ZC100/300 Series

Card Printer



Windows Driver User Guide

ZEBRA

P1101331-003

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Printing Preferences

Check the Zebra website for the latest version of this document.

The Printing Preferences control panel can be used to determine preferences such as which ribbon panels will be used to print images on the card, where the card comes from (i.e., the input hopper or the manual feed slot), and its destination. It is also used to make adjustments to colors and black panel quality; as well as printing test cards, showing configuration information, and connecting to wired or wireless networks.

To open the Printing Preferences Control Panel:

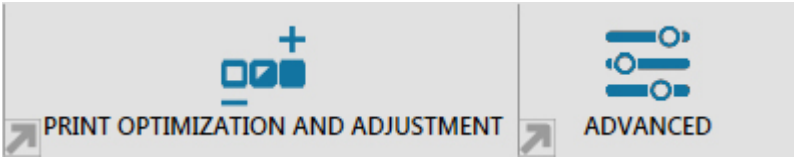
- Windows 7 – Select Start, then click **Devices and Printers**. Right click the Zebra ZCXXX Card Printer, and select **Printing preferences** from the pop-up menu.
- Windows 8 – Press Windows + I and select **Control Panel** from the pop-up menu. Select **Hardware and Sound**, then select **Devices and Printers**. Right click the Zebra ZCXXX Card Printer, and select **Printing preferences** from the pop-up menu.
- Windows 10 – Press Windows + I and select **Devices**, then select **Printers and Scanners**. Select the Zebra ZCXXX Card Printer and click **Manage**, and then select **Printing preferences**.

The tabs listed below make up the menu structure of the Printing Preferences Control Panel:



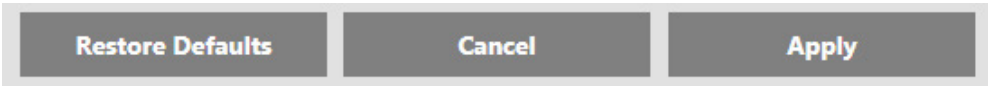
- Setup
- Encoding
- Help & Support

The utilities listed below complete the menu structure:



- Print Optimization and Adjustment
- Advanced

At the bottom of the control panel window are the following buttons:



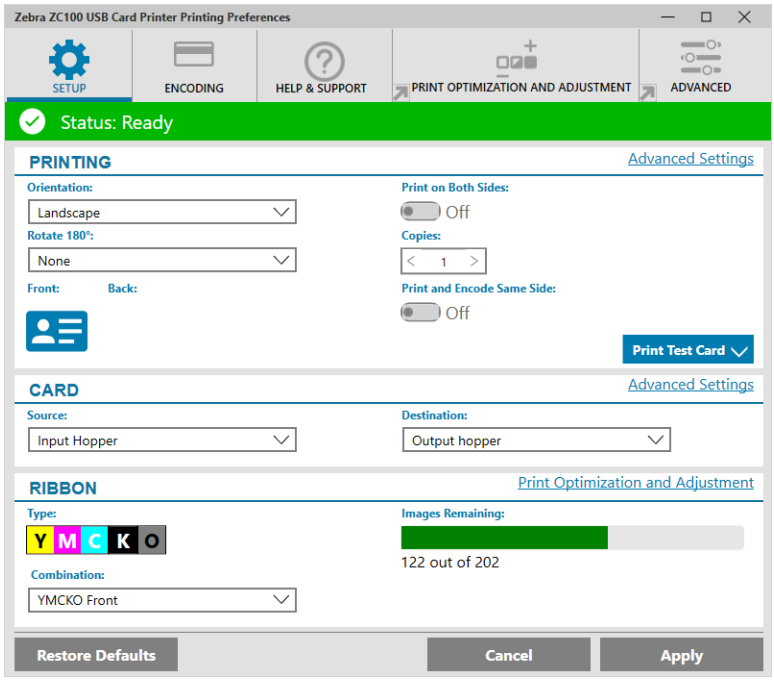
The **Restore Defaults** button sets the printing preferences back to factory settings.

The **Cancel** button closes the Printing Preferences Control Panel without applying the changes made.

The **Apply** button makes (or applies) the changes; the Printing Preferences Control panel remains open.

Setup Tab

The **Setup** tab enables the user to adjust selected card and print job parameters, and to print test cards.



Status Bar

The status bar shows the current state of the printer. When the status bar is green or yellow, you can still print. A red status bar will inhibit printing until the error is corrected.







The **Setup** window is divided into three sections:

- Printing
- Card
- Ribbon

Printing

The **Orientation** drop-down list tells the printer to print in either Landscape (horizontal) or in Portrait (vertical) depending on the design or the desired use of the card. Note that the printing orientation cannot be mixed; in other words, you cannot print portrait on the front and landscape on the back.

The **Rotate 180°** drop-down list tells the printer to rotate the image on the card 180° (degrees). Use this option if you want the images to be oriented the same way depending on how the card is flipped over.

The following selections are available from the Rotate 180° drop-down list:

- **None** – does not rotate the image(s).
- **Front** – only rotates the image on the front of the card.
- **Back** – only rotates the image on the back of the card.
- **Both** – rotates the image on both the front and the back of the card.

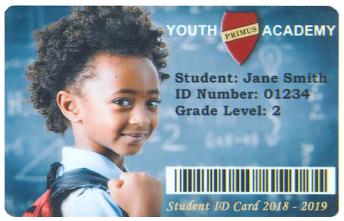
The **Print on both sides** switch enables double-sided printing (applicable to dual-sided printers; ZC100 not compatible).

The **Copies** selection specifies the number of cards to be printed. Click on the up or down arrow to increase or decrease the number.

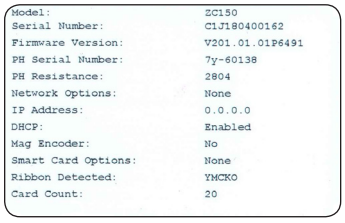
Print and Encode Same Side enables the user to encode a card and print an image on the mag stripe side. This option is disabled when **Print on Both Sides** is enabled. To Print and Encode Same Side the printer must be dual sided, Print on Both Sides must be set to No, and the printer must have a mag encoder.

Print Test Card enables the user to print one of two test card types:

The **Graphics Test Card** prints an image appropriate to the current ribbon combination; and if **Print on Both Sides** is selected (for double-sided printers only), a monochrome test image on the back.



The **Configuration Test Card** prints printer configuration information. If the Wireless option is installed, and the printer is set to print single-sided, two cards will be printed.



Model:	ZC150
Serial Number:	C1J180400162
Firmware Version:	V201.01.01P6491
PH Serial Number:	7y-60138
PH Resistance:	2804
Network Options:	None
IP Address:	0.0.0.0
DHCP:	Enabled
Mag Encoder:	No
Smart Card Options:	None
Ribbon Detected:	YMCKO
Card Count:	20

Card

The **Source** selection lets the user tell the printer where to take the card from. For example, if a single card needs to be printed that is different from the cards in the input hopper, the user can select to manually feed a single card to print on.

The following selections are available in the Card source drop-down list:

- **Manual Feed Slot** – only takes cards from the manual feed slot.
- **Input Hopper** – only takes cards from the input hopper.
- **Auto Feed** (default) – unless a card is fed in from the manual feed slot before the print job is sent, the printer will take the card from the input hopper.
- **Already in printer** – for third-party applications that use this feature.

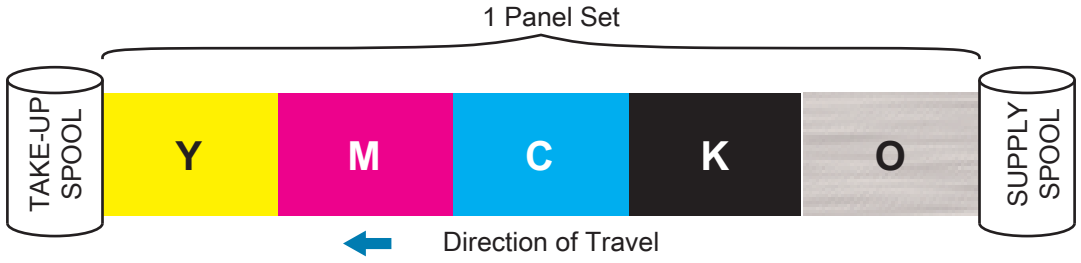
The **Destination** selection lets the user tell the printer where to send the finished cards. In some cases, it may be necessary to send the finished card to the reject tray under secure conditions (if the printer lock is installed).

The following selections are available in the Destination drop-down list:

- **Output hopper** (default) – this sends the finished cards to the output hopper (located under the input hopper).
- **Reject bin** – this option sends the finished cards to the reject bin which is accessible by opening the print cover (applicable to dual-sided printers; ZC100 not compatible)
- **Leave in printer** – for third-party applications that use this feature.

Ribbon

Zebra card printers use ribbons (media) that come in two types: monochrome and color panels. Monochrome ribbons are one continuous ribbon of a single color—typically black, but may be white, gold, or other single color ribbons. With color panels, such as YMCKO (used for full color printing), each individual primary color (yellow, magenta, cyan or YMC) along with black (K) and overlay or varnish (O) are laid out in sequence for one complete card print process.



The printer will recognize the type of print ribbon installed and display it in the **Type** field. The available ribbon combinations will be shown in the **Combinations** drop-down menu. Additionally, the **Print on both sides** and the **Print and Encode on Same Side** settings will affect the available ribbon combinations. The **Images Remaining** status bar indicates how many images can still be printed on the installed ribbon. This feature applies to ribbons with panels and refers to the panel set (YMCK); monochrome ribbons do not apply. When a ribbon cartridge has 10 panel sets remaining, a Ribbon Low warning will be displayed.

The following table shows the supported ribbons and their respective combinations:

Ribbon	Print on Both Sides	Print and Encode Same Side	Ribbon Combination
YMCKO	Off	Off	YMCKO front
		On	YMCKO back
	On	Off	YMCO front / K back (default)
			YMCKO front / YMCKO back
YMCKOK	Off	Off	YMCKO front
		On	YMCKO back
	On	Off	YMCKO front / K back (default)
			YMCKO front / YMCKO back
1/2YMCKO	Off	Off	YMCKO front
		On	YMCKO back
	On	Off	YMCKO front / YMCKO back
1/2YMCKOKO	Off	Off	YMCKO front
		On	YMCKO back
	On	Off	YMCKO front / KO back (default)
			YMCKO front / YMCKO back
KrO	Off	Off	KrO front
		On	KrO back
	On	Off	KrO front / KrO back
KdO	Off	Off	KdO front
		On	KdO back
	On	Off	KdO front / KdO back
K (Monochrome) Includes all single color ribbons	Off	Off	K front
		On	K back
	On	Off	K front / K back
YMCPKO	Off	Off	YMCPKO front
		On	YMCPKO back
	On	Off	YMCPO front / K back (default)
			YMCPKO front / YMCPKO back
YMCKLL	Off	Off	YMCKLL front
		On	YMCKLL back
	On	Off	YMCLL front / K back (default)
			YMCKLL front / YMCKLL back
SDYMCKO	Off	Off	SDYMCKO front
		On	SDYMCKO back
	On	Off	SDYMCO front / K back (default)
			SDYMCKO front / SDYMCKO back

The **YMC** panels in a color ribbon are used to create the color image. The ZC100/300 Series printers use 24-bit color data, color algorithms, and printhead management formulas to achieve 256 shades of color when printing a full color image.

The printer uses the **K** panel to print black elements on a color image (see “Profiles” on page 16), or barcodes and text. This is a resin panel, which means it cannot be used to print continuous tones of color. The K panel can only print binary (pure on or off) images.

K is also used to denote monochrome ribbons, which are available in black, white, gold, silver, red, and blue. Monochrome ribbons are also made of resin materials, which means they cannot be used to print continuous tones of color, and can only print binary (pure on or off) images.

Kd denotes a black dye panel, which allows continuous shades of gray to be printed, and is ideally suited for photos and graphics.

The **O** panel is an overlay which protects the dye panels against fading due to the effects of UV light and abrasion. Overlay can also be applied to K resin to further protect text and barcodes against abrasion. This makes the KrO ribbon useful in applications where card is swiped against a magnetic stripe reader and text or barcodes are printed on the opposite side of the magnetic stripe.

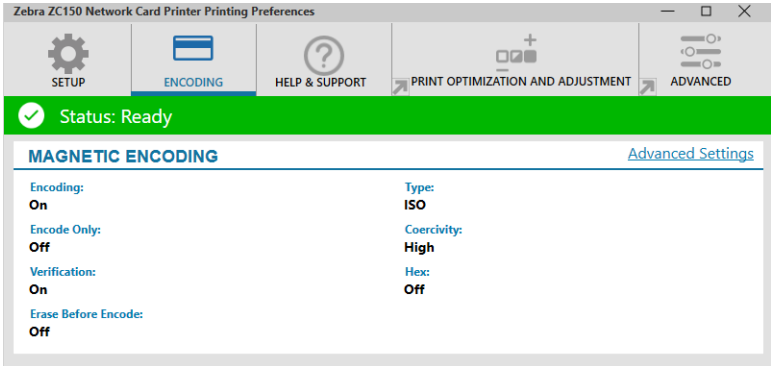
The **L** panels in the YMCKLL ribbon enable long lasting color personalization of cards without the use of lamination. The combination of two extra thick overlay panels adds four times more abrasion resistance to a color card, compared to a standard YMCKO ribbon. The panels can also be used to print security features, which will appear as a watermark on the card, and fluoresce under UV light. Refer to “YMCKLL” on page 19 for more information.

The **S** (silver) panel in the SDYMCKO ribbon enables 3D-like visual effects to be created on the card. The Sr is a silver resin panel and it can be printed on the entire card for a metallic effect, or underneath a specific graphic element, like a logo or text and then printer over with YMC to create a unique visual effect. Refer to “SDYMCKO” on page 20 for printing options.

The **P** (pearlescent) panel is a color shifting panel in the YMCPKO ribbon, enabling covert security elements to the printed on the card, on demand. Images printed using the K and the P panels should ideally not overlap in the design of the card. Refer to “YMCPKO” on page 21 for more printing options.

Encoding Tab

The **Encoding** tab displays the primary magnetic encoding settings, and is only accessible if the magnetic encoding option is installed. To change these settings, or to further customize the magnetic encoding settings, click on **Advanced Settings**.



Encoding – When set to On, a card with a magnetic stripe will be encoded when a print job with magnetic encoding data is sent to the printer. When set to Off, the printer will not encode any cards.

Encode Only – When set to On, only the encoding portion of a print job will be completed. When set to Off, both encoding and printing will be completed.

Verification – When set to On, the printer will verify the data that has been encoded to the card. When set to Off, the printer will not verify the data that has been encoded to the card.

Type – ISO is the standard type of magnetic encoding for most cards. Other formats may be set in Advanced Settings.

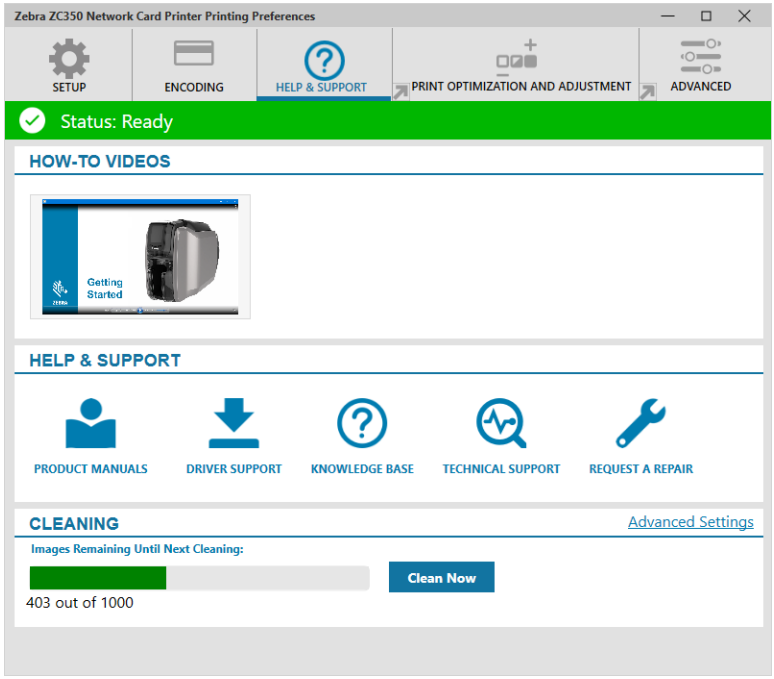
Coercivity – The amount of energy required to encode the card. Cards with a magnetic stripe require either high coercivity or low coercivity.

Hex – The format for the data being encoded to the card. When set to On, the data being encoded to the card will be in hexadecimal format. When set to Off, the data will be in standard ANSI format.

Erase Before Encode – Erases all data on the magnetic stripe before encoding new data.

Help & Support Tab

The Help & Support tab offers users several options to help with the printer, as well as the ability to initiate cleaning.



How-To Videos

The **How-To-Videos** section offers users videos explaining common tasks and troubleshooting solutions.

Help & Support

The **Help & Support** section offers users links to the different sections of the Product Support page.

Click on **Product Manuals** link to download user documentation for your printer.

Click on **Driver Support** to download driver and firmware updates, and other software for your printer.

Click on **Knowledge Base** to look up specific issues with your printer.

Click on the **Technical Support** link to contact a representative to assist you with your printer.

Click on **Request a Repair** if you need expert assistance with a printer issue.

Cleaning

Caution • PROTECT YOUR FACTORY WARRANTY!

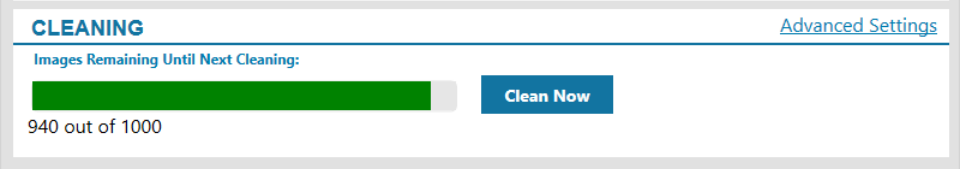
The recommended cleaning procedures must be performed to maintain your factory warranty.

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.

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).

The **Cleaning** section shows the user how many cards can be printed before the next cleaning is required. Click **Clean Now** to initiate the cleaning process; follow the on-screen instructions.



Step 1. At the prompt, remove the ribbon and cards from the printer.

Step 2. At the prompt, insert the cleaning card into the manual feed slot on the printer.

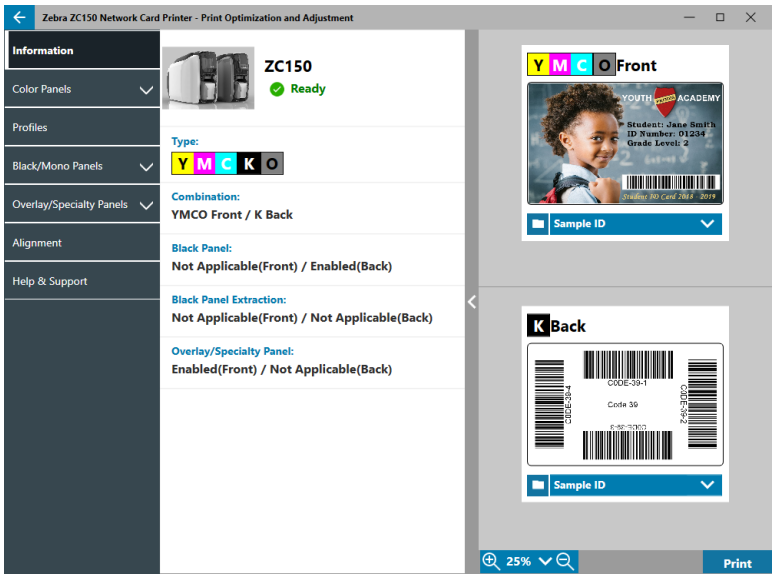
Step 3. The cleaning process will begin.

Step 4. When the cleaning process has finished, remove the used cleaning card after it has been ejected.

Step 5. Replace the ribbon and cards.

Print Optimization and Adjustment

The Print Optimization and Adjustment utility allows the user to optimize and adjust the printer settings when the default settings do not achieve the desired image quality. Additionally, most settings are shown in a preview window to demonstrate how the settings will affect the card image.



The window options are arranged in tabs as follows:

- Information
- Color Panels
- Profiles
- Black/Mono Panels
- Overlay/Specialty Panels
- Alignment
- Help & Support

Note • The Color Panels, Black/Mono Panels, and Overlay/Specialty Panels tabs are only available when ribbon is installed that has those panels. For example, Black Mono ribbon does not have Color Panels or Overlay/Specialty Panels, so those tabs would not be available.

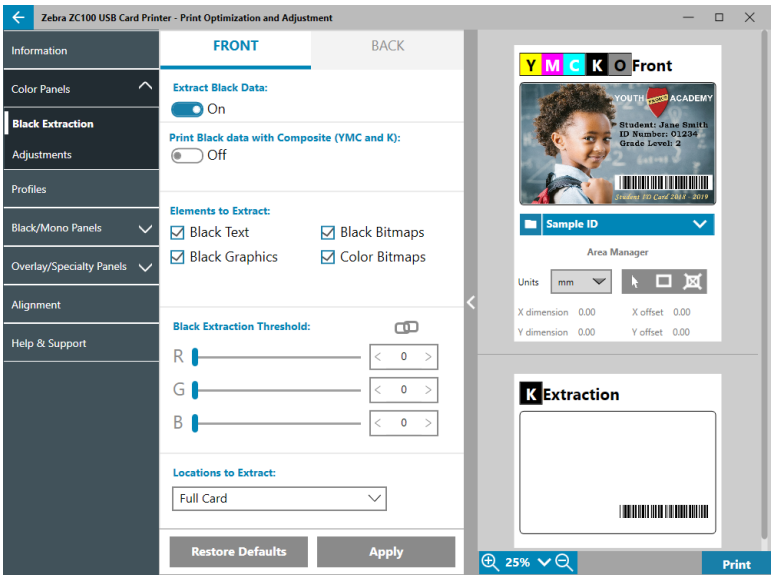
Information

The **Information** tab displays the current state of the printer (i.e., Ready, Input hopper open, etc.), the Type of ribbon installed (i.e., YMCKO), the ribbon combination currently selected (i.e., YMCKO front), and the current settings for the Black Panel (i.e., Enabled/Disabled/Not Applicable), Black Panel Extraction (Enabled/Disabled/Not Applicable), and Overlay/Specialty Panel (Enabled/Disabled/Not Applicable).

In the card Preview window, you can switch between different sample cards, or you can load your own image.

Click on the drop-down list to select the card image to preview, or click (File Browser), locate the file you wish to upload, and click **Open**. Currently, only BMP images are supported.

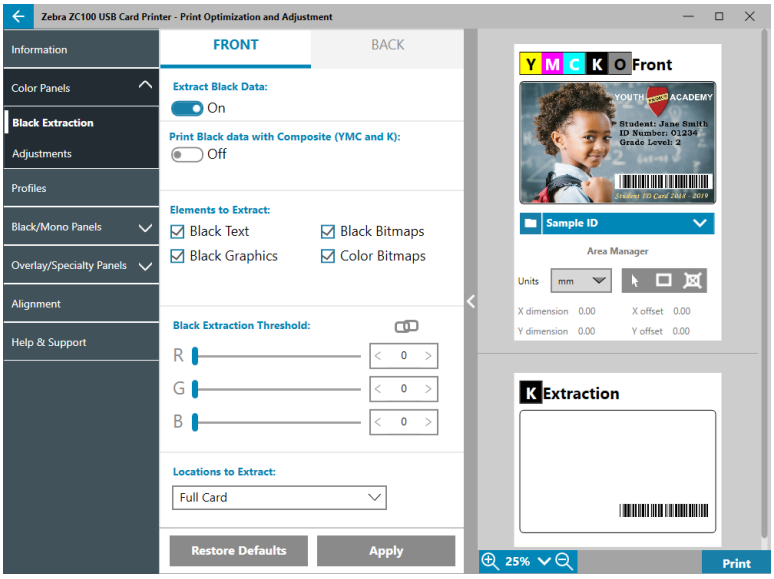
Color Panels



The **Color Panels** tab contains settings for:

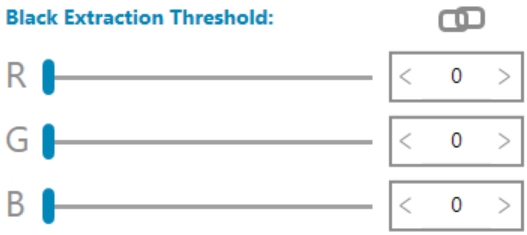
- Black Extraction
- Adjustments
- Half Panel (shown when half-panel ribbon is loaded)

Black Extraction

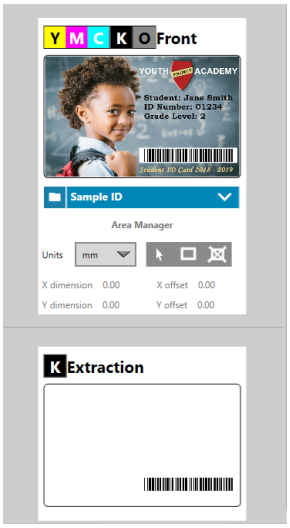


Note • The black extraction option is only available with color ribbons, when YMC and K panels are on the same side (i.e., YMCKO front).

Black extraction is the process by which the driver examines the color image being used for the print job and divides it up into black elements and color elements. Black elements by default are any pixels that have an RGB code value of (0,0,0). This threshold can be expanded up to (25,25,25) using the Black Extraction Threshold slider.



When black extraction is turned on, the printer uses the K panel to print black elements, rather than using the YMC panels. A preview of the image content that has been identified as black is shown in the Preview pane on the Black Extraction page.



By default, when black extraction is enabled it is applied to the entire card. However, when black extraction is applied to image content (such as portraits or scenic pictures), the user may find that the printed image looks unnatural. In this case, the user can select to apply black extraction to only a portion of the card by using the Locations to Extract option. For example, the user may select to “undefine” an area that corresponds to the location of the content that they don’t want black extraction applied to.

In the preview, the area to be extracted is highlighted in blue, while the area that should not be extracted is clear.

The discussion above considers the use case of color images; however, some applications, such as Card Studio, allow the user to specifically identify which elements of the image should be printed with the K panel. These elements fall into three categories: text, graphics, and bitmaps. In order for the driver to properly handle this request, these elements need to be checked in the Elements to Extract section.

By default, all of these elements are checked. If any of these elements are unchecked, then the driver will not apply black extraction to these elements, regardless of whether the elements are identified by the application to be printed with the K panel.

Lastly, it is sometimes the case that text in an image is anti-aliased, meaning that the central pixels are black while the outer pixels are near-black. While anti-aliasing can make text look smoother, it may look unnatural when the inside of the text is printed with K panel and the outside of the text is printed with YMC panels. To improve this situation, the user may choose to enable the Print Black data with Composite (YMC and K) option.

When this feature is enabled, the black elements of the image are printed with both YMC panels and K panels. This makes for a smoother transition between black and near-black content. While this option may work well for text or other anti-aliased content, it is not recommended for use with barcodes, as they are not anti-aliased and any misregistration between the YMC and K panels will degrade the scannability of the barcode.

Using the Area Manager

The Extraction Area tools enable the user to selectively define an are to which black extraction is applied. These tools are only available when **Locations to Extract** is set to **Defined Areas** or **Undefined Areas**.

Defined areas applies black extraction to areas of the image inside of the zones specified in the Area manager, Undefined areas applies black extraction to areas of the image outside of the zones specified in the Area manager.

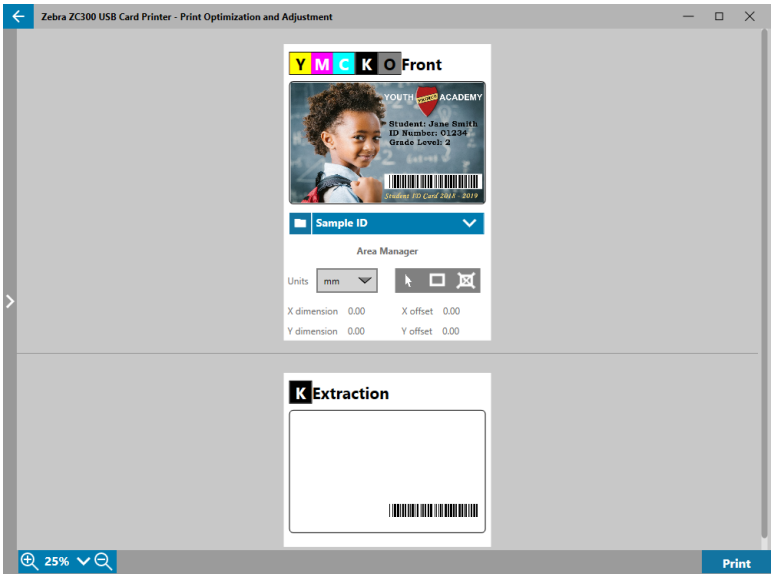
To create a zone, select the rectangle icon , click an area of the image to establish the first corner of the zone, drag the cursor until the zone is the desired size and shape, then release the mouse button. Note that multiple zones can be defined.

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.

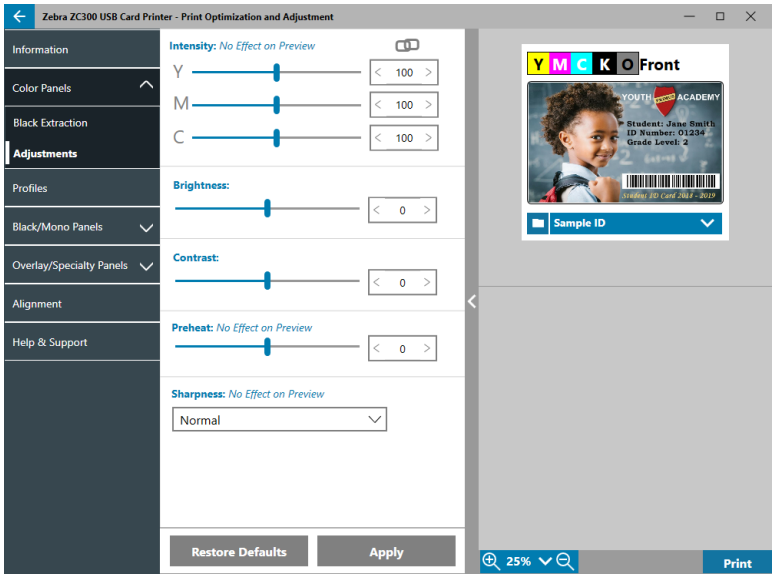
To delete a zone, select the rectangle icon with an “X” through it , then click the zone that you want to delete.

If larger preview image is needed to work with, click on the preview utility (<). This enables the use of the full window to create the extraction area. Click on 

(zoom tools) to enlarge the image.



Adjustments



The **Intensity** adjustments gives the user control over how much of each color is applied to the card. For example: If the user feels that more yellow should be applied, the Y slider can be adjusted higher, this applies to the M and C sliders also. Additionally, the sliders can be adjusted simultaneously by clicking the (Link) button.

Brightness adjustment boosts or reduces the mid-tones in an image, which makes an image appear brighter or darker.

Contrast refers to the range of tonal values in an image. High contrast increases the range of light to dark, while low contrast reduces the range.

The **Preheat** controls the preheating of the printhead. During printing, the individual pixels go from a “rest” temperature to “printing” temperature very quickly, however for thin lines the pixels may not be able to reach the activation temperature of the ribbon before returning back to the rest temperature. Increasing the preheat may make it easier for the pixels to reach the activation temperature, resulting in a darker or more complete line being printed.

The **Sharpness** adjustment changes the visual perception of the clarity and resolution of an image.

- None – does not apply any sharpening to the image.
- Low – applies some sharpening to the image.
- Normal – (default) apples a degree of sharpening that, while noticeable, is not unsightly.
- High – applies a degree of sharpening that is noticeable and may seem unsightly. This can also be a purposeful effect.

Half Panel

The **Half Panel** ribbons are used for printing full color images on a smaller area of a card (i.e., an ID photo). The color panels are half the size of a normal color panel so waste is reduced and cards printed per ribbon is greater; the K (black) and Overlay panels remain full size.

Note • The half panel option is only available when a half panel ribbon is installed in the printer.

Note • The printable area for the color portion of the half-panel ribbon is 34 millimeters wide.

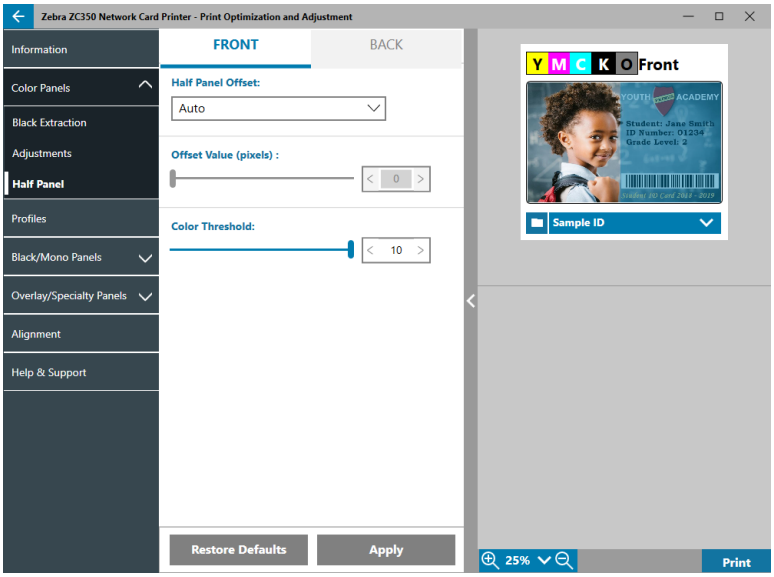
Typical YMCKO Ribbon



Half Panel YMCKO Ribbon



The Print Settings and Adjustments remain the same, with the exception of the Half Panel Options.



The **Half Panel Offset** has four settings:

- Auto (default) – detects the location of the color portion of the image and starts color printing at that location. In some cases, Auto detect may not be suitable for your image. In such cases, the other three options may work better.

  The **Color Threshold** slider is used to adjust the sensitivity of the algorithm that determines the starting location of the color panels. It is only available with the Auto offset.

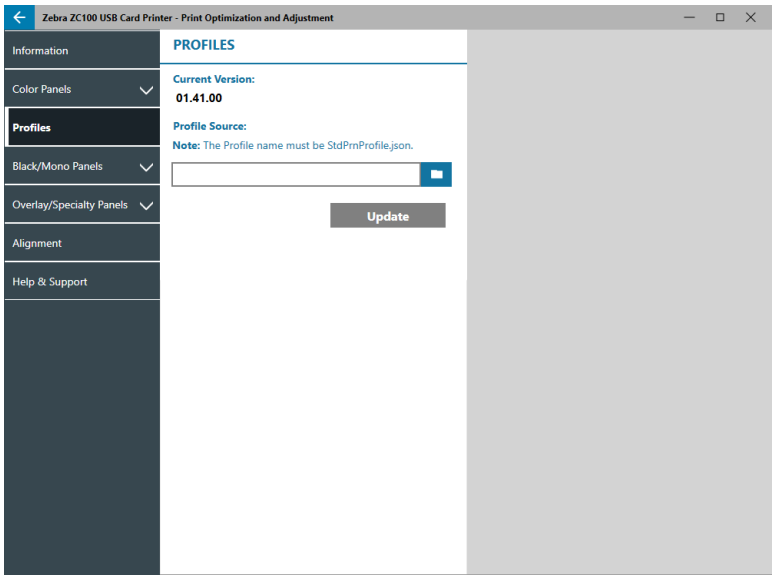
- Custom – enables a manual offset setting.

  The **Offset Value** slider is only available with the Custom offset.

Note • Measurements are in pixels and start at the left, 1 pixel = 0.085 mm.

- Left Side – sets the print area to the left side of the card.
- Right Side – sets the print area to the right side of the card.

Profiles



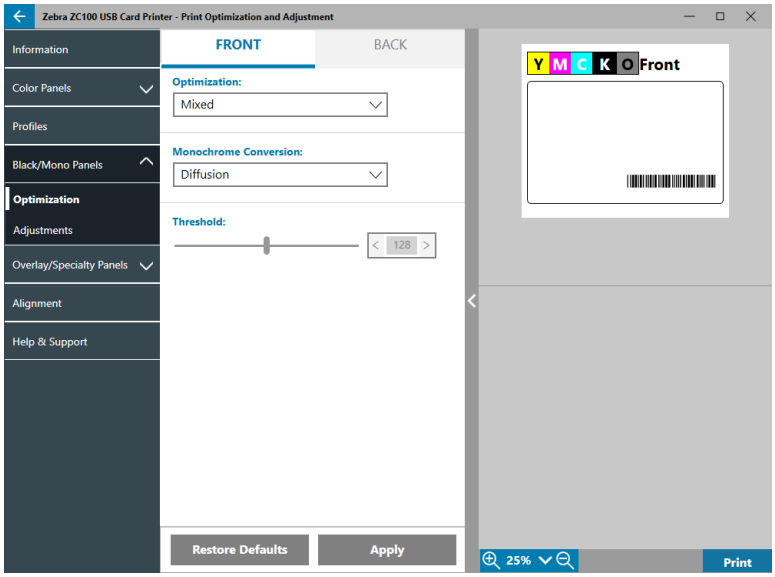
The **Profiles** page is used to load a different profile to the printer. The profile is used to control many functions of the printer, such as print tensions, amount of energy used for different panels, etc.

The only filename currently allowed for the profile is StdPrnProfile.json. However, each profile has a version number that can be read after it has been loaded to the printer. Note that after loading the profile to the printer, the user must navigate away from the page and then back to the Profiles page to see the new version number.

To load a new profile, click  (File Browser), select the desired StdPrnProfile.json file, and click **Open**. Click the **Update** button, then click **OK** to acknowledge that the printer will be restarted to complete the profile update.

Black / Mono Panels

The Black/Mono Panels tab displays available options to optimize black panel printing for the type of image being printed.



The available options for the Front and Back are the same and can be set independently.

Tip • The selection that most closely matches the type of image you are trying to optimize for may not be the best selection. If the selection does not produce the desired results, experiment with the other selections.

Optimization

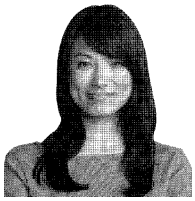
Optimization enables presets for optimal printing:

- **Mixed** will optimize black panel printing for both text and barcodes, or text and pictures, or other combinations.
- **Barcode** optimizes black panel printing for sharp barcodes that are easily read by scanners.
- **Text** optimizes black panel printing to produce crisp, clear text.

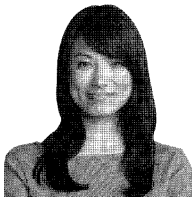
Monochrome Conversion is used to convert continuous tone 8-bit-per-pixel RGB or gray image content into binary1-bit-per-pixel content, as monochrome panels can only print binary (pure on or off) images.



Threshold – This is the simplest method for converting from 8 bits per pixel to 1 bit per pixel. For example, the input pixel can be a value from 0 to 255. If the threshold is 128, any pixel from 0 to 128 becomes full on (1); and any pixel that is higher than 128 becomes full off (0). This mode works best for text, barcodes, line art, logos -- everything except continuous-tone pictures. Use the Threshold slider to set the desired value.

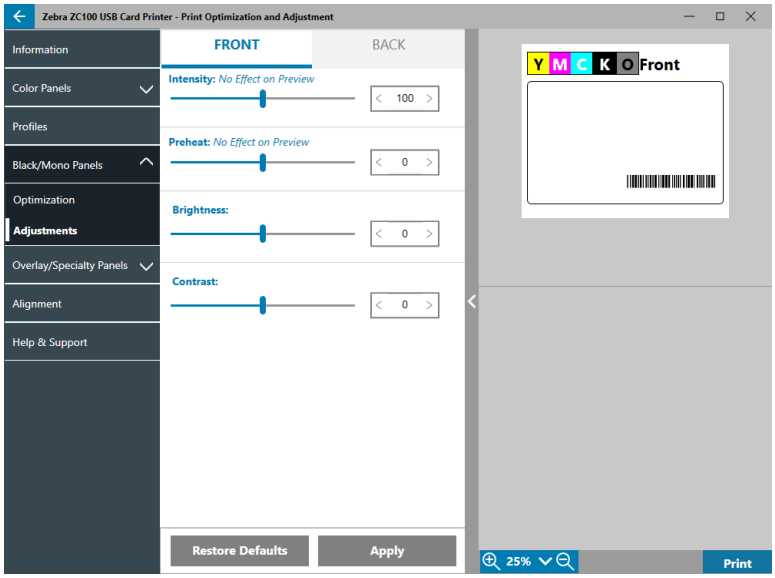


Diffusion – Dither diffusion is used primarily where you have a full color (RGB image with 8 bits per pixel) or full gray (single color but still 8 bits per pixel) that you need to print with binary printing (can only print full-on or full-off; i.e., 1 bit per pixel). Typically preferred over halftoning for most images. Use the brightness and contrast sliders to adjust the levels to the desired output.



Halftone – prints the bitmap image as a 6 x 6 halftone image, which simulates continuous tone imagery through the use of dots, varying either in size or in spacing.

Adjustments



The **Intensity** adjustments gives the user control over how dark or light the black/mono panel is printed.

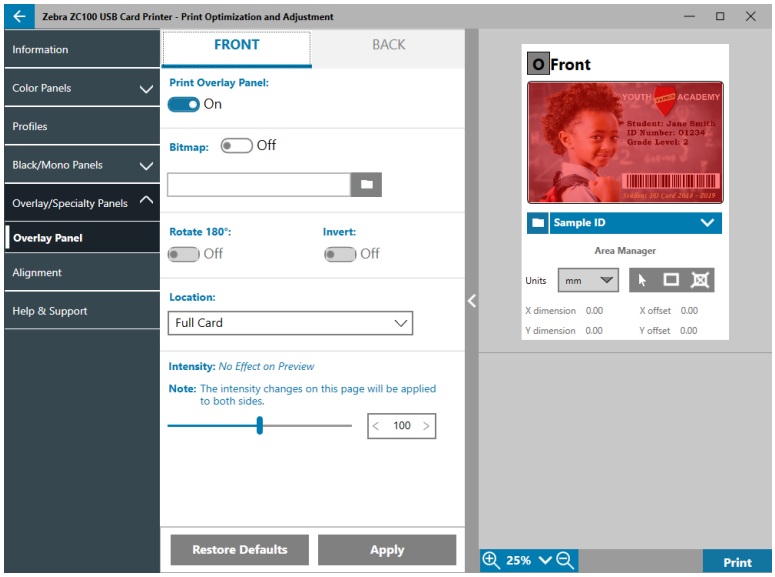
Brightness adjustment boosts or reduces the mid-tones in an image, which makes an image appear brighter or darker.

Contrast refers to the range of tonal values in an image. High contrast increases the range of light to dark, while low contrast reduces the range.

The **Preheat** controls the preheating of the printhead. During printing, the individual pixels go from a “rest” temperature to “printing” temperature very quickly, however for thin lines the pixels may not be able to reach the activation temperature of the ribbon before returning back to the rest temperature. Increasing the preheat may make it easier for the pixels to reach the activation temperature, resulting in a darker or more complete line being printed.

Overlay/Specialty Panels

The Overlay/Specialty Panels tab offers the user adjustments to the overlay panel; and, if equipped, adjustments to the specialty panel (such as the L or Silver panel).



Print Overlay Panel On/Off determines if the panel is used. If the selections is set to On, the overlay panel is used and the remaining options are available; if the selection is set to Off, printing of the overlay panel is skipped.

Bitmap On/Off tells the printer to print a solid image using the Overlay panel, such as a logo, a shape, or text that has been converted to a 1-bit per pixel bitmap. Set Bitmap to Off if no image is to be used. If Bitmap is set to On, click (File Browser), locate the file you wish to upload, and click **Open**. Only 1-bit BMP and JPG files are supported.

Rotate 180° is enabled when Bitmap is set to On, or when Bitmap is set to Off and the Location is set to any selection other than Full Card

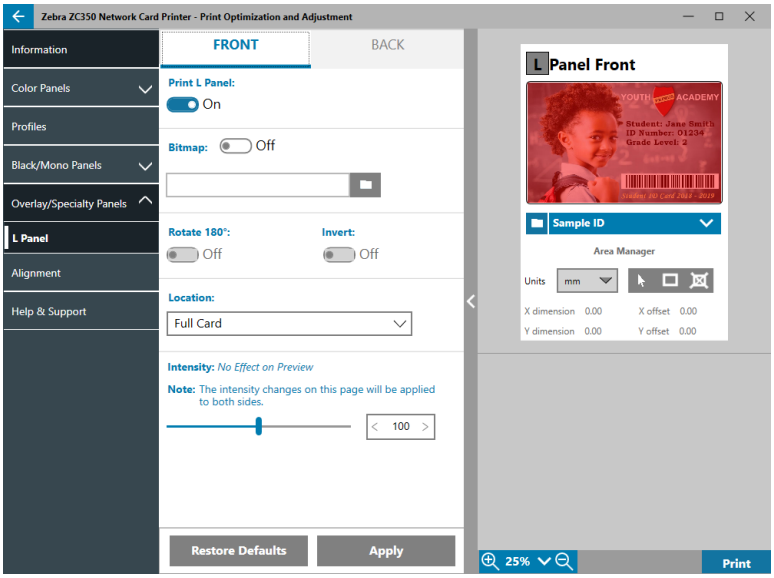
Invert is enabled when Bitmap is set to On, and reverses the dark and light colors--creating a negative image.

The Location option enables the user to define areas of the card for which to apply the overlay. The choices are:

- **Full card** applies the overlay to the entire printed area.
- **Defined Areas** – applies the overlay to areas of the image inside of the zones specified in the Area manager (see “Using the Area Manager” on page 13).
- **UnDefined Areas** – applies black extraction to areas of the image outside of the zones specified in the Area manager (see “Using the Area Manager” on page 13).
- **Smartcard** – This option leaves a small area open over a smart card chip.
- **Magnetic Stripe** – This option leaves an area open over the magnetic stripe.

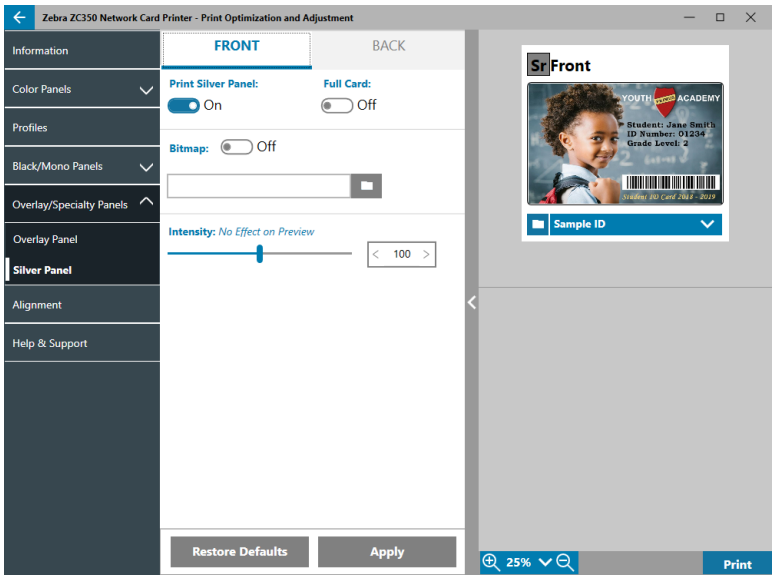
The **Intensity** adjustments gives the user control over how dark or light the overlay panel is printed.

YMCKLL



The options for the L panel are the same as for the Overlay panel. When both L panels are printed on the same side of the card, and the bitmap option is enabled, the bitmap is only printed using one of the L panels. This allows security features to be printed while maintaining a protective overlay.

SDYMCKO



There are three option combinations for printing with the Silver (S) panel:

1. **Print Silver Panel**: On

   Full Card: Off

   Bitmap: Off

   This combination enables the user to print a unique silver panel image for each card.

   This combination requires the user to send two images to the printer in order to print with the silver panel. The first image is for the silver panel, while the second image is for the color panels. If K is also on the same side (i.e., SDYMCKO front), then K will be extracted from the second image if this feature is enabled. If K is on the back side of the card (i.e., SDYMCO front / K back), then a third image is needed for the K panel—the first image is still for the silver panel and the second image is still for the color panels. When printing SDYMCKO front / SDYMCKO back, four images need to be sent to the printer. The first image is for the silver panel on the front, the second image is for the color and K panels on the front, the third image is for the silver panel on the back, and the fourth image is for the color and K panels on the back.

2. **Print Silver Panel**: On

   Full Card: On

   Bitmap: Off

   This combination enables the user to give the entire card a shiny look. Note that non-printed areas will appear silver, so this combination is best suited for color images that completely cover the entire card.

   This combination fills the entire card with the silver panel. The user only needs to send one color image to the printer for single sided cards (i.e., SDYMCKO front), or two images to the printer for dual-sided jobs (i.e., SDYMCO front / K back (first image color, second image mono) or SDYMCKO front / SDYMCKO back (both images color)).

3. **Print Silver Panel**: On

   Full Card: Off

   Bitmap: On

   This combination enables the user to print the same image with the silver panel for every card, such as for a logo or graphic.

This combination uses the same user-supplied bitmap for the silver panel for every card. Once the bitmap has been selected, the user only needs to send one color image to the printer for single sided cards (i.e., SDYMCKO front), or two images to the printer for dual sided jobs (i.e., SDYMCO front / K back (first image color, second image mono) or SDYMCKO front / SDYMCKO back (both images color)).

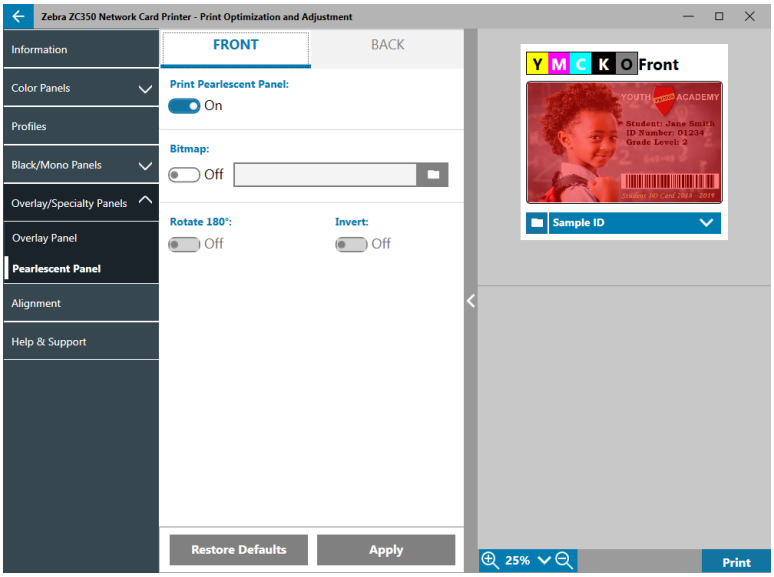
Note that the front and back silver panel options can be set independently; however, this only applies to the SDYMCKO front / SDYMCKO back ribbon combination. The number and type of images required for each side are as specified above for single-sided cards.

4. **Print Silver Panel**: Off

   Silver panel is not printed.

Lastly, the Intensity slider can be used to increase or decrease the intensity of the silver panel. In most cases this should not be necessary; however, some card types may require more or less energy to print successfully with the silver panel.

YMCPKO



There are two option combinations for printing the Pearlescent (P) panel.

1. **Print Pearlescent Panel**: On

   Bitmap: Off

   This combination enables the user to print a unique pearlescent panel image for each card.

   This combination requires the user to send two images to the printer in order to print with the pearlescent panel. The first image is for the color panels, and the second image is for the pearlescent panel. If K is also on the same side (i.e., YMCPKO front), then K will be extracted from the first image if this feature is enabled. If K is on the back side of the card (i.e., YMCPO front / K back), then a third image needs to be sent to the printer for the K panel. The first image is still for the color panels and the second image is still for the pearlescent panel. When printing YMCPKO front / YMCPKO back, four images need to be sent to the printer. The first image is for the color and K panels on the front, the second image is for the pearlescent on the front, the third image is for the color and K panels on the back, and the fourth image is for the pearlescent panel on the back.

2. **Print Pearlescent Panel**: On

   Bitmap: On

This combination enables the user to print the same image with the pearlescent panel for every card, such as a logo or graphic.

This combination uses the same user-supplied bitmap for the pearlescent panel for every card. Once the bitmap has been selected, the user only needs to send one color image to the printer for single sided cards (i.e., YMCPKO front), or two images to the printer for dual sided jobs (i.e., YMCPO front / K back (first image color, second image mono) or YMCPKO front / YMCPKO back (both images color)).

When the Bitmap option is used, the user has the added flexibility to rotate the bitmap and/or to invert the bitmap. The rotate option rotates the image 180 degrees. The invert option turns all active (black) content inactive (white), and vice versa. These options can be used independently or together.

Note that the front and back pearlescent panel options can be set independently; however, this only applies to the YMCPKO front / YMCPKO back ribbon combination. The number and type of images required for each side are as specified above for single sided cards.

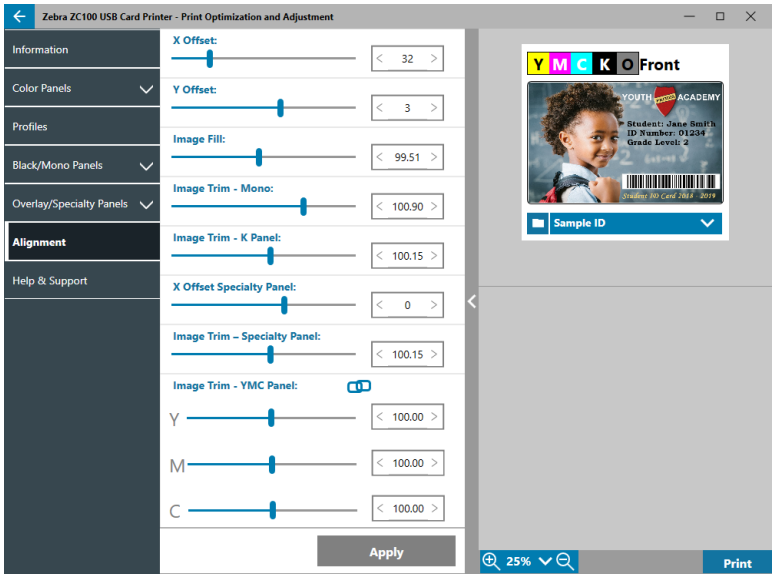
3. **Print Pearlescent Panel**: Off

   Pearlescent panel is not printed.

Lastly, the Intensity slider can be used to increase or decrease the intensity of the pearlescent panel. In most cases this should not be necessary, however some card types may require more or less energy to print on successfully with the pearlescent panel.

Alignment

The Alignment tab enables the user to make corrections to printing if the image is off center, or the panels are misaligned with each other.



X Offset adjusts the placement of the image along the long axis.

Y Offset adjusts the placement of the image along the short axis.

Image Fill changes the length of the printed image.

Image Trim - Mono changes the length of the printed image when monochrome ribbon is used.

Image Trim - K Panel changes the length of the part of the image printed with the K panel.

X Offset Specialty Panel adjusts the placement of the specialty panel image along the long axis.

Image Trim - Specialty Panel changes the length of the part of the image printed with the specialty panel.

Image Trim - YMC Panel changes the length of the individual Y, M, and C panels independently. Additionally, the sliders can be adjusted simultaneously by clicking the  (Link) button

Help & Support

See “Help & Support Tab” on page 8.

Advanced Settings

The Advanced Settings window is a separate utility that enables adjustments and configuration of the printer. The window options are contained in the following tabs:

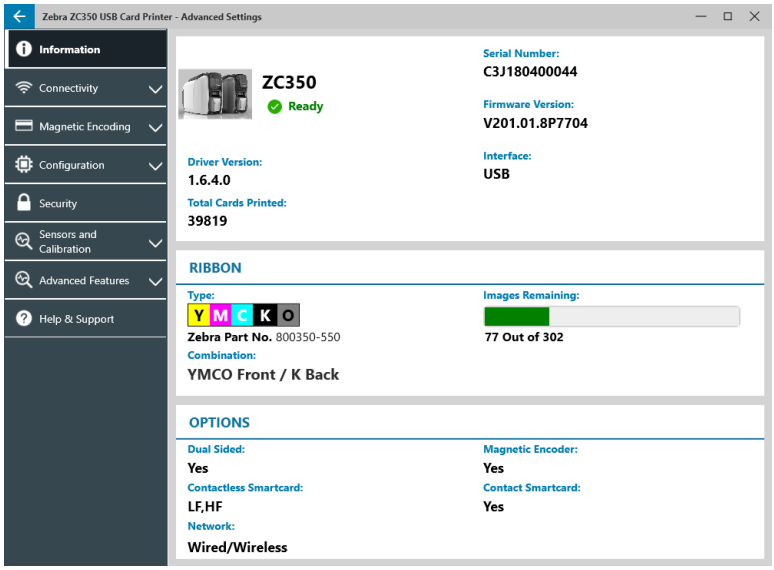
- Information
- Connectivity
- Magnetic Encoding
- Configuration
- Security
- Sensors and Calibration
- Advanced Features
- Help & Support

Information

The **Information** tab shows the current state of the printer, the current version of the driver, the serial number of the printer, the current installed firmware version, the interface type, and the total number of cards printed.

The **Ribbon** section of the Information tab show the current ribbon type installed in the printer, the selected panel combination, and the number of images remaining on the current ribbon cartridge.

The **Options** section of the Information tab shows the available options and their respective installed status.

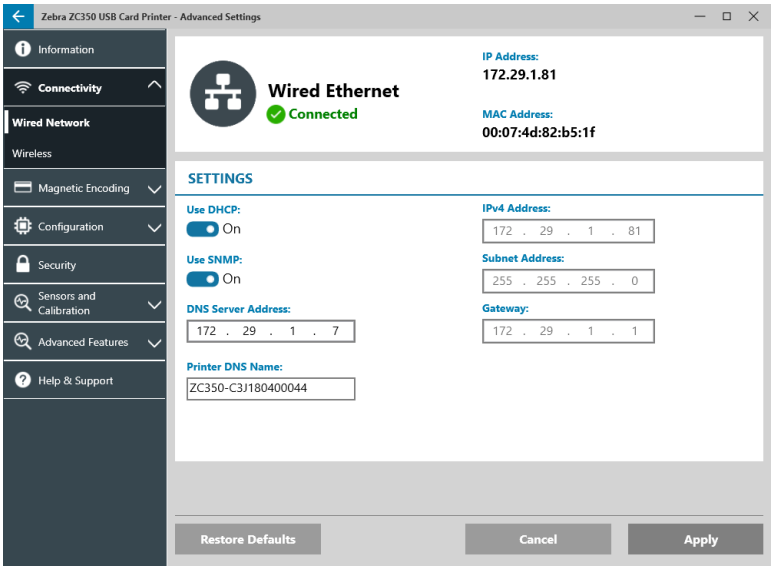


Connectivity

The **Connectivity** tab enables the user to configure the respective network options, either wired (Ethernet) or wireless (Wi-Fi).

Wired Connection

Note • Wired connection settings are configured while the printer is connected via USB; this is to prevent loss of communication.



Status

The status section of the Wired Network window shows either Not Connected or Connected, the IP address of the printer, and the MAC address.

Settings

Turn **DHCP** off to set a static IP address.

Turn **SNMP** off if you do not want the printer to be discoverable on the network.

DNS Server Address: Displays the address of the Domain Name Server that the printer connects to.

Printer DNS Name: Displays the name of the printer as it appears in the Domain Name Server.

IPv4 Address: Displays the IP address of the printer (if connected).

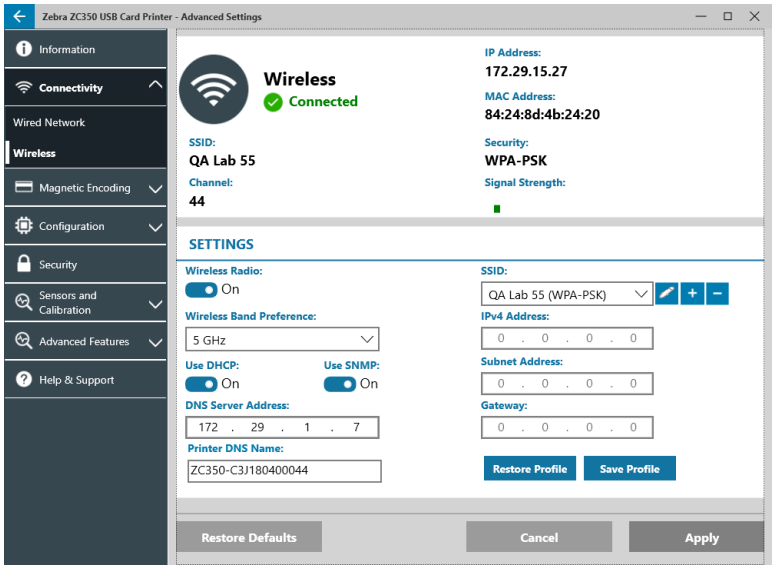
Subnet Address: Displays the subnet the printer resides on.

Gateway: Displays the gateway.

Note • DNS Server, IPv4, subnet, and gateway settings are configurable only when DHCP is turned off.

Wireless Connection

Note • Wireless connection settings are configured while the printer is connected via USB or Ethernet; this is to prevent loss of communication.



Important • The wireless option must be installed in the printer to use this feature. Contact you Zebra representative to verify the wireless option is installed.

Status

The status section of the Wireless Network window shows Not Connected, Scanning, or Connected. It also displays the SSID the printer is connected to, channel, the IP address of the printer, the MAC address, security type, and signal strength.

Settings

Wireless Radio On/Off: Turns the wireless connection on or off.

Wireless Band Preference: This selection applies only if the same SSID is broadcasting in 2.4 and 5GHz. If None is selected, the printer will choose the best signal strength.

Turn **DHCP** off to set a static IP address.

Turn **SNMP** off if you do not want the printer to be discoverable on the network.

DNS Server Address: Displays the address of the Domain Name Server that the printer connects to.

Printer DNS Name: Displays the name of the printer as it appears in the Domain Name Server.

SSID: Displays the name of the wireless network the printer is connecting to.

IPv4 Address: Displays the IP address of the printer (if connected).

Subnet Address: Displays the subnet the printer resides on.

Gateway: Displays the gateway.

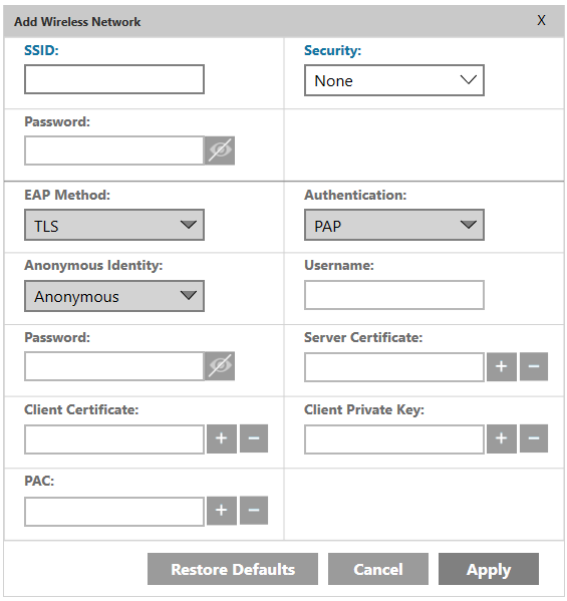
Note • DNS Server, IPv4, subnet, and gateway settings are configurable only when DHCP is turned off.

Configuring Wireless

Step 1. From the **Settings** section of the Wireless sub-tab, turn **Wireless radio** On.

Step 2. Set the wireless band preference as well as the DHCP and SNMP settings.

Step 3. From the **SSID** drop-down menu, select the wireless network to connect to. If this is the first time connecting, or if the wireless network does not appear in the drop-down list, click on the **Add** + button to create a new wireless network connection.



Step 4. In the **SSID** field, enter the name of the wireless network.

Step 5. From the **Security** drop-down list, select the type of security that is in effect for the wireless network.

Step 6. In the **Password** field, enter the password if applicable and for WPA-PSK; or if the security type is WPA-EAP, enter the EAP fields.

Step 7. Click Apply.

Step 8. From the Wireless configuration window, click Apply.

The printer will attempt to connect to the network. If successful, the status section of the wireless configuration window will show Connected and the printer IP address will be shown. Use this IP address for the following steps.

Step 9. Run the Windows Driver Installer and choose **Modify**.

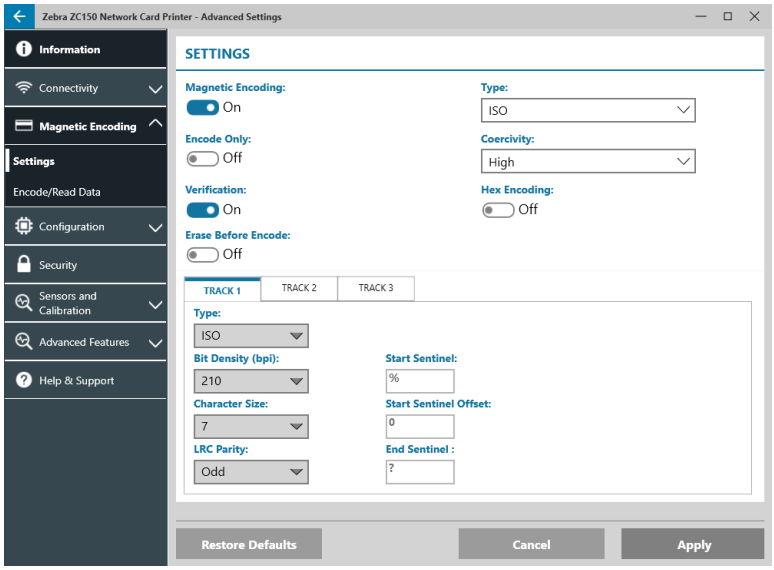
Step 10. Select **Install Ethernet printer drivers**. If your printer is on the same subnet as your PC, the printer will show in the list of printers. If the printer is not on the same subnet as your PC, enter the IP address returned by the printer after Step 7.

Step 11. Continue the installation process.

When the installation process has finished, your printer will be set up for printing. If the printer resides on the same subnet as your PC, Windows will show the printer by its full model name (e.g., ZC300 Network Printer), if the printer does not reside on the same subnet as your PC, windows will return a generic model name (e.g., ZC Network Printer).

Magnetic Encoding

The **Magnetic Encoding** tab enables the user to configure settings for magnetic encoding, and to encode and read cards equipped with a magnetic stripe.



Settings

Switch **Magnetic Encoding** to On to enable magnetic encoding.

Switch **Encode Only** to On to bypass any printing to the card.

Switch **Verification** to On (default) to enable the printer to verify the encoding process was successful.

Switch **Erase Before Encode** to On to erase the magnetic stripe before encoding.

Select the **Type** of encoding to perform:

- **ISO** – standard format for magnetic encoding.
- **AAMVA** – American Association of Motor Vehicle Administrators (AAMVA). AAMVA modifes the ISO standard by allowing 79 alphanumeric data characters on track 1 (plus SS, ES, and LRC), 37 numeric data characters on track 2 (plus SS, ES, and LRC), and 79 alphanumeric data characters on track 3 (plus SS, ES, and LRC). Bit density is the same as ISO, however track 3 has 7 bits per character (because it is alphanumeric).
- **BINARY** – When BINARY is selected, the user can modify the Bit Density on each track. The ISO format specifies a bit density of 210 bpi for tracks 1 and 3 and 75 bpi for track 2. With BINARY selected, the user can choose between 75 bpi or 210 bpi for each track.
- **CUSTOM** – When CUSTOM is selected, the user can not only modify the bit density on each track, but they can also modify the character size (between 3 and 7 bits per character) and the LRC Parity (ISO standard is Odd, CUSTOM also allows Even).

BINARY and **CUSTOM** are custom modifications to the ISO format. Cards encoded with BINARY or CUSTOM formats typically will not work in standard magnetic stripe readers, and should therefore be reserved for specific applications.

Switch **Hex Encoding** to On to use hexadecimal format for encoded data.

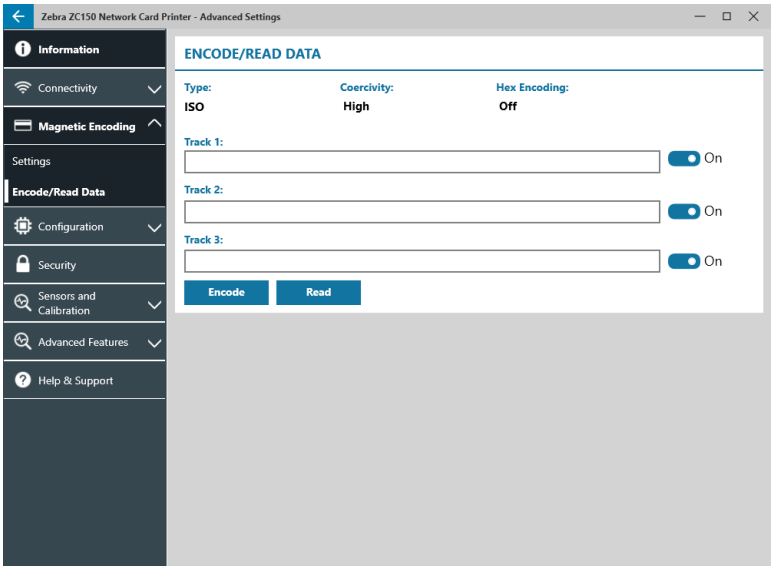
Track 1 allows up to 76 alphanumeric data characters (plus start sentinel, end sentinel, and longitudinal redundancy check (LRC) character). Bit density is 210 bpi (bits per inch) and there are 7 bits per character (derived from ASCII). Bit density is how tightly the data bits (1's and 0's) are spaced together on the magnetic stripe.

Track 2 allows up to 34 numeric data characters (plus SS, ES, and LRC). Bit density is 75 bpi and there are 5 bits per character.

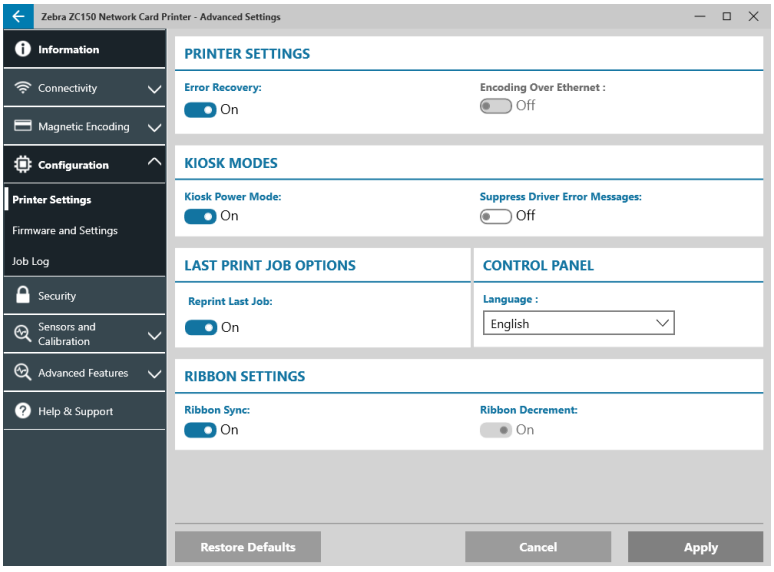
Track 3 allows up to 104 numeric data characters (plus SS, ES, and LRC). Bit density is 210 bpi and there are 5 bits per character.

Encode/Read Data

The **Encode/Read Data** section is used to verify the performance of the magnetic encoder.



Configuration

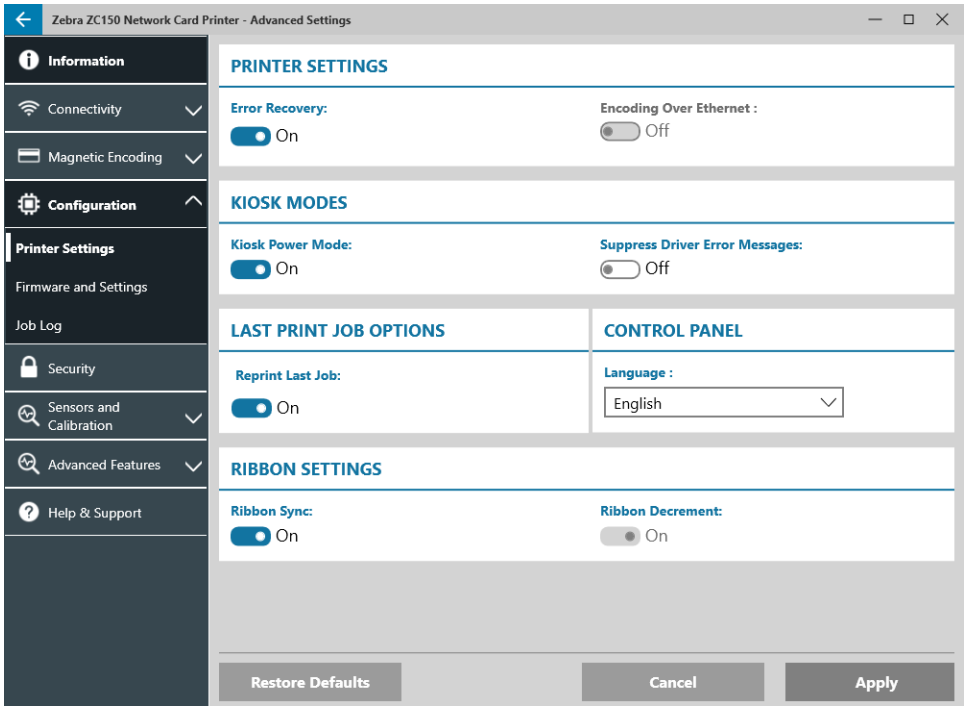


The **Configuration** tab is divided into three sub-tabs:

- Printer Settings
- Firmware and Settings
- Job Log

Printer Settings

The **Printer Settings** sub-tab is divided into five sections:



In the **Printer Settings** section, the user can turn Error Recovery on or off and Encoding over Ethernet on or off.

In the **Kiosk Modes** section, the user can enable Kiosk Power Mode, and enable Suppress Driver Error Messages. With Kiosk Power mode set to On, the printer will power up as soon as power is applied; with Kiosk Power Mode set to Off (default), the user must press the power button at the front of the printer to power up the printer.

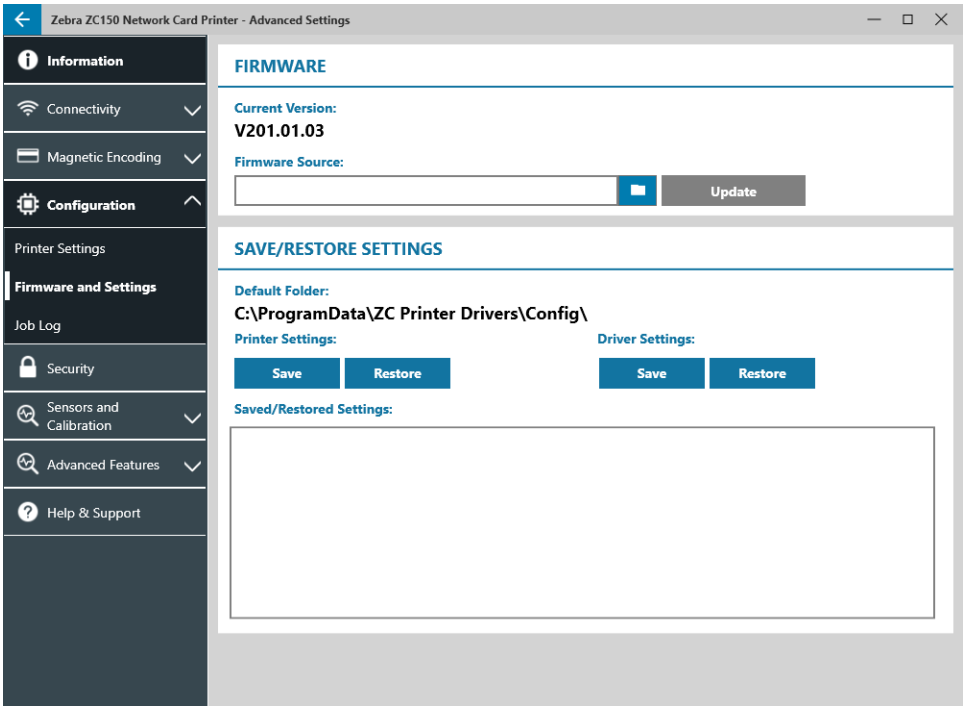
The **Last Print Job Options** section is where the user can choose to reprint the last job from the Operator Control Panel (OCP).

In the **Control Panel** section, the user can change the language of the control panel. The available choices are English, French, Italian, Spanish, Portuguese, German, Polish, Russian, Chinese, and Arabic.

In the **Ribbon Settings** section, the user can turn **Ribbon Sync** on or off. With Ribbon Sync turned off, when the top cover is opened and then closed, or the printer is turned off and on, the ribbon will not advance as long as the ribbon has not been removed. The user can also turn **Ribbon Decrement** on or off. With Ribbon Decrement turned off, the ribbon is prevented from decrementing during printer initialization. It is recommended that Ribbon Decrement not be used during normal operation.

Firmware and Settings

The **Firmware and Settings** sub-tab is divided into two sections:



In the **Firmware** section, the user is shown the current firmware version, and can update to the latest firmware.

Click (File Browser), locate the file you wish to upload, and click **Open**. Then click **Update**.

A dialog box with several cautionary statements will be displayed, confirm you understand the risk by clicking **OK**.

The firmware is sent to the printer. The printer status will be displayed in the status banner at the top of the Setup tab; or, if equipped, the printer LCD screen. Click **OK**.

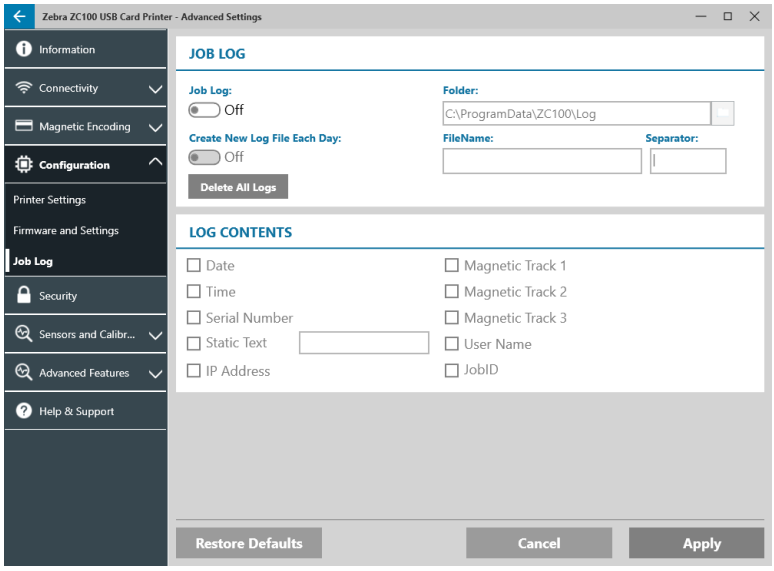
A progress bar is shows the status of the firmware update.

WARNING • Do not turn off printer power during firmware upgrade or serious damage to the printer may occur. The printer will automatically reboot at the end of the upgrade process.

In the **Save/Restore Settings** section, the user can save or restore previously saved settings for the Printer and The Driver.

Job Log

The **Job Log** sub-tab is divided into two sections:



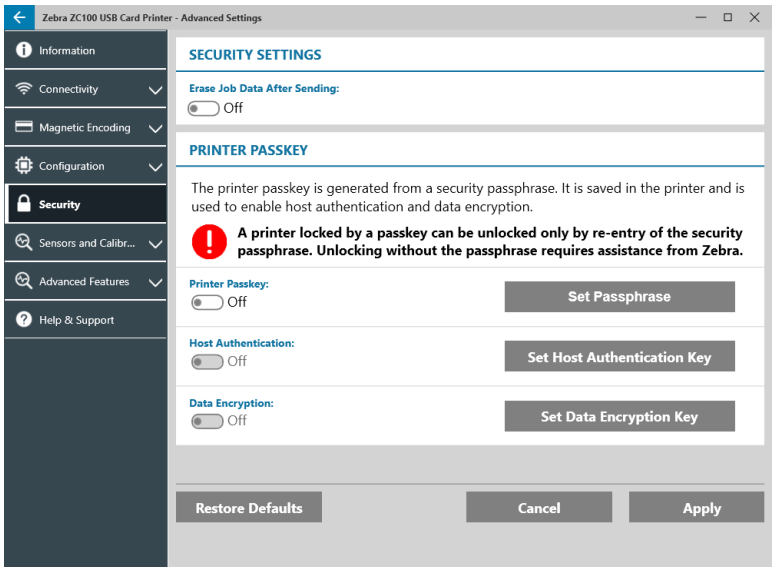
The **Job Log** section is where the user can turn the job log on or off. With Job Log turned on, select a location to store the Job Log by clicking  (File Browser), locate the folder you wish to store the log in and click **OK**. Enable Create New Log File Each Day to create a new log file each day; when enabled, the user can create a unique file name and a separator to differentiate each day's log. Click 

to clear all logs from the local computer or network.

With Job Log turned on, the user can select what information gets stored in the log under the **Log Contents** subsection.

Security

The **Security** tab is divided into two sections:



In the **Security Settings** section, the user can set Erase Job Data After Sending On or Off. This will prevent the last print job from being recovered.

In the **Printer Passkey** sections, the user can enable the following options:

Setting **Printer Passkey** to **On** will enable the user to set a master passkey to be able to access the control panel features.

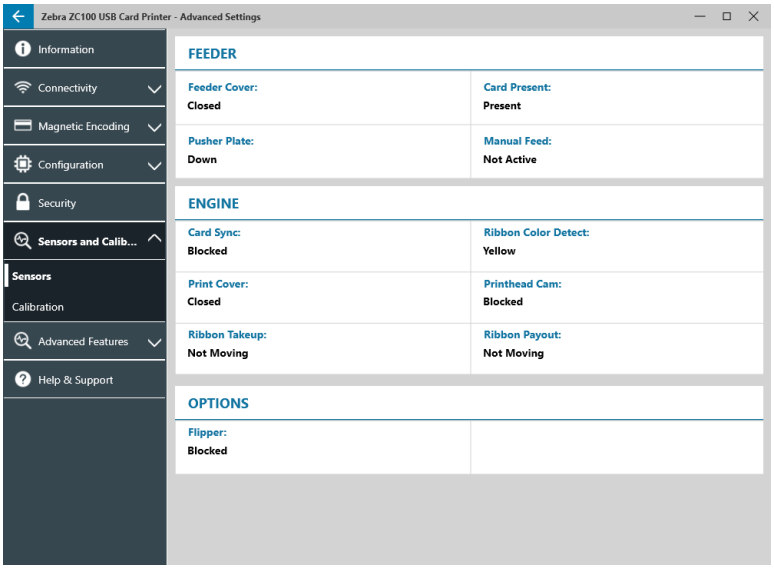
Important • The Printer Passkey is not recoverable. Make sure when setting a printer passkey that is remembered or written down in a secure location.

Setting **Host Authentication** to **On** enables the printer to verify that the computer sending the print job is authorized to do so.

Setting **Data Encryption** to **On** will encrypt the data being sent to the printer so that if it's intercepted it will not be readable.

Sensors and Calibration

The **Sensors and Calibration** tab is divided into two sub-tabs:



- Sensors
- Calibration

Sensors

The **Sensors** sub-tab is divided into three sections:

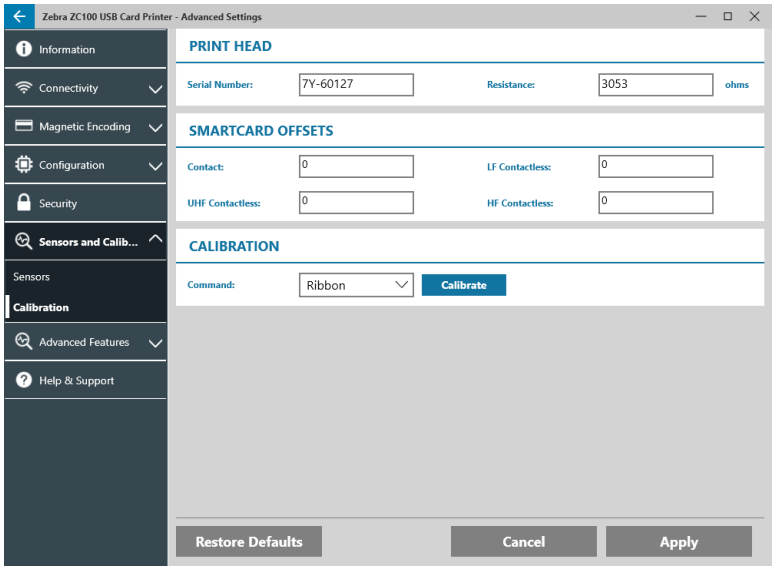
The **Feeder** section tracks the sensors in the feeder section of the printer and notifies the user of the current status.

The **Engine** section tracks the sensors in the main section of the printer and notifies the user of the current status.

The **Options** section tracks the sensors in the installed options of the printer and notifies the user of the current status.

Calibration

The **Calibration** sub-tab is divided into three sections:



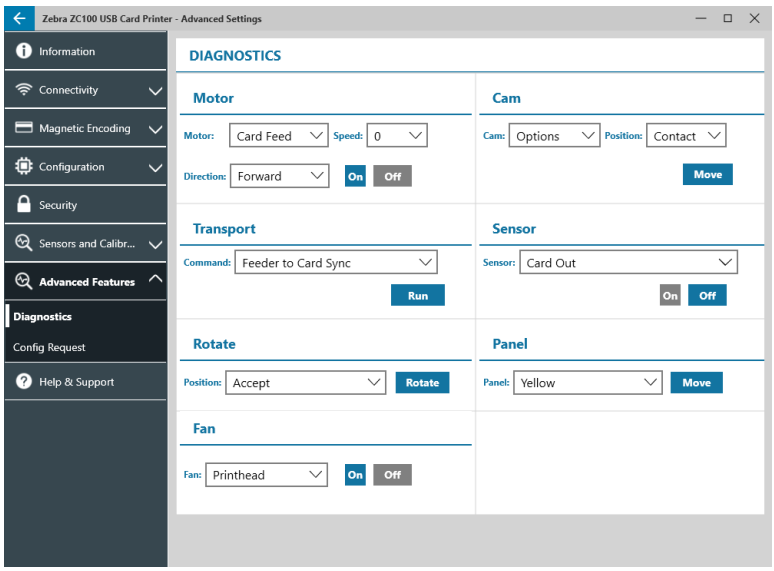
The **Printhead** section tracks the serial number and resistance value of the currently installed printhead. Use this section when installing a new printhead to enter new values.

The **Smartcard Offsets** sections identifies values for different smartcard types, and enables the user to change the values.

The **Calibration** section enables the user to calibrate certain sensors in the printer. This option can be used if a particular sensor is suspected to not be working properly. Currently, the only sensor available to calibrate is the Ribbon Detect Sensor.

Advanced Features

Important • The Advanced Features tab is password protected and should only be accessed by trained personnel.



When prompted, enter the password to access the Advanced Features.

The Advanced Features tab is divided into two sub-tabs:

- Diagnostics
- Config Request

Diagnostics

The **Diagnostics** sub-tab window is divided into seven sections:

- Motor
- Cam
- Transport
- Sensor
- Rotate
- Panel
- Fan

The **Motor** section enables the user to activate the motors individually. Select the motor, the motor speed (if applicable), and direction from the drop-down lists and click On. The motor will engage at the selected settings, click Off to disengage the motor.



WARNING • Do not engage the card feed motor with cards present in the input hopper or serious damage may result.



Note • Each motor can be engaged in either Forward or Reverse.

The Card Feed motor can be engaged at speeds ranging from 0–2000 in increments of 100.

- The Card X motor can be engaged at speeds of 1–20 in increments of 1.
- The Ribbon motor can be engaged at a single speed only.
- The Head Lift motor can be engaged at speeds of 0–2000 in increments of 100.
- The Options motor can be engaged at speeds of 0–2000 in increments of 100.
- The Flipper motor can be engaged at speeds of 0–2000 in increments of 100.

The **Cam** section is used to drive the lift cam for either the options module (if installed), or the printhead to be put into preset positions.

- The Options module can be set to Contact, Mag, or Home.
- The Printhead can be set to position A–E.

The **Transport** section sends cards to different locations in the printer.

- Feeder to Card Sync
- Card Sync to Options
- Engine to Flipper Hold
- Engine to Flipper Flip
- Engine to Flipper Eject
- Engine to Flipper Reject

- Flipper to Reject
- Flipper to Engine
- Options to Card Sync
- Engine to Exit

The **Sensor** section enables the user to turn different sensors on or off.

- Card Out
- Lid
- Printer Lock
- Card Feed

The **Rotate** section is used to move the flipper (if installed) to different positions.

- Accept
- Eject
- Reject
- Flipper Init
- Flipper Rotate to Home

The **Panel** section is used to move the specified ribbon panel into the ready position. The drop-down menu contents will vary depending on the ribbon installed.

The **Fan** section turns the cooling fan(s) on or off. Currently, only the printhead fan is supported.

Config Request

The **Config Request** section is divided into two sections:

The **Command Request** section is used to generate a secure request to change certain parameters of the printer. The user then sends this request to Zebra Technical Support.

Important • The request generated is specific to the printer and cannot be used on other printers.

The **Response** section is used to load the Zebra generated response for that specific printer.

Help and Support

See “Help & Support Tab” on page 8.

The Cleaning section in the Help and Support tab of the Advanced Settings utility has several additional setting to configure printer cleaning:

The **Clean Printer Error Mode** setting tells the printer to either Stop Printing when the cleaning notification occurs, or to Allow Printing (default). If the user sets the error mode to Stop Printing, cleaning must be done before any printing can continue. If the user sets the error mode to Allow Printing, printing can continue and cleaning can be done at a later time.

The **Cleaning Interval** determines how many cards can be printed before cleaning is required; the recommended (and default) value is 1,000 cards, and the maximum cleaning interval is 5,000 cards.



Important • Zebra does not recommend continued printing past the default cleaning interval as dust and debris will collect on the print surfaces and result in poor print quality.

The **Pre-Cleaning Count** displays a warning in the driver control panel and the printer display (ZC100 not applicable) showing the number of cards remaining before cleaning is due. The default value is twenty (20).

Printer Properties

To open the Printing Preferences Control Panel:

- Windows 7 – Select Start, then click **Devices and Printers**. Right click the Zebra ZCXXX Card Printer, and select **Printer properties** from the pop-up menu.
- Windows 8 – Press Windows + I and select **Control Panel** from the pop-up menu. Select **Hardware and Sound**, then select **Devices and Printers**. Right click the Zebra ZCXXX Card Printer, and select **Printer properties** from the pop-up menu.
- Windows 10 – Press Windows + I and select **Devices**, then select **Printers and Scanners**. Select the Zebra ZCXXX Card Printer and click **Manage**, and then select **Printer Properties**.

Sharing

On the Sharing tab (Sharing Property Page), you can choose to share the printer over the network and install additional drivers to accommodate different operating systems.

To share a printer, select **Share this printer**; and specify a name in the Share name field for the shared resource.

To change the shared name, simply enter a new name in the Share name field.

To quit sharing a printer, deselect **Share this printer**.

Render print job on client side check-box – This setting should be disabled if the host operating system is Windows Vista, Windows 7, Windows Server 2008, Windows Server 2008 R2, Windows 8, or Windows Server 2012.

Click on the **Additional Drivers** button if this printer is shared with users running different versions of Windows. Additional drivers can then be installed so that the users do not have to find the print driver when they connect to the shared printer.

Color Management

The optimal color profile is automatically selected when the card type is selected.

Color Management settings allow you to associate color profiles on the printer based on the type of media being used and printer configuration.

When you click on the Color Management button, you will see the following three tabs:

- Devices
- All Profiles
- Advanced

For details on color management, click on the Understanding color management settings link on the Color Management Devices tab.

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