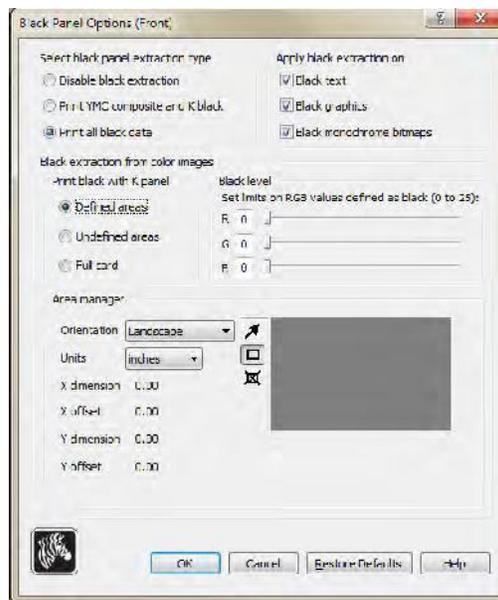## Black Panel Options

The Black Panel Options pop-up window allows you to manage and configure the use of the Black Panel (K panel) 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).

To access the Advanced Black Panel Options pop-up window, select *Start > Devices and Printers*. Right click on the *Zebra ZXP Series 8 Card Printer* listing, and select *Printing preferences > Card Setup*.

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.



To extract black areas from color images (use the K panel instead of the Y, M, and C panels), several selections must 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 YMC printed under the K), 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. Note that the areas that are identified as black are based on the threshold selections made in the black level area in the black extraction from color images area; see Page 84.

- **Apply black extraction on:**

    Option 1.  **Black text** applies black extraction to areas of the image identified as text; e.g., company name, address.

    

    Option 2.  **Black graphics** applies black extraction to areas of the image identified as graphics primitives; e.g., lines, circles, rectangles, area fills, etc.
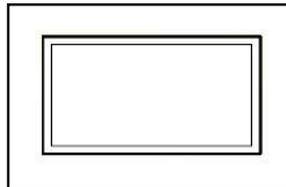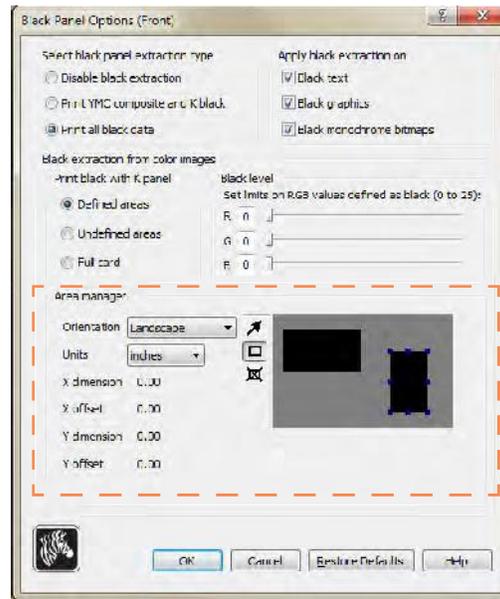
    

    Option 3.  **Black monochrome bitmaps** applies black extraction to areas of the image identified as monochrome data in a bitmap; e.g., logos.

- **Black extraction from color images**:



- - **Print black with K panel**:

    - **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.

    - **Full card** applies black extraction to the entire image.

  - **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 dot to be treated as black. The maximum setting is 25, 25, 25.

### Area manager:

This option is enabled when either the Defined areas (extract inside the zone) or the Undefined areas (extract outside the zone) radio button is selected.
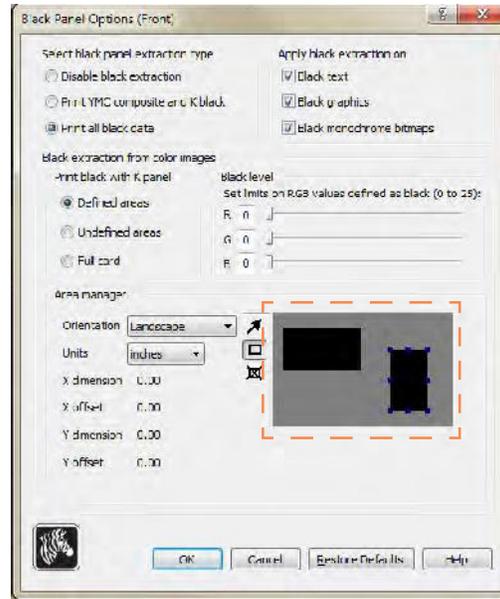


- • **Orientation**: The Orientation selection sets the image orientation to either Portrait or Landscape.

- • **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 on 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 on 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 on the zone that you want to delete.

### Reasons and Behavior for Black Panel Extraction

This section covers special handling of black data specified on the "Black Panel (K)" tab and applies only to surfaces of the card on which both YMC (color) and K (black) are to be printed.



To print black during the print process, equal amounts of process colors Y, M, and C (printer ribbon panels) are delivered, with maximum intensity, to create a near-black image.

- However, this "composite" image appears as a dark shade of gray and not machine readable. For example, a visually-black barcode printed with Y, M and C will not be detectable by most barcode readers and is not a true Visible Black color.

- The remedy for this is to "extract the black." In other words, print the same text, graphics, or barcode, using the K (black) panel, on top of the YMC barcode. (You can also choose to print only in K, omitting YMC from that region.)

Depending on the application used to design the card layout, different elements of the card image may be identified in different ways to the printer driver. The printer driver needs to recognize four types of basic elements:

1. Black text

2. Black (monochrome) graphics -- lines, circles, rectangles, and area fills

3. Black monochrome bitmap images

These elements may not always be sent to the driver as expected. For example, a barcode may be sent as black text, a series of black area fills, or a black monochrome bitmap. Results will depend on the application used to create the card design. Another variable, again controlled by the card design application, is the precedence (stacking order) of the various element types in the event that one or more of them overlap.

If the printer is set up to print both YMC and K on the same side, text, lines and pixels, area fills and monochrome bitmaps, if (and only if) designated black by the application, can be directed to the K panel. For this to happen, the graphic type in question has to be selected on the "Black Panel (K)" tab. For text, lines and pixels, area fills and monochrome bitmaps the designation "black" is set at RGB values of 0,0,0. This threshold can be adjusted up to 25,25.25, with the Black level slider adjustment. Near-black doesn't qualify.

In the Black Panel (K) tab, the "element selection" portion is straightforward – simply designate any or all of the four graphic types to be printed in K, either K alone, or over process black (YMC).

In the Black Panel (K) tab, the "element selection" portion is straightforward – simply designate any or all of the four graphic types to be printed in K, either K alone, or over process black (YMC).

Black extraction is quite different. It applies only to the fourth graphic type – the color bitmap image.To perform black extraction, the driver generates a K image by looking for black features (pixels) in the color bitmap, that is, instances where all three YMC values are at, or close to, the maximum (full intensity). Each such true-black or near-black instance generates a corresponding cluster of black pixels in the extracted image, which will be printed with the K (black) panel either on top of the YMC image, or replacing it entirely – your choice.

 A problem that can arise when K is extracted from an entire card image is over-emphasis of every black cluster; e.g., dark hair in a portrait photo or scenic background. K overprinting in such areas can be displeasing. To deal with this, set up exclusion zones within which no extraction is performed. Six such areas are provided for on each side of the card, independently. In the default state, all areas are null (0,0 offsets, and zero size).

There is a choice of black extraction within the defined areas or outside the defined areas; see for details.