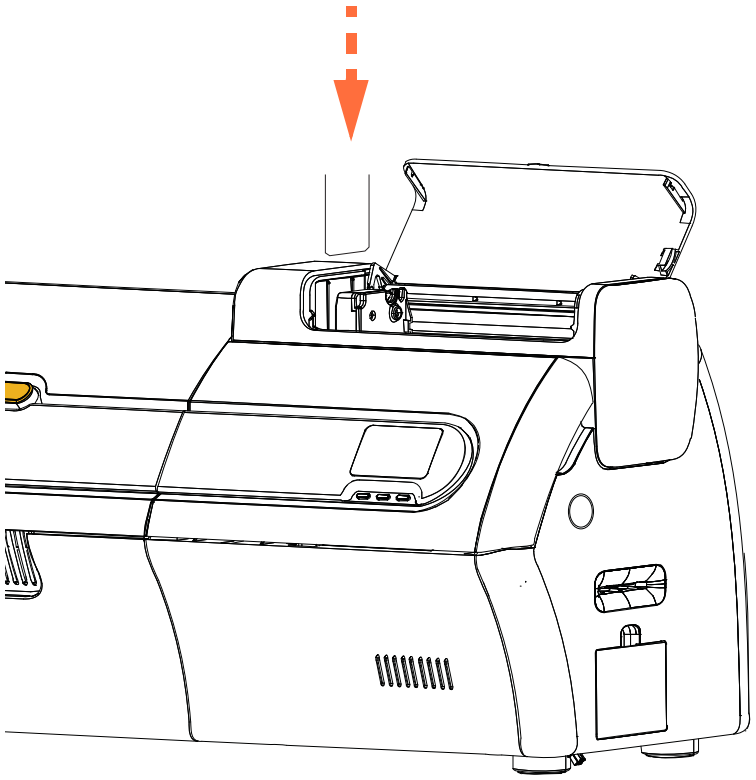
Step 1. From the Clean Printer Menu, select *CLEAN FEEDER*.

Step 2. Use the Feeder Cleaning Card, and follow the OCP instructions.

Step 3. Remove all the cards from feeder cartridge, and press *Next*.

Step 4. Insert the short cleaning card in the top slot, and press *Clean*.

Step 5. Press the gold button in feeder cartridge to release the pusher plate, and press *Next*.



Step 6. Wait while the cleaning process completes. The card will eject through the same slot.

Step 7. Flip the cleaning card over, reinsert it in top slot, and press *Clean*.

Step 8. Wait while the cleaning process completes. The card will eject through the same slot.

Step 9. The OCP will return to the Clean Printer Menu.

Step 10. Load the cards back into the feeder cartridge.

Polish the Printhead

NOTE • Use is password protected and limited to Zebra-authorized service personnel.

The **Advanced Cleaning** button in the Clean Printer section of the ZXP Toolbox provides access to printhead polishing. When printhead polishing is enabled in the ZXP Toolbox, printhead polishing can be done via the OCP.

Step 1. Enable printhead polishing in the ZXP Toolbox

Step 2. Press the MENU button on the Operator Control Panel (OCP). The OCP will display the Main Menu.

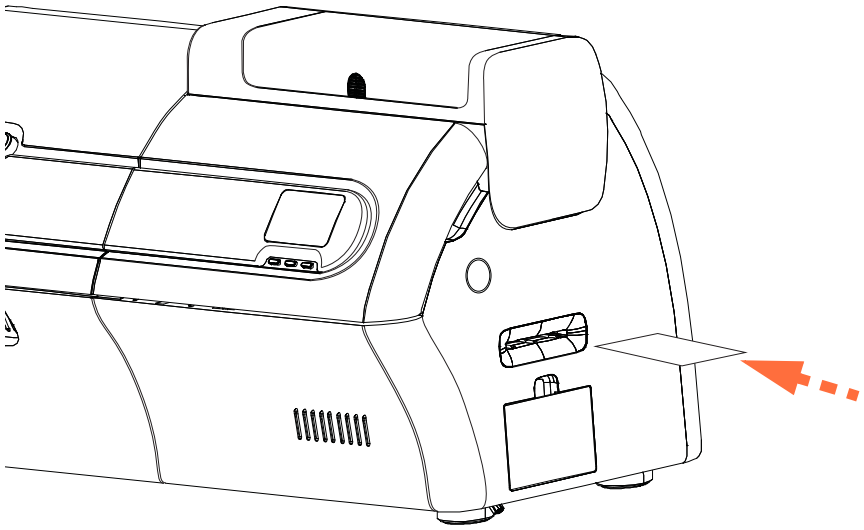
Step 3. Scroll through the Main Menu, and select Advanced Settings. The OCP will display the Advanced Settings Menu.

Step 4. Scroll through the Advanced Settings Menu, and select Clean Printer. From the Clean Printer Menu, select *POLISH PRINTHEAD*.

Step 5. Open the printer cover and ribbon drawer, remove the ribbon, and press *Next*.

Step 6. Close the ribbon drawer and printer cover, and press *Next*.

Step 7. Insert a Polishing Card (grit up) in the Manual Feed Slot, and press *Clean*.



Step 8. Wait until the cleaning process completes. The card will be ejected through the same slot.

Step 9. Replace the ribbon, and press *Next* to return to the Advanced Settings Menu.

NOTE • Card Path Cleaning (Page 131) is recommended after printhead polishing to remove any loose debris from the printer.

Cleaning the Laminator

NOTE • To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

When to Clean

Cleaning requirements vary according to the environment. For a typical office environment, the recommended cleaning cycle is:

- Laminator Card Path cleaning should occur every 5,000 cards.
- Laminator Roller cleaning should occur every 5,000 cards.
- Laminator Oven (Heater Rollers) cleaning should occur every 20,000 cards.

Initiate the cleaning process:

NOTE • To avoid a long wait while the heated rollers cool to 60°C, perform cleaning before the rollers heat; i.e., when first turned on and the rollers are still cold.

Step 1. Press the MENU button on the Operator Control Panel (OCP). The OCP will display the **Main Menu**.

Step 2. Scroll through the Main Menu, and select Advanced Settings. The OCP will display the **Advanced Settings Menu**.

Step 3. Scroll through the Advanced Settings Menu, and select Clean Printer. The OCP will display the **Clean Printer Menu**.

Clean the Laminator Card Path

NOTE • Do not use previously used cleaning cards. To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

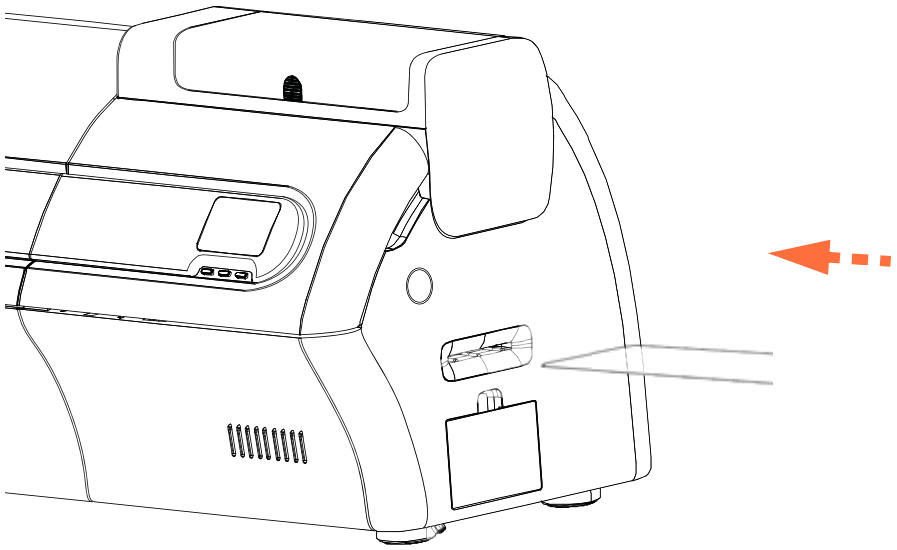
Step 1. From the Clean Printer Menu, select *CLEAN LAM CARD PATH* to run the Laminator Cleaning Routine; and follow the OCP instructions.

Step 2. Wait until the oven temperature falls below 60°C.

Step 3. If you have laminate installed, open the laminator covers, remove the laminate (top and bottom cassettes), and close the covers.

Step 4. Open the print cover (to raise the printhead), and press *Next*.

Step 5. Insert the Laminator Cleaning Card into the Manual Feed Slot, and press *Clean*.



Step 6. Wait while the cleaning process completes.

Step 7. The card will exit into the output hopper.

Step 8. The OCP will return to the Clean Printer Menu.

Step 9. If you want to clean the Laminator Media Rollers at this time, see *Clean the Laminator Media Rollers* on page 136; otherwise, go to Step 10.

Step 10. Open the laminator covers, install the laminate (top and bottom spools), and close the laminator covers.

Step 11. Close the print cover.

Clean the Laminator Media Rollers

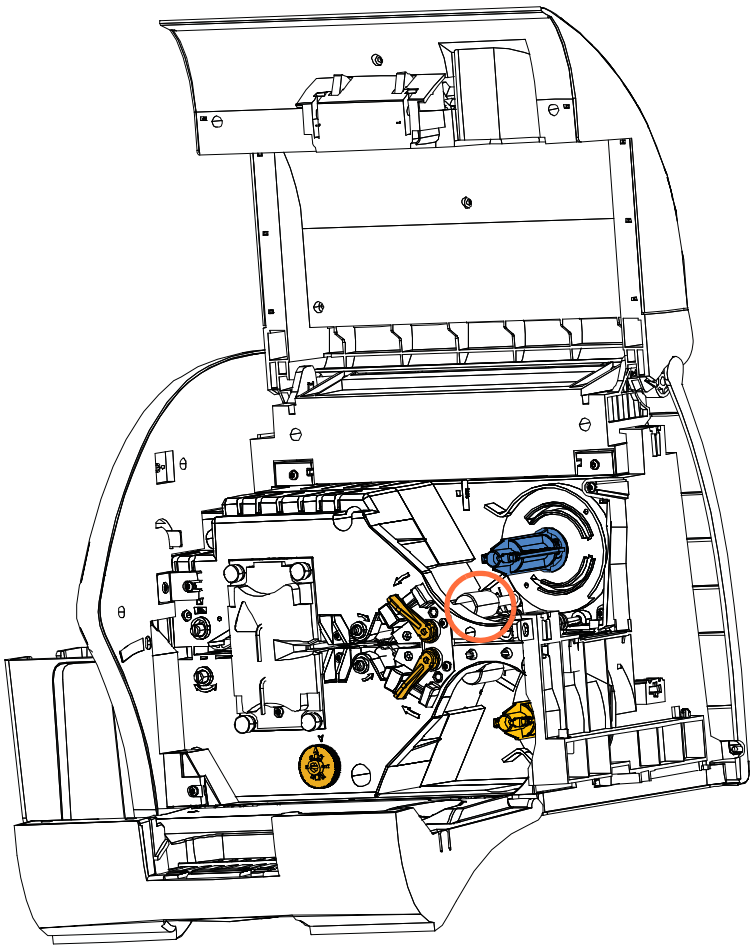
NOTE • Do not use previously used cleaning cards. To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

Step 1. From the Clean Printer Menu, select *CLEAN LAM ROLLERS* to run the Laminator Media Roller Cleaning Routine; and follow the OCP instructions.

Step 2. Open the laminator covers, remove the laminate (top and bottom cassettes), and leave both covers open.

Step 3. Prepare a Cleaning Swab for use.

Step 4. Locate the top roller (circled below) for the upper cassette.



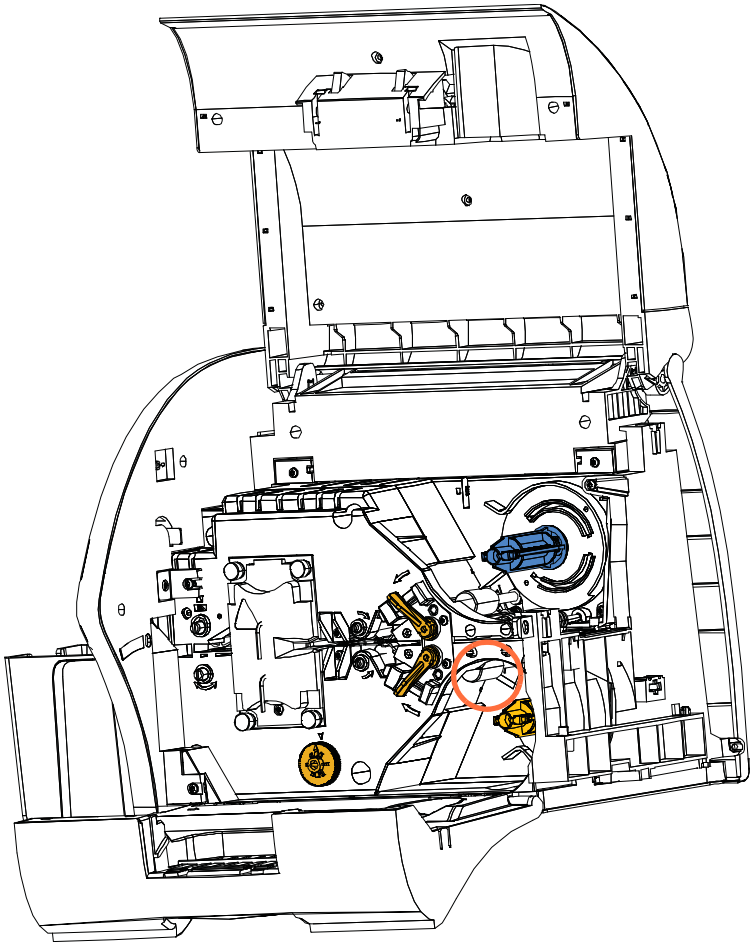
Step 5. When ready, press *Next*; and press *Top*.

Step 6. Clean the top media roller by pressing the swam against the roller and moving the swab tip side-to-side until roller stops turning. Only use moderate pressure.

Step 7. **For dual-sided laminators only**: Locate the bottom roller (circled below) for the lower cassette.

Step 8. Prepare a second Cleaning Swab.

Step 9. Locate the bottom roller (circled below) for the lower cassette.



Step 10. When ready, press *Bottom*.

Step 11. Clean the bottom media roller by pressing the swam against the roller and moving the swab tip side-to-side until the roller stops turning. Only use moderate pressure.

Step 12. Press *Exit* to conclude the laminator rollers cleaning process.

Step 13. The OCP will return to the Clean Printer Menu.

Step 14. Install the laminate (top and bottom spools), and close the covers.

Clean the Laminator Oven (Heater Rollers)

NOTE • Do not use previously used cleaning cards. To order ZXP Series 7 cleaning supplies, see http://www.jobrien.com for details.

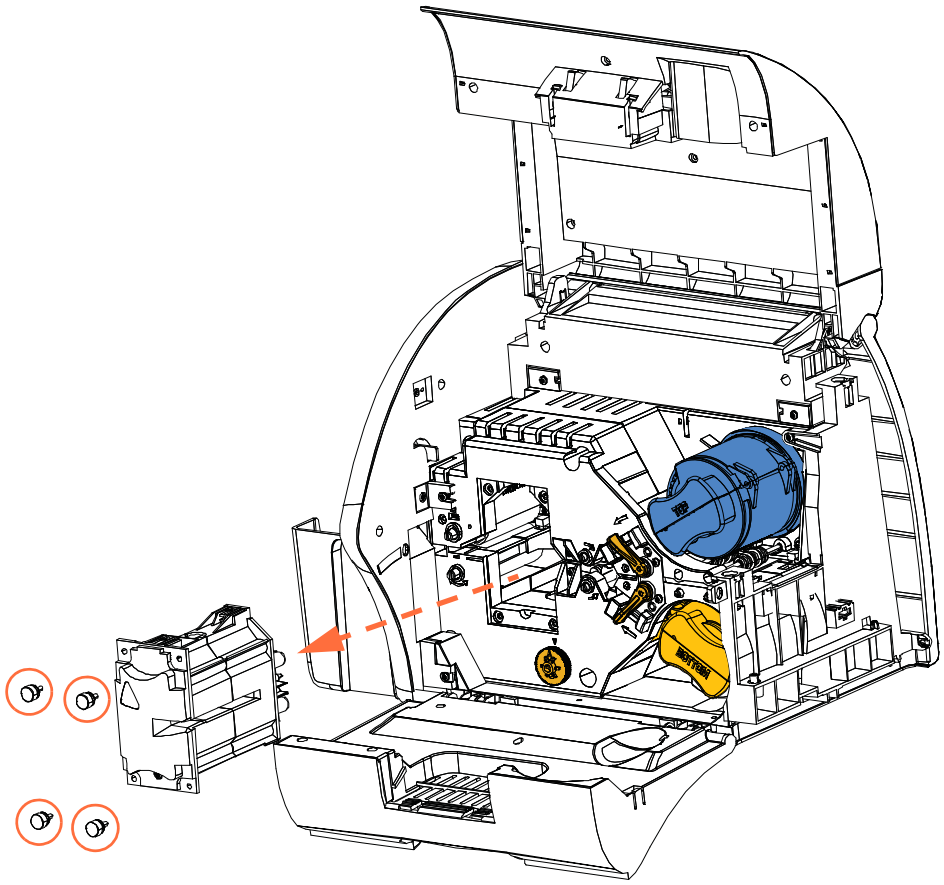
Step 1. From the Clean Printer Menu, select *CLEAN LAM OVEN;* and follow the OCP instructions.

Step 2. Wait until the oven temperature falls below 60°C.

Step 3. Open the laminator covers.

Step 4. Remove the four thumb screws (circled below) holding the Heater Assembly in place.

Step 5. Slide the Heater Assembly out of the Laminator (arrow below).

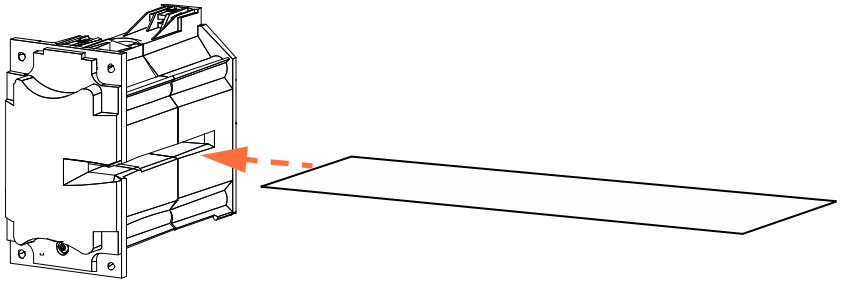


Caution • For the next step, you may have to wait until the Heater Assembly is cool enough to be handled comfortably.

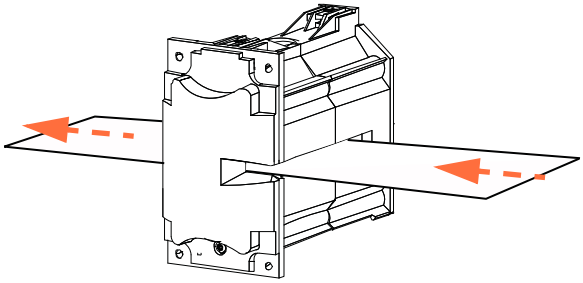
Step 6. When ready, press *Next*.

Step 7. Prepare the Laminator Hot Roller Cleaning Card for use.

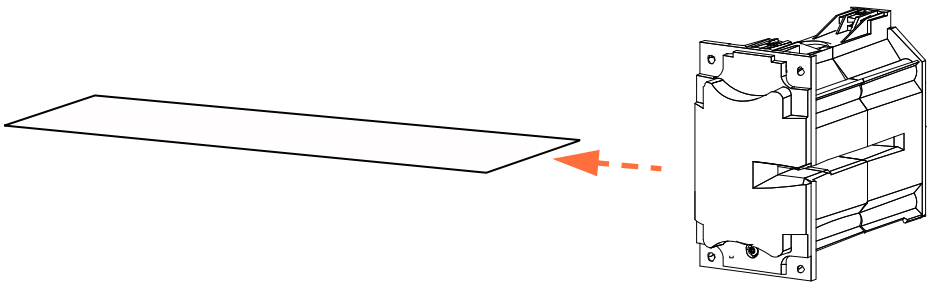
Step 8. Insert the cleaning card between the heater rollers (arrow below).



Step 9. Pull the card all the way through the Heater Assembly.



Step 10. Remove the card from the Heater Assembly.



Step 11. Turn the card over, and repeat Step 8, Step 9, and Step 10.

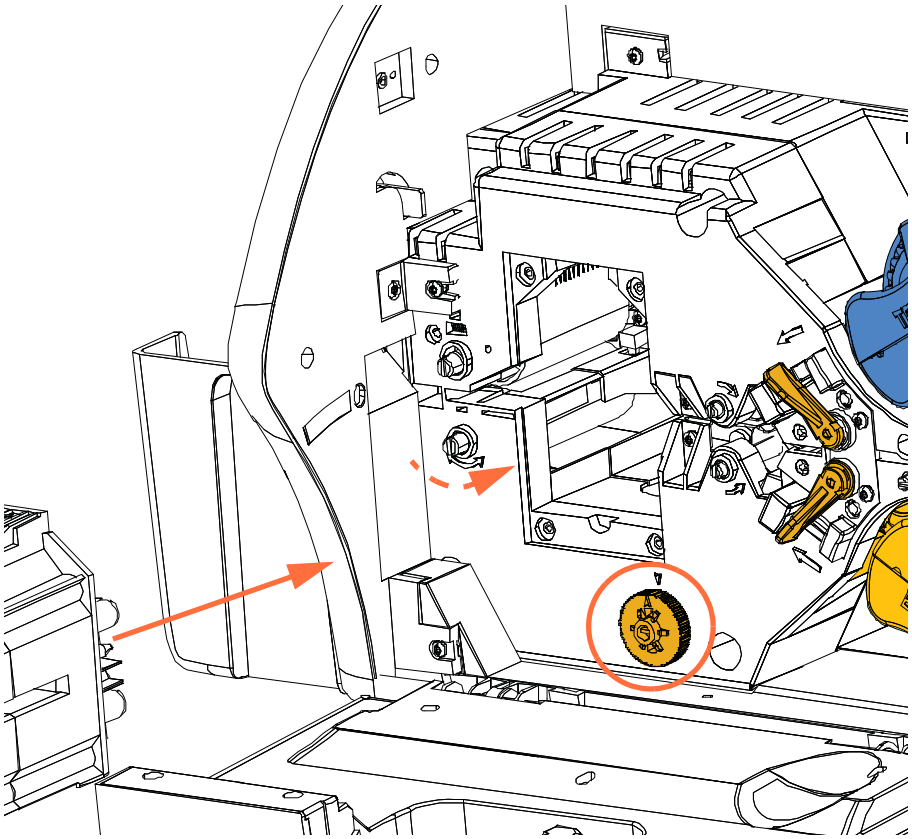
Step 12. Press *Next* to conclude the laminator oven cleaning process.

Step 13. The OCP will return to the Clean Printer Menu.

Step 14. Reinstall the Heater Assembly.

a. Remove the Thumb Drive Tool (circled below).

b. While carefully sliding the Heater Assembly into place, use the Thumb Drive Tool to slowly rotate the gears counterclockwise (dashed arrow) until the gears mesh and the Heater Assembly seats properly.



c. Install and tighten the four thumb screws removed in Step 4.

Step 15. Close the laminator covers.

Dual Cleaning Cartridge

The Dual Cleaning Cartridge cleans the cards entering the printer via the card feeder. To ensure print quality, the card cleaning rollers inside the cartridge require periodic replacement. Two new card cleaning rollers are included with each ribbon or may be purchased separately. To order additional rollers, go to http://www.jobrien.com.

Installation of the Dual Cleaning Cartridge is described in Section 2 and is not repeated in detail here.

Manual Feed Cleaning Cassette

The Cleaning Cassette cleans the cards entering the printer via the Manual Feed Slot. To ensure print quality, the card cleaning roller inside the cassette requires periodic replacement. Two new card cleaning rollers are included with each print ribbon or may be purchased separately. To order additional rollers, go to http://www.jobrien.com.

Installation of the Cleaning Cassette is described in detail in Section 2 and is not repeated here.

7

Troubleshooting

Introduction

The table on the next page offers causes and solutions to symptoms related to improper operation. Check the table on the following pages when experiencing any loss of operation or print quality.

OCP Error Messages

Important • If the **Possible Solution** does not solve your problem, contact *Zebra Technical Support*.

CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
5	FIRMWARE UPGRADE ERROR	Firmware upgrade incompatibility.	Verify the version, and retry installing the firmware.
6	DIAGNOSTIC ERROR	Error encountered in Diagnostic Mode.	Power cycle the printer, and retry.
7	FIRMWARE UPGRADE ERROR	Firmware upgrade failed.	Verify the version, and retry installing the firmware.
8	CRITICAL ERROR SHUTTING DOWN	Major malfunction encountered.	Contact Zebra Technical Support.
3001	PRINTER OFFLINE	Status toggled (offline/online) via the OCP Advanced Settings Menu.	Change status to online via the OCP Advanced Settings Menu.
4003	CARD JAM	Card is jammed in the Printer.	Clear the card path.
4014	CARD FEED ERROR	Card is jammed in Feeder Cartridge, - or - The printer is out of cards.	a. Clear card jam in Feeder Cartridge, and re-seat Feeder Cartridge. b. Ensure that cards are not stuck together and that they are the correct thickness (10 to 50 mil). a. Load cards in the Feeder Cartridge. b. Re-seat the Feeder Cartridge.
4015	CARD NOT INSERTED	Card was not fed into the Manual Feed Slot within 30-second period.	Retry and feed a card into the Manual Feed Slot, or cancel the operation.
5001	OUT OF RIBBON	Print ribbon has run out.	Load a new roll of print ribbon.
5002	INVALID RIBBON	Print ribbon does not match the printer.	Verify the part number of the print ribbon is correct on OCP.
5003	RIBBON JAM	Print ribbon is jammed.	a. Check the print ribbon. b. Reinstall the print ribbon. c. Repair the break in the print ribbon and reinstall.
5006	RIBBON BEMF ERROR	Problem with the Back EMF (BEMF) of the ribbon motors.	Contact Zebra Technical Support.
5007	RIBBON COLOR DETECT ERROR	Print ribbon is not installed correctly.	Reinstall the print ribbon. If reinstalling the ribbon does not solve the problem, contact Zebra Technical Support.
5008	INVALID RIBBON	Print ribbon does not match the printer.	a. Verify the part number of the print ribbon is correct on OCP. b. Power cycle the printer, and retry.
6009	FLASH ERASE ERROR	There is a problem when accessing flash memory.	Power cycle the printer, and retry.

CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
6010	FLASH ERASE VERIFY ERROR	There is a problem when accessing flash memory.	Power cycle the printer, and retry.
6011	FLASH PROGRAM ERROR	There is a problem when accessing flash memory.	Power cycle the printer, and retry.
6012	FLASH PROGRAM VERIFY ERROR	There is a problem when accessing flash memory.	Power cycle the printer, and retry.
6013	INVALID FW S-RECORD	There is a problem when accessing flash memory.	Power cycle the printer, and retry.
6015 - 6025	GENERAL MEMORY ERROR	There is a problem when accessing general memory.	Power cycle the printer, and retry.
7001	CARD FEED ERROR	Card is jammed in Feeder Cartridge, - or - The printer is out of cards.	a. Clear card jam in Feeder Cartridge, and re-seat Feeder Cartridge. b. Ensure that cards are not stuck together and that they are the correct thickness (10 to 50 mil). a. Load cards in the Feeder Cartridge. b. Re-seat the Feeder Cartridge.
7003	PRINTHEAD CABLE ERROR	Printhead cable loose or disconnected.	Check printhead cable connection, reconnect if loose or disconnected.
7004	CARD EJECT ERROR	Card from previous job is stuck in the exit area.	Remove the card from the exit area.
7008	PRINT COVER OPEN	This warning will be displayed if the cover protecting the Printer Module is opened.	This warning will be cleared when the printer cover is closed.
7010	PRINTHEAD MOTION ERROR	Printhead did not move to proper position during initialization.	Power cycle the printer, and retry.
7013	MOTOR VOLTAGE ERROR	Incorrect voltage detected at one or several motors in the unit.	Power cycle the printer, and retry.
7014	SCRIPT PROCESSING ERROR	Internal logic error.	Power cycle the printer, and retry.
7015	MAG MOTION ERROR	This is a magnetic encoding retrace error.	Power cycle the printer, and retry.
7018	SMARTCARD ERROR	• Encoding error. • Faulty card.	a. Ensure that you are using the correct card type. b. Check that the cards are loaded in the correct orientation. c. Ensure that the data conforms to ISO Specifications. d. Retry writing and reading.
7019	SCRIPT CONTENT ERROR	Internal logic error.	Power cycle the printer, and retry.
7020	SCRIPT SEND ERROR	Internal logic error.	Power cycle the printer, and retry.
7023	SMART CARD CAM ERROR	Mechanical positioning issue.	Power cycle the printer, and retry.
7024	OPTIONS CARD JAM	Card is jammed in the Options Module, Feeder Cartridge.	Clear the card path.

CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
7026	FLIPPER CARD JAM	Card is jammed in the Flipper.	Clear the card path.
7028	OPTIONS COVER OPEN	This warning will be displayed if the cover protecting the Options Module is opened.	This warning will be cleared when the options cover is closed.
7029	FLIPPER ROTATION ERROR	The Flipper has failed.	Contact Zebra Technical Support.
7032	SINGLE CARD FEED JAM	Card is jammed in the Options Module, Single Card Feed Slot.	Clear the card path.
7033	FLIPPER BOARD ERROR	The Flipper has failed.	Contact Zebra Technical Support.
7034	REJECT BIN FULL REMOVE CARDS	The Reject Bin is full.	Remove the cards from the bin, and reset the reject bin card count to 0 via the OCP (Main Menu > Advanced Settings > Clear Reject Bin).
7035	OPTIONS CARD JAM	Card is jammed in the Options Module, Magnetic Encoder.	Clear the card path.
7036 - 7039	PRINT CARD JAM	Card is jammed in Printer Module.	Clear the card path.
9001	MAG READ ERROR	• Encoding error. • Defective magnetic stripe.	a. Ensure that you are using the correct card type. b. Check that the cards are loaded with the magnetic stripe in the correct orientation. c. Ensure that the cards are set-up correctly in the printer driver (coercivity setting). d. Ensure that the data conforms to ISO Specifications. e. Retry reading.
9002	MAG WRITE ERROR	• Encoding error. • Defective magnetic stripe.	a. Ensure that you are using the correct card type. b. Check that the cards are loaded with the magnetic stripe in the correct orientation. c. Ensure that the cards are set-up correctly in the printer driver (coercivity setting). d. Ensure that the data conforms to ISO Specifications. e. Retry writing.
9004	NO MAG STRIPE	Magnetic stripe not detected.	a. Ensure that you are using the correct card type. b. Check that the cards are loaded with the magnetic stripe in the correct orientation.
15001	MISSING MAB	An error occurred when reading the RFID Tag by the MAB (Media Authentication Board).	a. Check print ribbon orientation. b. Verify part number of the print ribbon. c. Power cycle the printer, and retry.
15002	MAB FIRMWARE MISSING	MAB (Media Authentication Board) Firmware is missing.	Install the firmware.

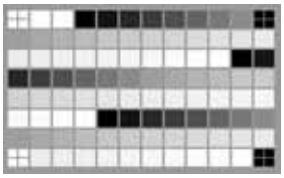
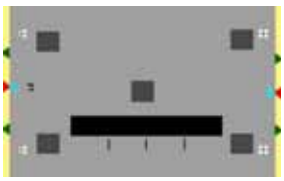
CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
17002	LAMINATOR FAILED INITIALIZATION	Laminator was detected by the printer, but was unable to communicate to it.	Contact Zebra Technical Support.
17003	LAMINATOR UNKNOWN ERROR	An unknown error has occurred – this is an indication of a FW problem and should not occur.	a. Press RETRY on the OCP. b. Contact Zebra Technical Support.
17004	MISSING LAMINATOR MAB	An error occurred when trying to communicate to the Laminator MAB (Media Authentication Board).	a. Power cycle the printer, and retry. b. Contact Zebra Technical Support.
17005	TOP LAMINATE FEED FAIL	• Top laminate cartridge is not installed properly. • Cartridge is not removed when that side of the card is not being laminated. • A mis-cut piece of laminate (rare) is obscuring the media sensor.	• Remove, reposition, and re-install the top laminate cartridge. • Remove the top laminate cartridge. • Remove the mis-cut piece of laminate.
17006	BOTTOM LAMINATE FEED FAIL	• Bottom laminate cartridge is not installed properly. • Cartridge is not removed when that side of the card is not being laminated.	• Remove, reposition, and re-install the bottom laminate cartridge. • Remove the bottom laminate cartridge.
17007	TOP LAMINATE REGISTRATION ERROR	• Improperly prepared registered laminate. • Media misfeed. • Patch length improperly set. • Unexpected end of laminate roll detected.	Remove and recut laminate in the center of the index notch, re-install, and retry.
17008	LAMINATOR CARD FEED FAIL	Printer has not fed the card far enough into laminator mechanism for infeed rollers to grab it.	Open the Laminator and printer doors to check for jammed/stuck cards.
17009	LAMINATOR EARLY CARD JAM	Card did not make it to the staging rollers.	Remove the card and/or laminate that is stuck in the laminator staging/ cutting area.
17010	LAMINATOR MIDDLE CARD JAM	Card and laminate have jammed inside heater assembly, often due to mis-positioned laminate patch sticking to heated rollers.	Remove the oven, and inspect for stuck cards.
17011	LAMINATOR LATE CARD JAM	Card did not unblock the exit sensor in the specified time.	a. Check for card jam in the exit area. b. Assure that the sliding exit door is not partially blocking the exit path.
17012	LAMINATOR POLL TIMEOUT	The laminator expects the printer to periodically send commands to it within a specified time period. If it fails to do so, it assumes that something is wrong with the communication link or that the printer is down. This error may occur if the printer-to-laminator communications is having intermittent problems.	Power cycle the printer, and retry.

CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
17013	LAMINATOR TOP HEATER FAIL	Top heater did not turn on after being instructed to do so. When the heater is enabled, the controller will wait a certain specified amount of time for it to attain the set target temperature. If the heater fails to reach the target in the specified time, the TopHeaterFail fault will be set.	Replace the top halogen bulb.
17014	LAMINATOR BOTTOM HEATER FAIL	Bottom heater did not turn on after being instructed to do so. When the heater is enabled, the controller will wait a certain specified amount of time for it to attain the set target temperature. If the heater fails to reach the target in the specified time, the BotHeaterFail fault will be set.	Replace the bottom halogen bulb.
17015	LAMINATOR TOP TEMPERATURE HIGH	If the top roller temperature ever exceeds a fixed temperature threshold, the over temp error occurs.	a. Power cycle the printer, and retry. b. If this error persists, contact Tech Support.
17016	LAMINATOR BOTTOM TEMPERATURE HIGH	If the bottom roller temperature ever exceeds a fixed temperature threshold, the over temp error occurs.	a. Power cycle the printer, and retry. b. If this error persists, contact Tech Support.
17017	LAMINATOR TOP CUTTER STALL	Top cutter blade is obstructed, or top cutter mechanism is damaged.	If this error persists, contact Tech Support.
17118	LAMINATOR BOTTOM CUTTER STALL	Bottom cutter blade is obstructed, or bottom cutter mechanism is damaged.	If this error persists, contact Tech Support.
17019	LAMINATOR TOP CUTTER FAIL	Top cutter has failed.	If this error persists, contact Tech Support.
17020	LAMINATOR BOTTOM CUTTER FAIL	Bottom cutter has failed.	If this error persists, contact Tech Support.
17021	LAMINATOR TOP TEMP SENSOR FAIL	The top temperature (thermopile) sensor has failed.	If this error persists, contact Tech Support.
17022	LAMINATOR BOTTOM TEMP SENSOR FAIL	The bottom temperature (thermopile) sensor has failed.	If this error persists, contact Tech Support.
17023	LAMINATOR FAN FAIL	This should only happen if one or both cooling fans fail or the cooling vents near the heated roller assembly are blocked or the fan(s) have failed.	Check for blocked vents.
17024	LAMINATOR EEPROM DEFAULT	The parameters stored in EEPROM have been reset to their default values. This will not normally happen, but could be seen with certain FW upgrades when new parameters have been added by Engineering. It could also indicate a problem with the Laminator's EEPROM.	a. Press RETRY on the OCP when this error occurs. b. Power cycle the printer, and retry.
17026	TOP AND BOTTOM LAMINATES OUT	The top and bottom laminates have run out.	Load new rolls of laminate.
17027	TOP LAMINATE OUT	The top laminate has run out.	Load new roll of laminate.

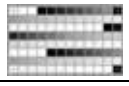
CODE	MESSAGE	POSSIBLE CAUSE	POSSIBLE SOLUTION
17028	BOTTOM LAMINATE OUT	The bottom laminate has run out.	Load new roll of laminate.
17029	INVALID TOP LAMINATE	Laminate does not match the printer.	a. Verify the part number of the laminate is correct on OCP. b. Power cycle the printer, and retry.
17030	INVALID BOTTOM LAMINATE	Laminate does not match the type allowed in the laminator or top and/or bottom has been swapped.	a. Verify that the top and bottom laminate cassettes are installed in the correct locations. b. Verify the part number of the laminate is correct on OCP. c. Power cycle the printer, and retry.
17031	BOTTOM LAMINATE REGISTRATION ERROR	• Improperly prepared registered laminate. • Media misfeed. • Patch length improperly set. • Unexpected end of laminate roll detected.	Remove and recut laminate in the center of the index notch, re-install, and retry.
17038	LAMINATOR COVER OPEN	This warning will be displayed if the cover protecting the laminator is opened.	This warning will be cleared when the laminator cover is closed.
17040	LAMINATOR INITIALIZING	This warning will be displayed after the laminator door is closed and laminate spools are re-read/detected.	No action needed
17041	LAMINATOR FIRMWARE MISSING	LCB (Laminator Controller Board) Firmware is missing.	Install the firmware.
17042	LAMINATOR MAB FIRMWARE MISSING	Laminator MAB (Media Authentication Board) Firmware is missing.	Install the firmware.

OCP Test Cards

Test Card Images

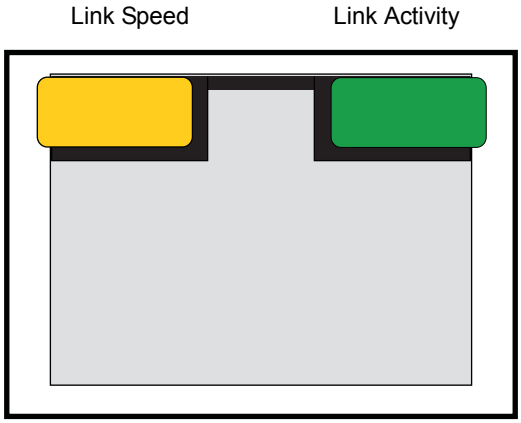
		
GRADIENT BOXES	DENSITY SETUP	MONOCHROME ONLY

Test Card Descriptions

Image	Title	Description	Use
	GRADIENT BOXES	3 sets of light-to-dark grayscale ramps	Used to create color calibration look-up table
	DENSITY SETUP	Mid-gray and maximum density fields on a flat gray surface	Used to measure mid and max densities
	MONOCHROME ONLY	Barcode and text	Used to verify monochrome print capability

Ethernet

- **Indicators -- Detail**



- Link Speed Indicator (Orange)

Off	No link (disconnected)
1 Blink	The LED blinks once (one blink, pause, one blink, etc.) when a 10Base link has been established.
2 Blinks	The LED blinks twice (two blinks, pause, two blinks, etc.) when a 100Base link has been established.

- Link Activity Indicator (Green)

Off	No link (disconnected)
On	Network link has been established
Blinking	Network activity has been detected

- **Issues**

  If both LEDs are off, the printer has not detected the presence of a network cable. To solve the problem:

  - Verify that the network cable is appropriate and has an RJ-45 connector.
  - Remove the network cable from the printer. Plug the network cable back in until you hear a positive click. Check the other end of the cable in the same manner. If the printer still does not detect a cable, then continue.
  - Connect the printer to a known good network. If the printer is still unable to detect the network cable, contact Technical Support for assistance.

8

Technical Specifications

Standard features

- 300 dpi (11.8 dots/mm) print resolution,
- Image size 1006 * 640 pixels
- USB 2.0 and Ethernet 10/100 connectivity
- Microsoft Windows Certified drivers
- 200 card capacity feeder (30 mil)
- 20 card reject hopper (30 mil)
- 90 card output hopper (30 mil)
- Manual feed capability
- ix Series™ intelligent media technology
- 21-character x 6-line LCD operator display with configurable soft keys
- Kensington® physical lock slot

Optional features

- Single-sided and dual-sided laminator
- 802.11b/g wireless connectivity
- Linear barcode scanner
- Lockable enclosures and card feeder

Specifications

Encoding options and specifications

- Magnetic stripe encoder – AAMVA and ISO 7811 (new and pre-encoded, tracks 1, 2, and 3, high and low coercivity)
- ISO 7816 Smart Card Contact Station for third party external contact encoders
- Combined MIFARE® ISO 14443 A & B (13.56 MHz) contactless and ISO 7816 Contact Encoder with EMV level 1 certification, and PC/SC compliance
- UHF Gen 2 RFID encoder
- Encoding supported over USB and Ethernet

Software

- ZMotif™ SDK support and sample code for application integration in various languages and development environments
- Microsoft Windows Certified printer drivers with Toolbox utility features:
  - Windows 8, Windows 7, Windows Vista, Windows Server 2008 (32-bit and 64-bit)
  - Windows Server 2012 (64-bit)
  - Windows Server 2003 and Windows XP (32-bit)
- CardStudio™ card design and issuance software
- Zebra Virtual PrintWare™ Support (PrintMonitor and PrintManager)

Printing and laminating specifications

- Color dye sublimation or monochrome thermal transfer printing
- Single-sided and dual-sided printing
- Printing throughput

			Click to Drop (s)		Throughput (cards/hr)	
Ribbon	Front	Back	w/o Laminator	w/Laminator	w/o Laminator	w/ Laminator
YMCKO	YMCKO	N/A	18	N/A	290	N/A
YMCKOK	YMCKO	K	21	N/A	225	N/A
Monochrome	K	N/A	5	22	1375	265
Monochrome	K	K	10	26	555	260
YMCKO	YMCK	N/A	N/A	28	N/A	270
YMCKOK	YMCK	K	N/A	35	N/A	200

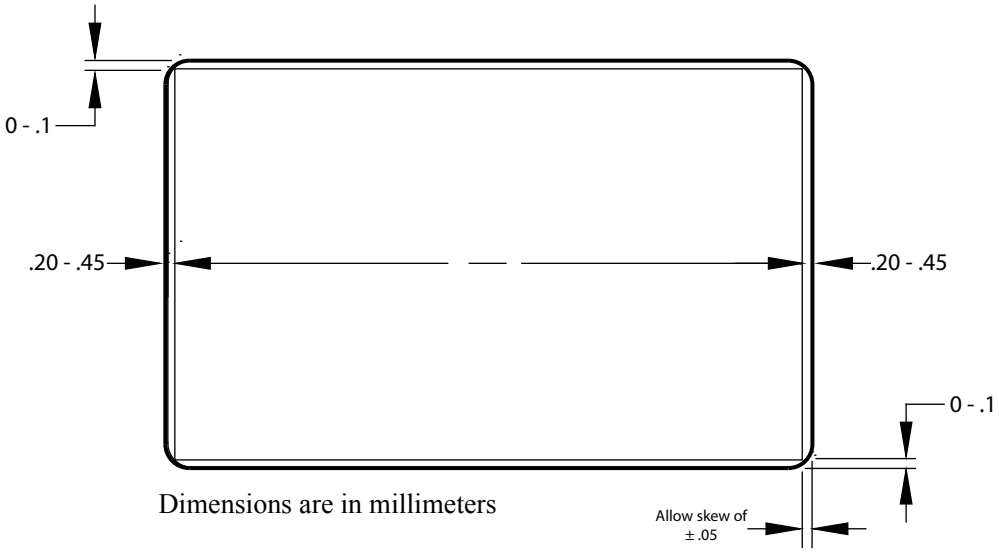
NOTE: Printing throughput (cards per hour) based on batch printing with USB connectivity. Times may vary depending on the computer configuration.

- Printing and magnetic stripe encoding throughput

			Click to Drop (s)		Throughput (cards/hr)	
Ribbon	Front	Back	w/o Laminator	w/Laminator	w/o Laminator	w/ Laminator
YMCKO	YMCKO	N/A	20	N/A	290	N/A
YMCKOK	YMCKO	K	24	N/A	225	N/A
Monochrome	K	N/A	8	20	650	265
Monochrome	K	K	13	26	435	260
YMCKO	YMCK	N/A	N/A	32	N/A	270
YMCKOK	YMCK	K	N/A	38	N/A	195

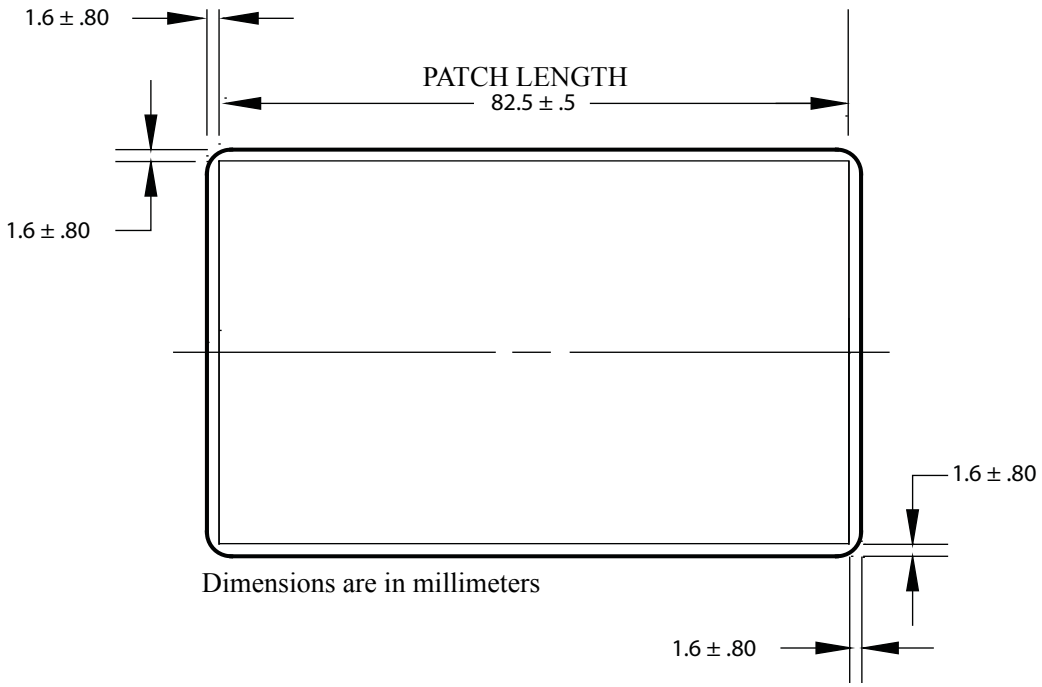
NOTE: Printing throughput (cards per hour) based on batch printing with USB connectivity. Times may vary depending on the computer configuration.

- Near photographic print quality
- Edge-to-edge printing on standard CR-80 media
  - Image placement specification:



  - Skew: ±.05 mm

- Simultaneous printing, encoding, and laminating capability
- One-pass single-sided and dual-sided wasteless lamination
- Laminate placement specification:



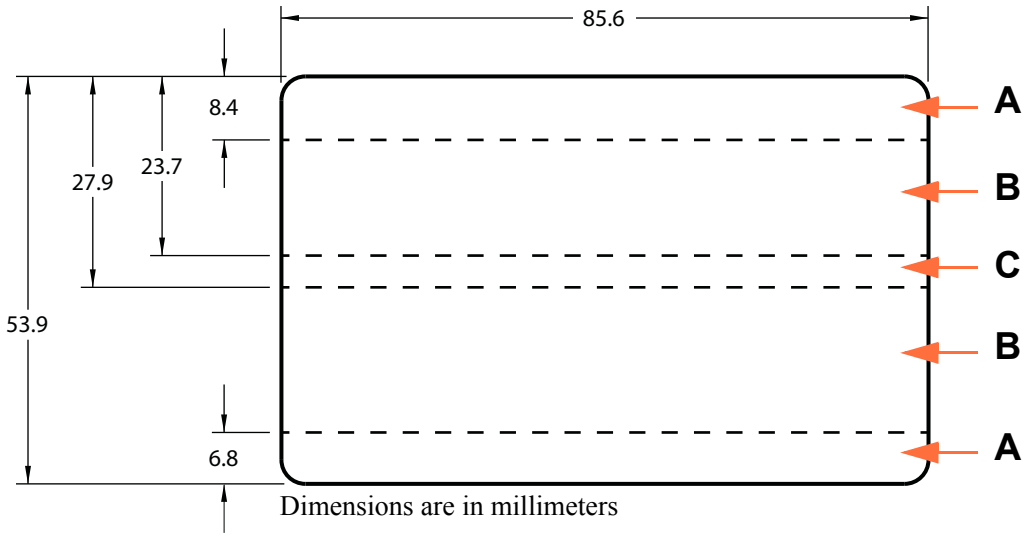
Supplies specifications

- Zebra's intelligent technology RFID tags authenticate and automate ix Series™ ribbons and Zebra True Secure™ i Series laminates to assure the best quality possible
- Card cleaning rollers are included with each ribbon carton
- Specially designed cleaning supplies simplify preventative maintenance
- True Colours® ix Series™ ribbons
- True Secure™ i series laminates

NOTE: For optimum print quality and printer performance, use of Zebra genuine supplies is recommended.

Card specifications/compatibility

- Card Thickness: 10 – 50 mil (0.25 – 1.27 mm)
- Card Thickness for lamination: 30 mil (0.76 mm) only
- Card Size: CR-80, ISO 7810 format, Type ID-1
- Card Material: PVC and composite, PET, PET-G, PET-F, and Teslin® composite
- Technology Cards: contact and contactless smart cards
- Specialty cards: adhesive backed, transparent (IR-blocked), and signature panel
  - Transparent cards / key-tag cards



Dimensions are in millimeters

Area A: Translucent window allowable only if IR Blocker is used. Key-tag holes allowed only if hole is perforated and not punched through.

Area B: Translucent window is always allowable.

Area C: If Mag stripe is present, IR Blocker is required.

Communications interfaces

- USB V2.0
- USB supports plug-n-play printer identification
- 10/100 BaseT

Electrical specifications

- Auto-switching single-phase AC power
- 90V~264V AC and 47–63Hz (50-60Hz nominal)
- FCC Class A
- Power Consumption
  - Idle 100 W
  - Initializing / Warm-up (no Laminator) 120 W
  - Initializing / Warm-up (with Laminator) 450 W
  - Printing (no Laminator) 120 W
  - Printing and Laminating 250 W
  - Sleep 20 W

Physical characteristics

- Height: 306 mm (12.0 in)
- Width (printer only): 699 mm (27.5 in)
- Width (printer with laminator): 964 mm (38.0 in)
- Depth: 277 mm (10.9 in)
- Weight (printer only): 12.2 kg (26.9 lbs)
- Weight (printer with laminator): 17.9 kg (39.5 lbs)

Environmental

- Operating Temperature: 59º F/15ºC to 95º F/35ºC
- Storage Temperature: 23º F/-5ºC to 158º F/70ºC
- Operating Humidity: 20% to 80% inclusive, non-condensing
- Storage Humidity: 10% to 90% inclusive, non-condensing
- Media should not be above 140º F/60º C for longer than 200 hours, and above 90% relative humidity at 104º F/40º C for longer than 100 hours

Chinese Notifications

	仅适用于海拔 2000m 以下地区安全使用
	仅适用于在非热带气候条件下安全使用

Appendix A

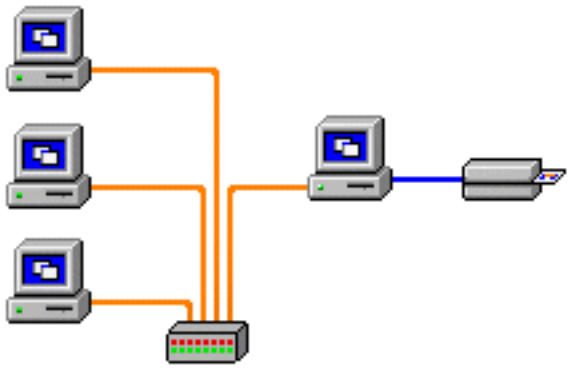
Connecting to a Network

Introduction

Card printers can be connected to an Ethernet network in three ways.

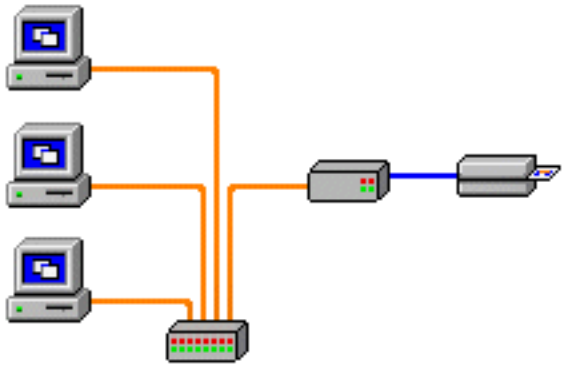
Printer Sharing

In printer sharing, the printer is connected locally to the host computer and configured to be shared to other client computers. Client computers connect to the printer over the network through the host computer.



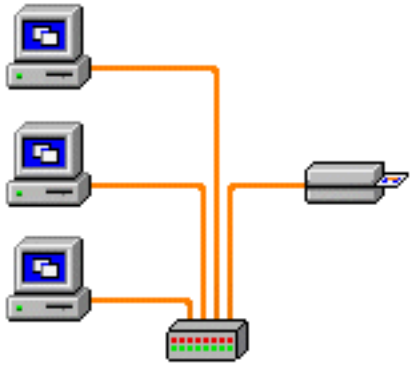
External Print Server

A stand alone device that acts as a server on the network specifically for receiving print jobs and passing them to the printer. Client computers connect to the print server over a network.



Internal Print Server

Similar to an external print server, except the print server is integrated into the printer. This removes the need for a separate power supply and separate device drivers. This is the simplest way to network a printer.

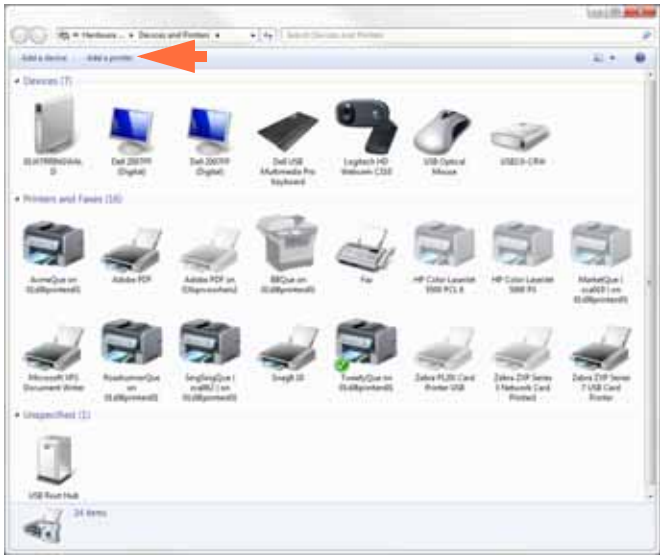


Setting Up a Network Printer

Use this procedure if you have already installed an Ethernet printer on your system (refer to Section 2), and you want to install a second Ethernet printer on the network via the Microsoft **Add Printer Wizard**.

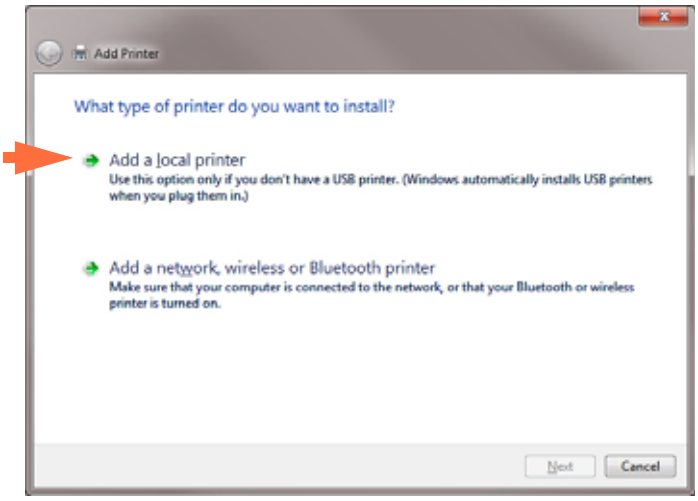
Step 1. Click the **Start** button, then select *Devices and Printers*.

Step 2. Observe the **Devices and Printers** window.



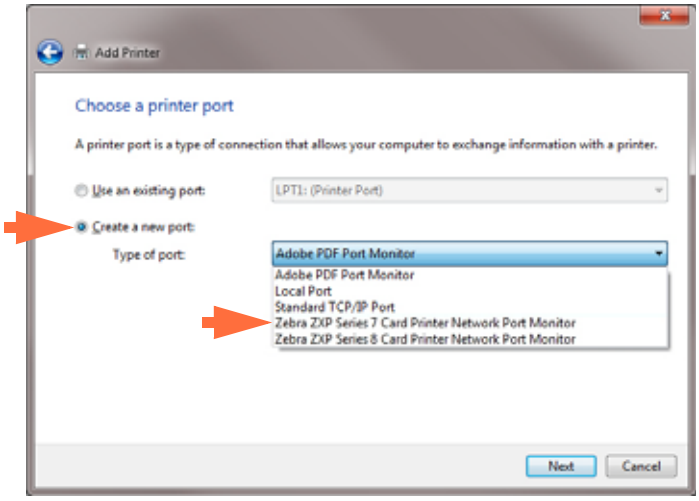
Step 3. Click the *Add a printer* option (arrow above).

Step 4. Observe the **What type of printer do you want to install** window.



Step 5. Select *Add a local printer* (arrow above), and click the **Next** button.

Step 6. Observe the **Choose a printer port** window.

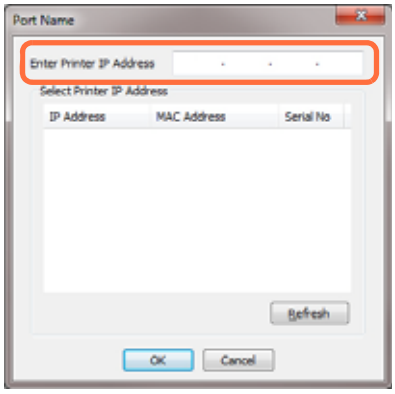


Step 7. Select the *Create a new port* radio button (1st arrow above).

Step 8. From the dropdown menu, select *Zebra ZXP Series 7 Card ...* (2nd arrow above).

Step 9. Click the **Next** button.

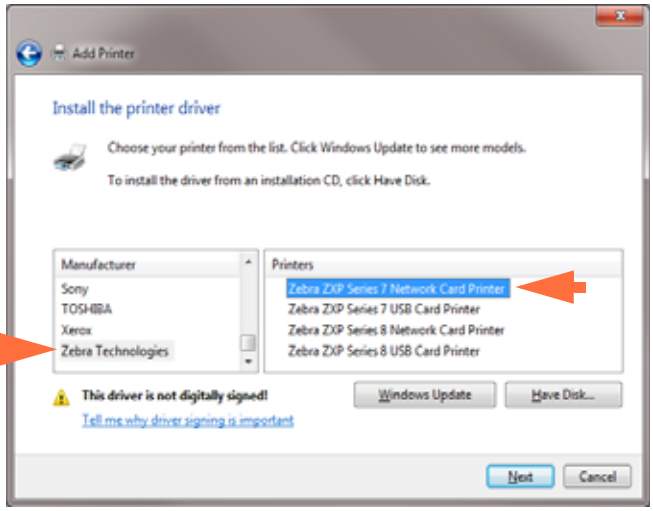
Step 10. Observe the **Port Name** window.



Step 11. Enter the IP address of your printer in the *Enter Printer IP Address* text box (circled above).

Step 12. Click the **OK** button.

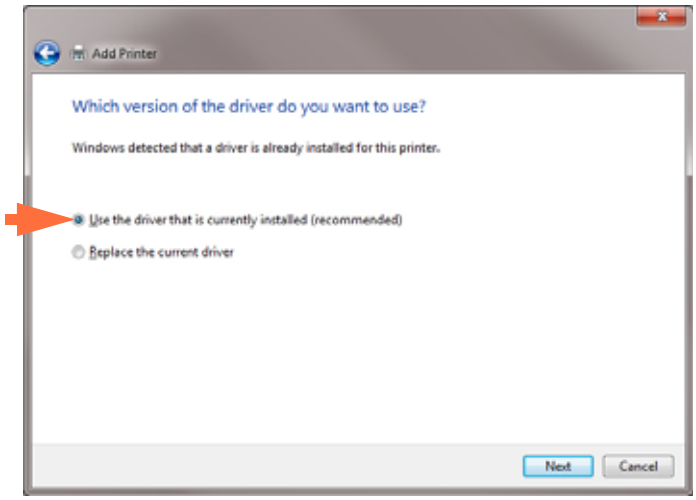
Step 13. Observe the **Install the printer driver** window.



Step 14. Select the Manufacturer and the Printers (arrows above).

Step 15. Click the **Next** button.

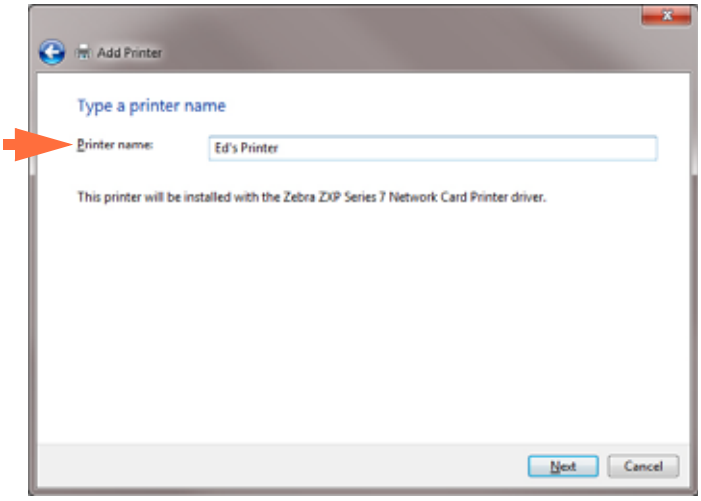
Step 16. Observe the **Which version of the driver do you want to use** window.



Step 17. Select the *Use the driver that is currently installed* radio button (arrow above).

Step 18. Click the **Next** button.

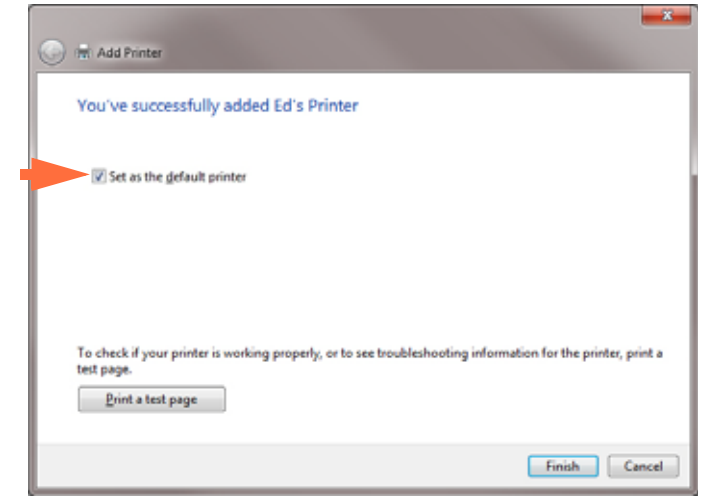
Step 19. Observe the **Type a printer name** window.



Step 20. Enter the printer name: use the default name, or add more information to indicate the printer location; e.g., Ed's Printer, Mike's Office, Room 33, etc.

Step 21. Click the **Next** button.

Step 22. Observe the **You've successfully added ...** window.



Step 23. If appropriate, select the *Set as the default printer* checkbox (arrow above).

Step 24. Click the **Finish** button to complete the *Add Printer Wizard*.

You have successfully installed the network printer.

Printer Pooling

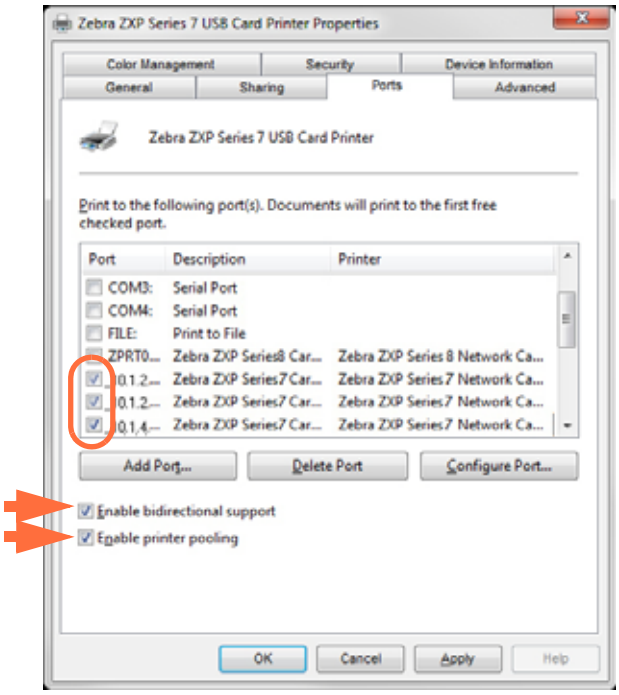
Setting Up Printer Pooling

Printer Pooling is a standard feature of Windows, which lets you spread the printed output across a pool of several printers. In this example, we will install and setup the three network printers to be used for pooling.

Step 1. Before proceeding to pool the printers, test them individually, and be sure they are configured similarly. Specifically, check the following:

- Ribbon panel configuration (ribbon type, and what prints on which side of the card).
- Mag encoding configuration.
- Black extraction configuration (if applicable).

Step 2. Access the Ports Tab.



Step 3. Select the three network printers by selecting the associated checkbox (circle above).

Step 4. Ensure that *Enable printer pooling* and *Enable bidirectional support* checkboxes are selected (arrows above).

Step 5. Click the **Apply** button, then click the **OK** button.

Using the Printer Pool

Important • Send print jobs to the printer pool, **not** to an individual printer.

When the first printer has taken as many jobs as it can handle (that being two jobs - one to be printed immediately, the other waiting), the following jobs “spill over” to the second printer, and then to the third printer.

Note that if you are only printing two jobs, they would both go to the first printer. Pooling is a spill-over methodology. It does not balance printer usage.

Once the pool has been set up, maintenance and configuration changes should be done through the menus for each individual printer, **not** through the pool (which can produce undesirable results).

Important • The effect of any maintenance and/or changes can (and should) be tested by sending print jobs **separately** to each printer, not to the pool.

Appendix B

Accessing a Network Printer via a Web Browser

Introduction

If the printer is connected to a local Ethernet network, it can be accessed via a Web Browser. This section describes how to access the printer's web page using a computer connected to the network.

Procedure

Step 1. Start your Web Browser.

Step 2. In the browser address bar, enter the IP address of the printer connected to the local Ethernet network.

Step 3. The printer's web page will open.

Step 4. Click the desired tab; e.g., Printer Information (arrow above).

Step 5. In the Windows Security dialog box: Type "admin" into the User name field. Type "1234: into the Password field. Click the **OK** button.

Step 6. The selected tab will be displayed; in this case, Printer Information.

Step 7. Continue selecting tabs as necessary.

Step 8. When done, close the browser (click the red X-button in the upper-right corner of the screen).

APPENDIX C

WiFi Connectivity

Introduction

This Appendix provides information about installing and connecting a Zebra ZXP Series 7 Card Printer (with the Wireless Option) to a wireless network. A printer with the wireless option ships with the wireless radio pre-installed in the printer. An antenna is shipped in the box with the printer. The antenna must be connected to the rear of the printer before using the wireless interface. Lightly push the antenna onto the printer antenna connector, and rotate the knurled antenna connector until finger tight. The antenna orientation is important to maximize the wireless signal strength. Inspect the access point antenna(s), and try to put the printer antenna in a similar orientation. After connecting the printer to the wireless network, the antenna orientation can be adjusted to maximize signal strength. As the distance between the printer and the access point increases, the signal strength decreases. If there are intervening walls, unpredictable signal strength attenuation will occur. Decreasing signal strength results in automatic data rate reduction. At the longest distance, network traffic can be very slow.

Printer location is important to ensure that adequate signal strength is achieved. Follow these suggestions:

- Position the printer as close to the access point that it will connect to as possible.
- If possible, orient the printer such that there is a clear line of sight between the printer antenna and the access point antenna.
- Locate the printer such that there are no intervening walls in the line of sight between the antennas.
- Do not put the printer in a cabinet, especially not a metal one.
- Do not locate large metal objects close to the printer antenna.
- Do not locate the printer close to devices that emit RF radiation in the 2.4 GHz range; such devices might include: microwave ovens, cordless phones, wireless surveillance cameras, baby monitors, wireless video transmitter and Bluetooth devices, etc.

For more information, see *Wireless Reference Manual P1035089-003* or higher for details.

Description

Communication

To connect to a wireless network, the printer uses wireless protocol IEEE 802.11b/g that communicates data through radio transmission and can talk to Access Points that are either 802.11b or 802.11g compliant.

The wireless printer communicating over 802.11b radio:

- Allows nominal data rates over the air of 11 Mbps as per 802.11b standard.
- Supports automatic rate scaling starting at 11 Mbps and going down as low as 1 Mbps for maximum range and optimal throughput depending on signal strength.

The wireless printer communicating over 802.11g radio:

- Allows nominal data rates over the air of 54 Mbps as per 802.11g standard.
- Supports automatic rate scaling starting at 54 Mbps and going down as low as 6 Mbps for maximum range and optimal throughput depending on signal strength.

Security

The wireless printer supports Open System authentication.

The wireless printer supports the following security features:

- Wired Equivalent Privacy (WEP)
- Wi-Fi protected access (WPA/WPA2)

Encryption

The wireless printer supports the following encryption protocols:

- RC4 (applicable to WEP)
- TKIP (applicable to WPA)
- CCMP (a form of AES encryption applicable to WPA2)

The ZXP Series 7 wireless printer supports the Personal mode of dynamic encryption key deployment, Personal Shared Key (PSK).

Configuration

You can use a USB or wired Ethernet cable to configure the printer for a wireless network.

The wireless printer can be configured using the Operator Control Panel, the Printer Web Page (see next page), or the Toolbox application.

Web Browser Installation

This section explains how to connect your ZXP Series 7 Printer to a wireless network via your Web Browser. You can also use the OCP or the ZXP Toolbox; see *Wireless Reference Manual P1035089-003* for details.

Minimum requirements:

- **Wired Ethernet** environment with a DHCP Server (used to set up wireless parameters).
- **Wireless Network** environment to include:
  - Wireless Router or Access Point.
  - Access point *Passphrase* or *Password*.
  - SSID
- Computer with:
  - Wired Ethernet connection to the Network.
  - Ethernet cable(s).
- **ZXP Series 7 Printer** with the wireless option installed.

Installation

Step 1. Connect the printer to your wired network, and turn the power on.

Step 2. Use the INFO screens to get the Wired IP Address.

Step 3. Start your Web Browser.

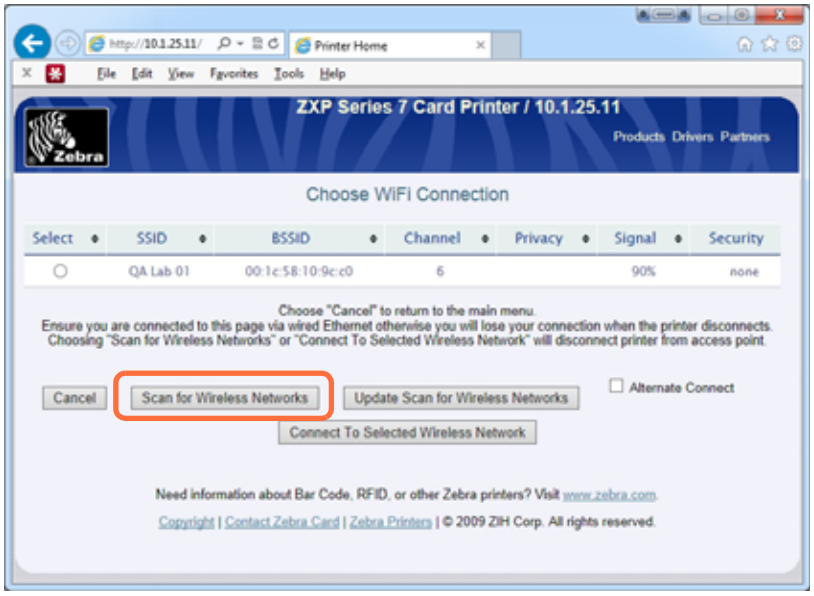
Step 4. In the browser address bar, enter the IP address (from Step 2).

Step 5. The printer's web page will open.

Step 6. Click the Wireless Parameters tab (arrow above).

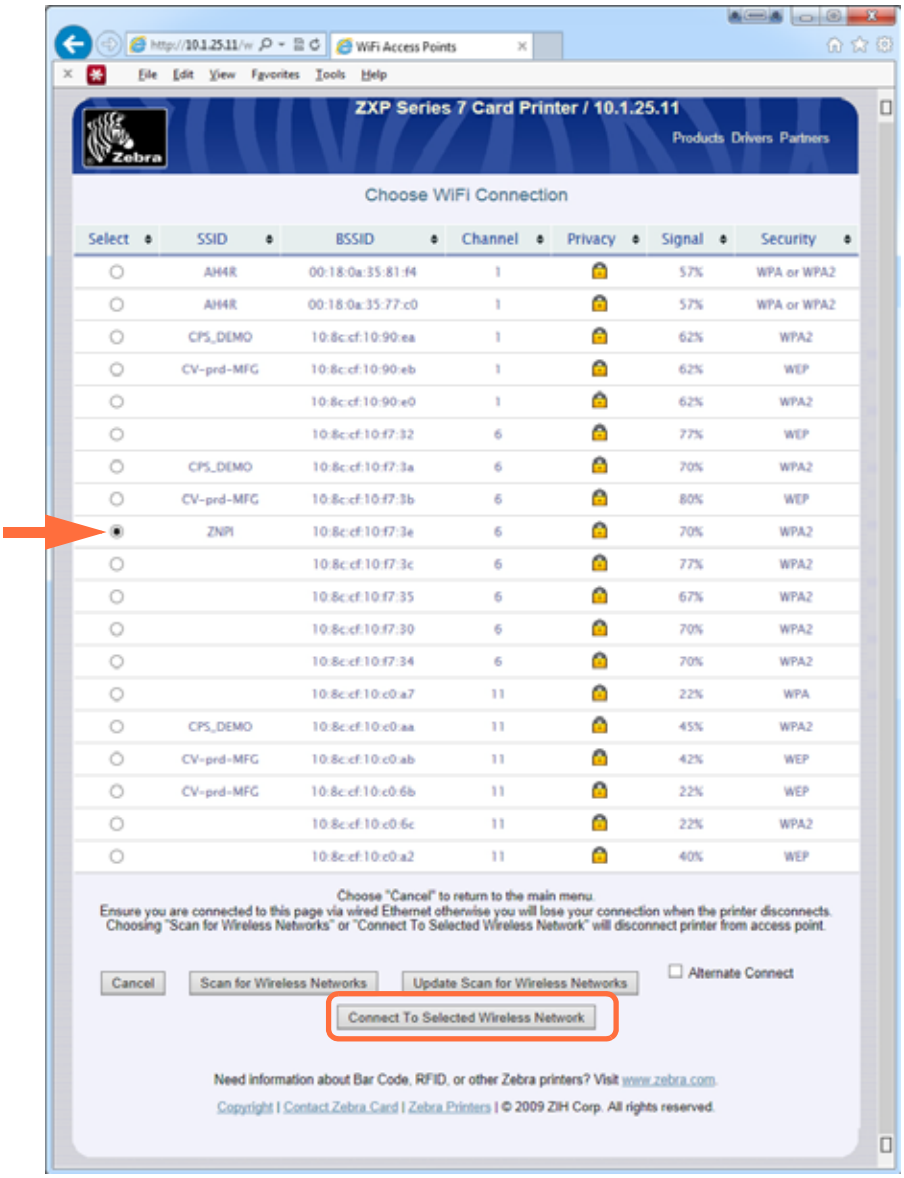
Step 7. In the Windows Security dialog box: Type "admin" into the User name field. Type “1234: into the Password field. Click the **OK** button.

Step 8. The Choose WiFi Connection page will be displayed.



Step 9. Click the **Scan for Wireless Networks** button (circled above).

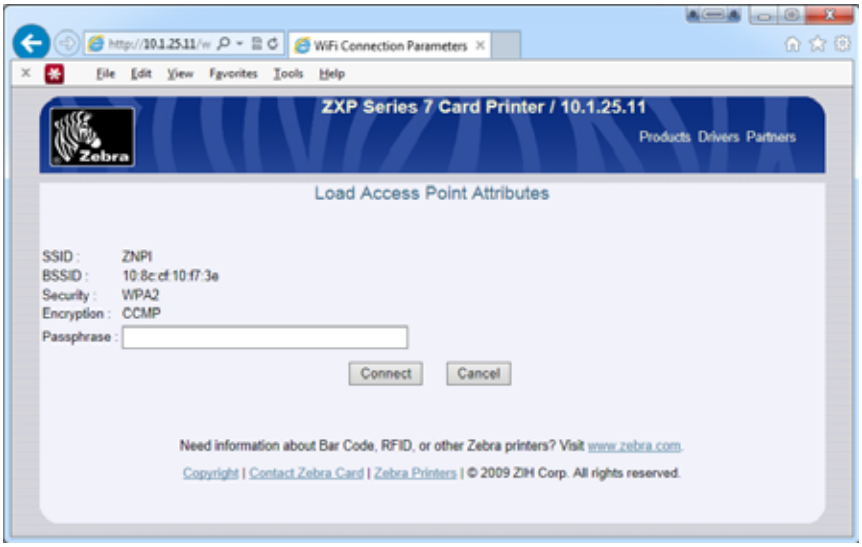
Step 10. The expanded Choose WiFi Connection page will be displayed.



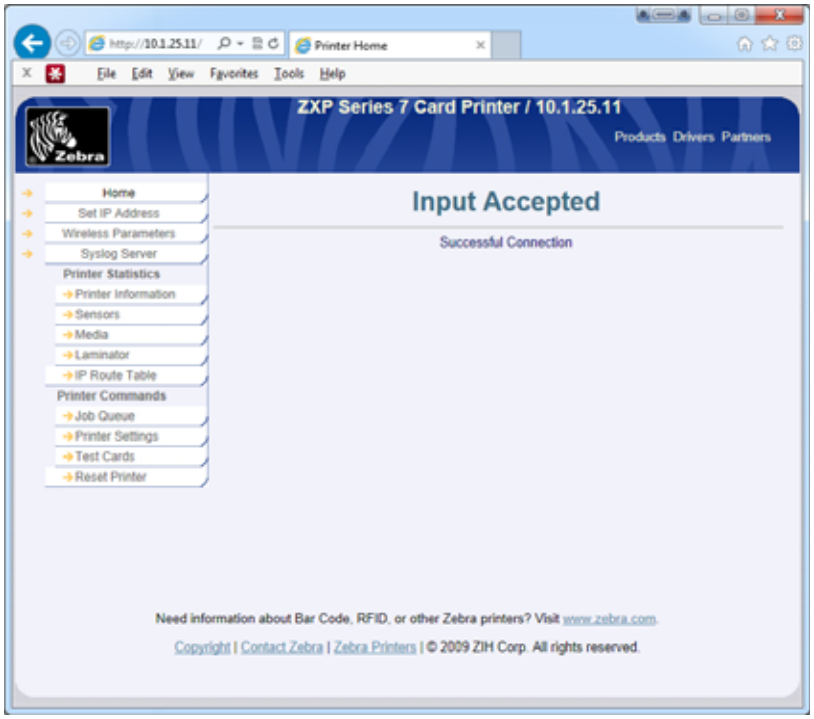
Step 11. Select the radio button of the desired network, in this case ZPNI (arrow above); and click the **Connect to Selected Wireless Network** button (circled above).

Note that if the network you are looking for is not displayed, first click the **Scan for Wireless Networks** button. If the desired network is still not displayed, click the **Update Scan for Wireless Networks** button until the network appears.

Step 12. When the Load Access Point Attributes page appears, enter the network Passphrase; and click the **Connect** button.



Step 13. When successfully connected to the wireless network, the Input Accepted page will appear.



Step 14. Close the printer's web page.

Printer Driver Installation

Step 1. Install the printer driver for the Wireless Ethernet connection to the printer; see Installing the Ethernet Printer Driver on page 41 for details. Note: Enter the wireless IP Address manually if it is not discovered automatically.

Step 2. Print a test card:

a. Select *Start* > *Devices and Printers*.

b. Right click the *Zebra ZXP Card Printer* listing, and select *Printing Preferences* > *Card Setup tab.*

c. Click the **Test Print** button.

This completes the wireless printer installation process.

Appendix D

Magnetic Card Encoder

Introduction

This Appendix includes operation and maintenance requirements for Printers with the optional magnetic card stripe encoder.

The magnetic encoder can be set for either high coercivity (HiCo) or low coercivity (LoCo). Use the printer driver to change the encoder setting.

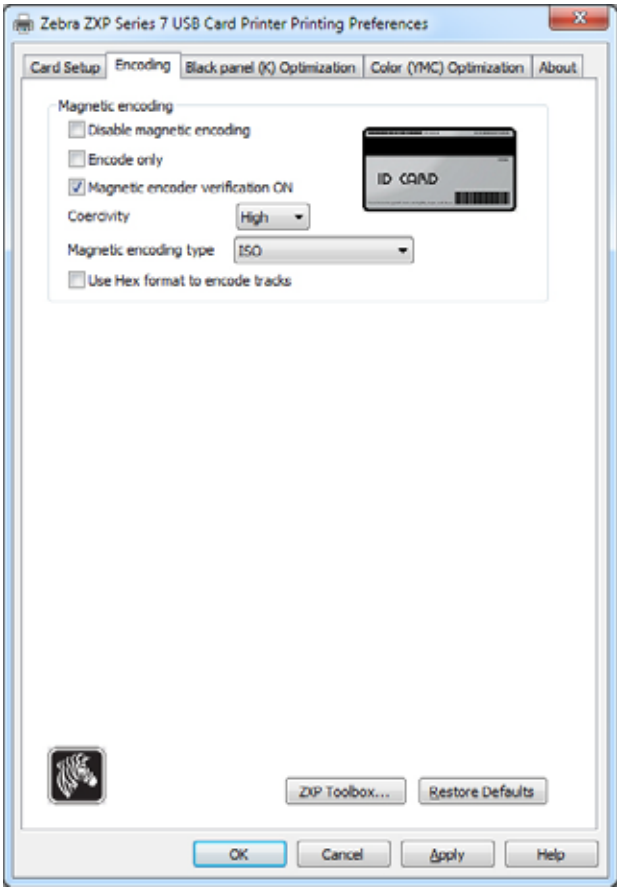
HiCo vs. LoCo:

- HiCo cards are used for the majority of applications; e.g., credit cards, ID cards, access control cards, etc. HiCo magnetic stripes are usually black and are encoded with a strong magnetic field for long and durable card life.
- LoCo cards are used for short-term applications; e.g., season passes, hotel room keys, etc. LoCo magnetic stripes are usually brown in color and are encoded with a low intensity magnetic field.

Driver Settings (Printing Preferences)

Initial Setup

Step 1. Select the *Encoding* tab.



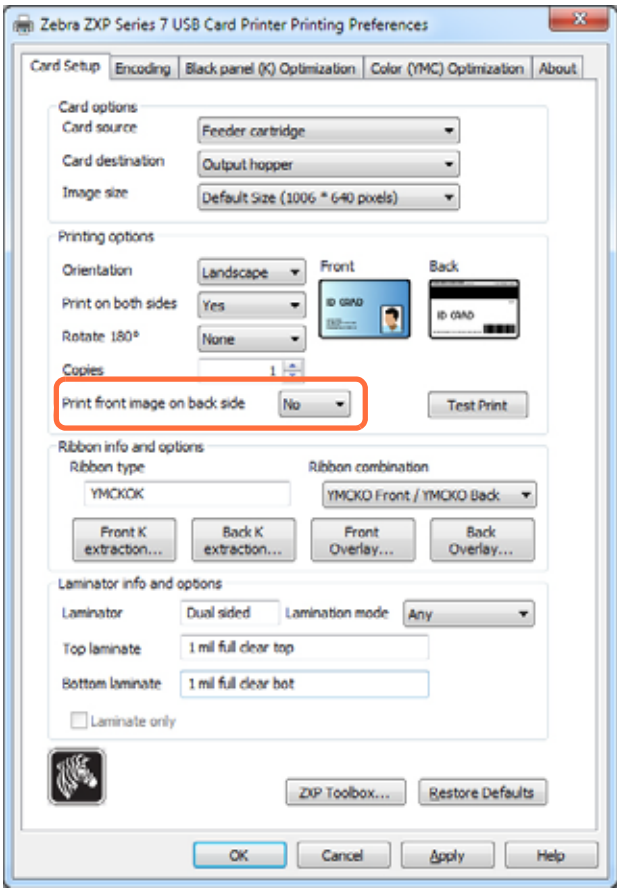
Step 2. Make your selection(s) for Magnetic encoding:

- **Magnetic encoder verification**: When selected, the protocol is (1) Write mag data; (2) Verify mag data; (3) If this fails, verify again; (4) If the second verify fails, rewrite and verify; (5) If this cycle fails, eject the card.
- **Coercivity**: Selections are High or Low depending on the card type.
- **Magnetic encoding type**: Selections are ISO, AAMVA, CUSTOM, and BINARY.

Step 3. Click the **Apply** button, then click the **OK** button.

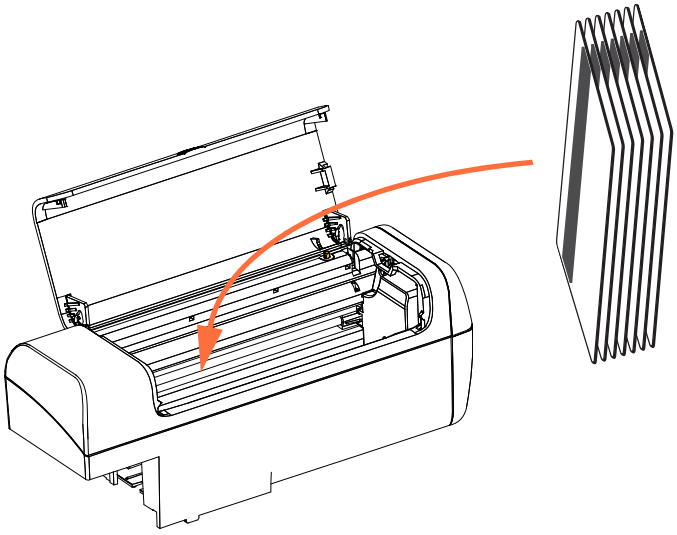
Stripe-Up Encoding

For printing and encoding with the mag stripe on the front of the card, use the *Print front image on back side* option; and select **Yes** from the dropdown menu (circled below).



Card Loading Orientation

Note • ONLY USE cards that comply with ISO 7810 and 7811 standards for magnetic stripe cards. The magnetic stripe must be flush to the surface of the card to work properly. Never use cards which have taped-on magnetic stripes.



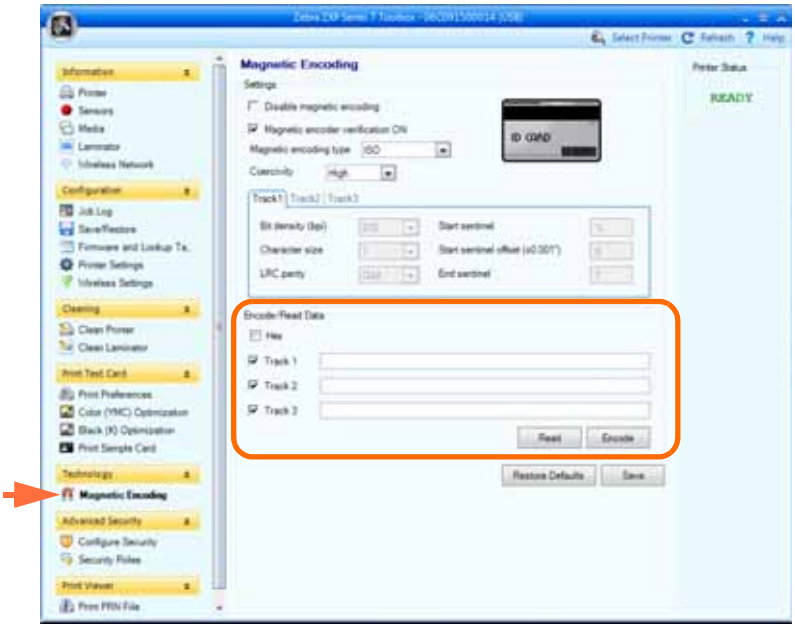
Place the cards in the Feeder Cartridge in the correct orientation as shown (with the magnetic stripe to the left and to the rear). Ensure that the cards are seated properly the hopper.

For Cards with a Barcode, see Appendix F for details.

Functional Check

To check the operation of the mag encoder, you will need the ZXP Toolbox. Select *Start* > *Devices and Printers*. Then right-click the *Zebra ZXP Series 7 Card Printer* listing, and select *Properties* > *Device Information* > *ZXP ToolBox*.

Step 1. From the main *Toolbox* window, select Technology > Magnetic Encoding.



Step 2. Coercivity: Depending on the Card Type used, select either *High* or *Low*.

Step 3. For encoding: Click the checkboxes to select *Track 1*, *Track 2*, and/or *Track 3*; enter the data to be written; if not already done, place a magnetic stripe card in the Feeder Cartridge; and click the **Encode** button.

Step 4. When encoding is complete, the card will be ejected into the Output Hopper.

Step 5. Move the card from the Output Hopper to the Feeder Cartridge.

Step 6. For reading / validating: Click the checkboxes to select *Track 1*, *Track 2*, and/or *Track 3*; click the **Read** button.

Step 7. When reading is complete, the card will be ejected into the Output Hopper.

Step 8. The data encoded will be read and displayed.

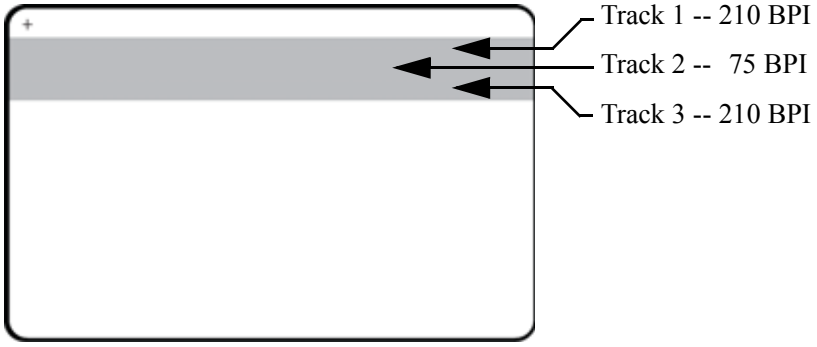
Step 9. Validate the data encoded in step 3.

Step 10. This completes the Mag Encoder Functional Check.

Magnetic Encoding Type

ISO (Default)

The encoder reads and writes standard ISO track data formats in standard ISO track locations. The following shows the three standard ISO tracks.



Each track can be encoded and decoded with ASCII characters in the standard default ISO data formats:

Track	Density (bpi)	Bits per character	Character parity	Length (characters)	LRC parity	Start sentinel	End sentinel	Start sentinel offset
1	210	7	Odd	76	Even	%	?	0.293" (7.4 mm)
2	75	5	Odd	37	Even	;	?	0.293" (7.4 mm)
3	210	5	Odd	104	Even	;	?	0.293" (7.4 mm)

The magnetic encoder can read or encode up to 3 tracks of digital information onto CR-80 cards incorporating a HiCo or LoCo magnetic stripe in the ISO 7811 format.

Encoding for the three tracks uses the ISO 7811 format.

- Track 1 uses 210 BPI (bits per inch) encoding in the International Air Transport Association (IATA) format of 79 alphanumeric characters, at 7 bits per character.
- Track 2 uses 75 BPI encoding to store 40 numeric characters at 5 bits per character in American Banking Association (ABA) format.
- Track 3 uses 210 BPI encoding of 107 numeric characters at 5 bits per character in THRIFT format.

The ISO data formats include a preamble (all zeros), a start character, data (7-bit or 5-bit as specified by ISO), a stop character, and a longitudinal redundancy check (LRC) character. The 7-bit data format has 6 bits of encoded data and a parity bit. The 5-bit data format has 4 bits of encoded data and a parity bit.

The ISO data formats include a data field separator (or delimiter) that allows parsing of the encoded track data. An example of separate data fields would be the ABA data format (Track 2) that includes a Primary Account Number (PAN) field and an account information field (for expiration date, country code, etc.).

AAMVA

The data stored on magnetic stripes on American driver's licenses is specified by the American Association of Motor Vehicle Administrators (AAMVA).

Alpha-numeric characters on Tracks 1 and 3, numerals only on Track 2.

Track	Density (bits per inch)	Bits per character	Character parity	Length (characters)	LRC parity	Start sentinel	End sentinel	Start sentinel offset inches (mm)
1	210	7	Odd	79	Even	%	?	0.293" (7.4)
2	75	5	Odd	37	Even	;	?	0.293" (7.4)
3	210	7	Odd	79	Even	%	?	0.293" (7.4)

CUSTOM

If a custom format is desired, the ISO standard format may be used as a starting point. The standard format can then be modified by assigning different values to any or all of the **density**, **character,** and **sentinel** attributes. (If any of these attributes is missing, its corresponding value in the standard ISO format will be substituted.)

BINARY

The binary option allows the user to specify directly the value for each bit on the mag stripe:.

In this “direct binary” mode, it is the host’s responsibility to fully populate the magnetic stripe; i.e., the hex data provided by the host must include the leading zeroes, start sentinel, data, end sentinel, LRC, and trailing zeroes. Note that the magnetic stripe is encoded from the right-hand end as viewed from the “stripe” side, with the stripe uppermost. The least significant bit of the data is encoded first.

A sufficient number of leading zeroes should be prepended to offset the start sentinel by approximately 0.3" (7.5 mm) from the right-hand end, as in the ISO format. Care should be taken to ensure that the payload data does not exceed the capacity of the tracks at their specified recording densities. (In the **binary** mode, out-of-range data is not recorded, and no error condition will result.)

A CR-80 size card has a nominal capacity of 252 bits per track at 75 BPI, and 708 bits at 210 BPI. These capacities equate approximately to 31 hex bytes (248 binary bits) and 88 hex bytes respectively.

Encoder Macro Commands

With ZXP Series 7Card Printers, we provide support for pass-through magnetic encoding commands.

The application developer or user can use a preamble or Macro to indicate to the driver that the data following the Preamble or Macro is to be mag encoded.

The user can have encoding and printing data on the same card, and the driver will filter out the encoding data from the printing data. The user does not have to know job control syntax or ZMotif commands to send mag encoding commands to the printer.

Supported Macro commands are:

1. C01<Track1 Data>
   C02<Track2 Data>
   C03<Track3 Data>

2. ${1<Track1 data>}$
   ${2<Track2 data>}$
   ${3<Track3 data>}$

3. ~1=<Track1 data>
   ~2=<Track2 data>
   ~3=<Track3 data>

APPENDIX E

Smart Card Options

Introduction

This Appendix contains information on the additional operations of a Printer equipped with one or more of the available Smart Card options.

Smart Cards can have a built-in microcomputer and/or memory to store fingerprints, voice recognition patterns, medical records, and other such data. All other printer operations remain the same as the standard models.

Encoding data onto Smart Cards and reading the data previously encoded on them is totally under control of the application software; no operator action is required.

If you experience any problems with encoding or reading data, refer to the service manual or other documentation for the application software.

Contact Smart Cards

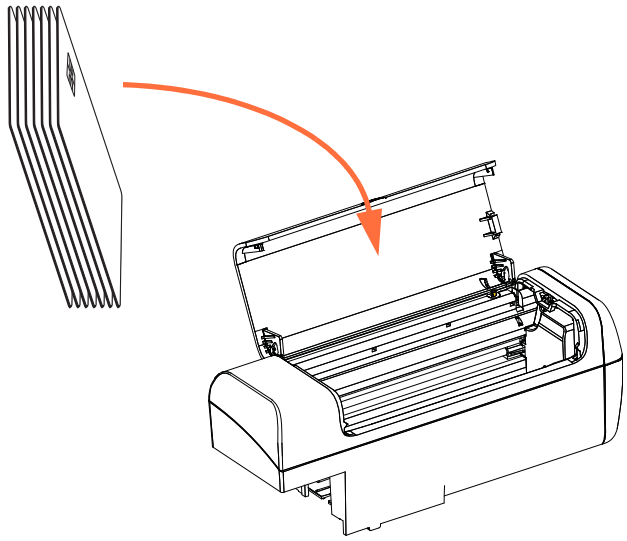
Contact Smart Cards have a pad of contacts on the surface of the card that connect to the circuitry embedded into the card.

The printer responds to commands that position the card at the contact location, where the printer connects to the contacts on the Smart Card. Data to be encoded onto the Smart Card, and data read from the Smart Card, can interface via a connector on the printer's rear panel (*External Contact Station*), or encoding/decoding can be performed by logic on the printer's Main PCBA (*Contact Encoder*).

All other printer operations remain the same as the standard models.

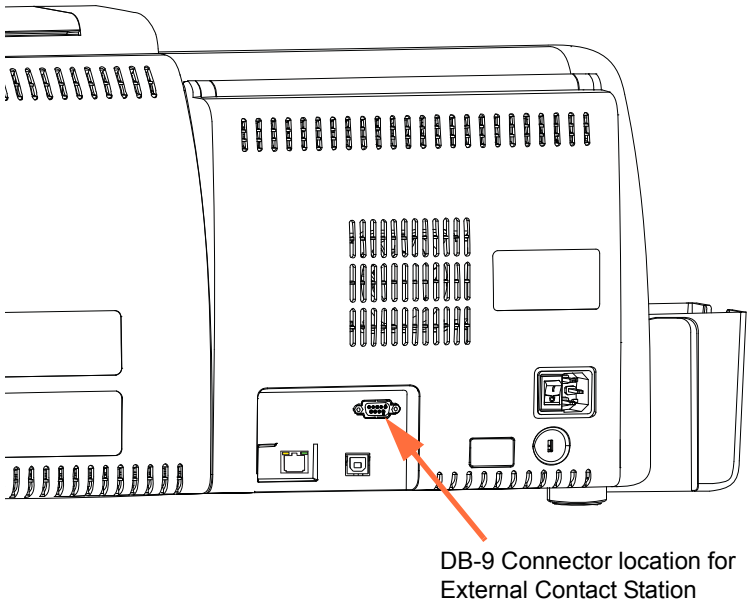
Card Loading Orientation for Contact Smart Cards

Place the cards in the Feeder Cartridge in the correct orientation as shown (with the gold-plated Smart Card contacts at the top of the card and facing to the right). Ensure that the cards are seated properly the hopper.



External Contact Station Interface

When a command to the printer interface sends a card to the External Contact Station, the printer connects the External Contact Station to the female DB-9 connector on the rear of the printer.



An attached external Smart Card Programmer can be used to program Smart Card chips. The following table shows the Smart Card Contact Points.

DB-9 Pin Connections

Pin	Smart Card Contact Points	Pin	Smart Card Contact Points
1	C1 (VCC)	6	C6 (Vpp)
2	C2 (Reset)	7	C7 (I/O)
3	C3 (Clock)	8	C8 (RFU)
4	C4 (RFU)	9	(GND when chip is at station)
5	C5 (GND)		

Contactless Smart Cards

Rather than using a contact pad, Contactless Smart Cards use various radio technologies to “connect” to the printer. The printer moves the card to an antenna location on the card path, and the encoding or decoding occurs. All other printer operations remain the same.

Card Loading Orientation for Contactless Smart Cards

For Contactless Smart Cards, orientation is not a consideration.

Printing on Contactless Smart Cards

The card surface should be smooth and even to ensure good color printing quality.

There are no restrictions when designing images to be printed on Contactless Smart Cards.

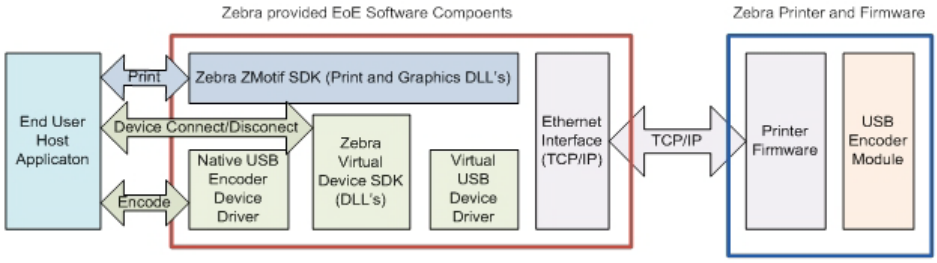
Encoding over Ethernet

Overview

The ZXP Series 7 printer firmware, ZMotif SDK, and device drivers allow application developers to use Zebra's current USB based contact/contactless encoder module over the Ethernet (wire or wireless).

Encoding over Ethernet functionality is enabled via the OCP; see Encoder Settings Menu on page 61.

The host application interfaces communicate to the encoder as a local virtual USB device (both from a device driver and connect/disconnect perspective).



This capability enables a single or multiple printers per Ethernet sub-net, and enables both single-job printing and multiple-print job control per USB connection.

Encoding (both read and write) is supported for both contact and contactless smart card types:

- Contact smart cards include SLE5542 and SLE5528
- Contactless smart cards include MIFARE® Ultralight, MIFARE® Classic 1K, MIFARE® Classic 4K, MIFARE® DESFire® 4K, and UHF.

SDK Support

The ZMotif SDK supports the following features:

- Retrieve contact and contactless smart card module enumerated names.
- Establish a connection to the encoder.
- Disconnect from the encoder.

The SDK includes C# and VB.Net sample code for the following functions to be performed over the network; i.e., encoding over Ethernet:

- Contact encoding (write to the entire memory of the card, read back the data, and verify the data was written correctly to the card).
- Contactless encoding (write to the entire memory of the card, read back the data, and verify the data was written correctly to the card).
- Contact smart card encoding + single side print.
- Contact smart card encoding + dual side print.
- Contactless smart card encoding + single side print.
- Contactless smart card encoding + dual side print.

The ZMotif SDK includes a technical specification highlighting the recommended system architecture solutions for Encoding over Ethernet and the expected throughput performance of these solutions to include single-job encoding and printing and multiple-job encoding and printing.

Refer to *ZMotif SDK Software Developers Reference Manual P1004475-002* or higher for details.

Appendix F

Barcode Reader

Description

The Barcode Reader can identify a card with a unique Embedded Inventory Number (EIN) in the form of a preprinted barcode located on the trailing edge of the back side of the card.

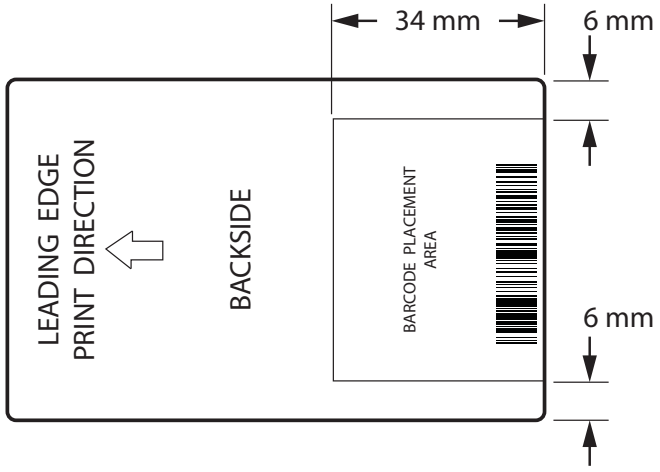
- For barcode symbol 128 sets A and B (alphanumeric), the scanner can read a maximum number of 12 characters.
- For barcode symbol 128 set C (numeric), the scanner can read a maximum number of 24 characters.

The Barcode Reader functions with plain 30-mil cards or 30-mil magnetic stripe cards.

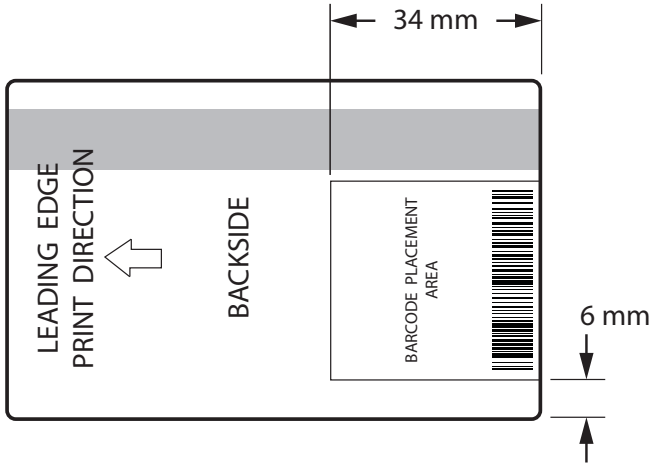
Barcode Placement

Important • For Printers with the Barcode Reader option installed, the barcode must be placed on the backside of the card only, not the front side.

- For a Standard Card or Smart Card:



- For a Magnetic Stripe Card:



The left and right sides of the barcode symbol include a quiet zone with no print to prevent interference with the Barcode Reader. The quiet zone should be ten times the dimension of the narrowest element in the bar code or 6.4 mm, whichever is greater.

Loading Cards

The pictures below show the proper orientation of cards with a barcode. This orientation is valid with or without the magnetic stripe.

- Feeder Cartridge orientation:

- Manual Feed Slot orientation:

SDK Support

You will need the SDK in order to take advantage of Barcode Reader functionality; refer to *ZMotif SDK Software Developers Reference Manual P1004475-002* or higher for details.

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