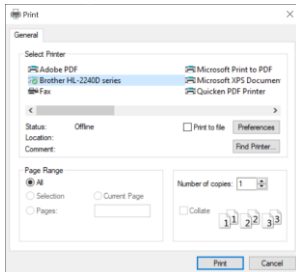


# Printing

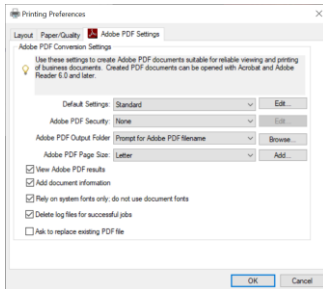
Last Updated: 30-Jan-2019

# The Print Command

The File / Print command prints the current image. However, the first thing it does is to display the standard Windows Print dialog box. Use this dialog box to select the printer and settings such as the page size, orientation, resolution and number of copies.



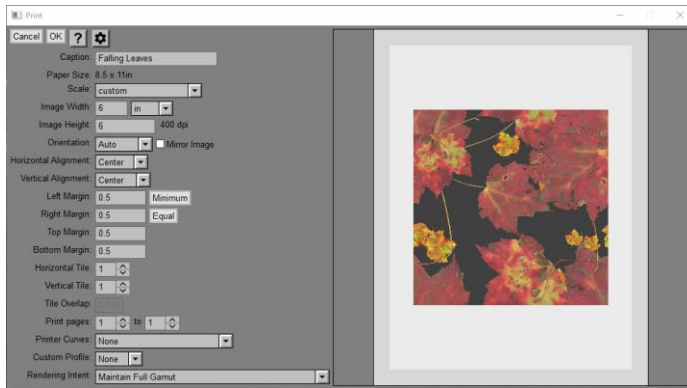
If you need to change printer-specific settings, click the Preferences button to get to the Print Preferences dialog box specific to the printer you have selected.



When you are ready to proceed, click OK.

# The Print Dialog Box

Once you finish with the Windows Print dialog box, Picture Window displays its Print dialog box:



## Cropping the Image

Picture Window displays a cropping rectangle as an overlay on the image you are printing. Initially, the cropping rectangle covers the entire image, but you can resize or reposition it by dragging its corners, sides, or interior. Only the part of the image inside the cropping rectangle is printed. Depending on the Scale setting, the proportions of the cropping rectangle may be constrained to match the custom image size.

## Page Preview

A page preview area occupies the right-hand side of the Print dialog box. The page preview is a scaled down representation of the output page as it will be printed so you can check the size, margins and orientation of the image. The darker gray area around the image represents the margins. The lighter gray represents parts of the page not covered by the image. This is for informational purposes only—these gray areas both print as paper white and not as gray.

You can adjust the size the preview by resizing the Print dialog box.

## Caption

Text you enter into the caption control is printed in the upper left-hand corner of the page. This is intended for identification purposes only—to label an image with full control over the font, color, text placement, etc. use the Text or Layout Transformation prior to printing.

## Paper Size

The size of the paper you selected in the Windows Print dialog box is displayed in the current units.

## Scale

This setting lets you control how you want the image scaled.

### **to image dimensions**

The image is printed at the size computed from its dpi setting and dimensions in pixels. If this size exceeds the available space between the margins, the image is automatically scaled to fit page.

### **one to one**

The image is printed at the printer resolution, regardless of the dpi setting of the image. Using this option one pixel in the image equals one pixel in printer coordinates. If the resulting image size exceeds the available print area between the current margins, the image is automatically scaled to fit page.

Note that most inkjet printers have a driver resolution lower than the actual size of a printer dot since it takes a group of dots to represent a pixel – for example a 2880 dpi Epson printer might actually have a driver resolution of 720 dpi.

### **to fit page**

The image is scaled as large as possible without altering its proportions to fit the space between the margins.

### **custom**

This lets you enter the image width and height in the current units. If you enter a size too large for the available print area, the image is automatically reduced to fit the page. The proportions of the cropping rectangle are constrained to match the custom dimensions you enter.

The image is always scaled by the same amount horizontally and vertically to avoid stretching it.

The location of the image on the page can be controlled by adjusting the margins and horizontal/vertical alignment. For example, to move the image to the right, increase the left margin and set Horizontal Alignment to Left.

## **Image Width/Height**

The size of the image as it will appear on the page is displayed in the current units. If the custom scale option is selected, you can enter custom values for the image width or height. Otherwise these controls are grayed out.

### **Units**

This setting (located just to the right of Image Width) lets you work in inches, millimeters, or centimeters.

### **Image dpi**

This readout can be used to get some idea of print quality before printing the image. The dpi (dots per inch) setting displayed next to the Image Height is computed by dividing the width of the image (or the part of the image being printed) in pixels by the width of the image in inches on the paper.

If the resulting value falls below 150 dpi, at a normal viewing distance, the resulting print will likely start to look soft. Printing at resolutions beyond 300 dpi is likely to provide little improvement in perceived image sharpness.

### **Orientation**

This control lets you print the image rotated 90 degrees to better match the paper size.

#### **Normal**

The image is sent to the printer unrotated.

#### **Rotated**

The image is rotated 90 degrees and printed on its side. This setting is useful for printing images that have landscape proportions on a page with a portrait orientation or vice versa.

#### **Auto**

The image is printed in whatever orientation yields the largest possible image size when combined with scale to fit page.

The Mirror Image checkbox lets you print the image reflected left to right—useful for certain types of printmaking.

## Horizontal and Vertical Alignment

These settings let you control where the image is printed if it is smaller than the printable area (the available space between the left and right or top and bottom margins). Horizontal Alignment lets you line up the image with the left edge, the center, or the right edge of the printable area. Vertical alignment lets you line up the image with the top edge, the center, or the bottom edge of the printable area.

## Margins

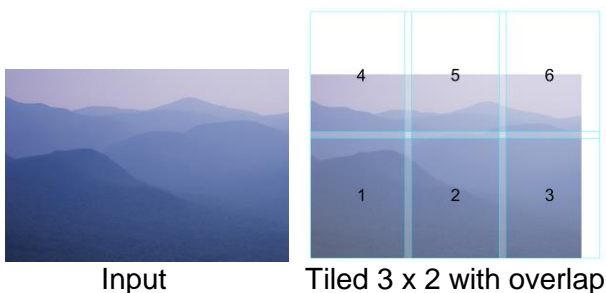
These four controls let you enter the Left, Right, Top, and Bottom margins in the current units. If you attempt to set any of the margins to values smaller than the minimum margins supported by the printer, they will revert automatically to the minimum legal values. You will also get an error if you set the margins so large that there is no room left for the image.

Clicking the Minimum button next to the left margin setting resets all four margins to their minimum legal values for the current printer.

Clicking the Equal button next to the right margin setting sets the right, top and bottom margins equal to the left margin.

## Tiled Printing

The Tile controls let you print images larger than a single page by breaking them into sections called tiles. The final image is then assembled by trimming and mounting the tiles together into a single, large composite image. You can print very large using this method (up to 20 by 20 tiles), assuming you have the patience, the paper, and a reliable printer.



The Horizontal Tile setting specifies how many pages wide to print and the Vertical Tile setting specifies how many pages tall to print. To print normally, leave these set at 1.

Guide lines are displayed on the page preview image to show the tile boundaries. Once you start printing, the image is automatically broken up into tiles and each one is printed on a separate page.

The overlap between tiles (in the current units) is controlled by the Overlap setting. With overlap set to zero, adjacent tiles will just fit together if they are trimmed perfectly at the edge of the image. Setting a larger overlap value leaves you some room for error when trimming the edges.

When printing a tiled image, you may need to reprint a subset of the pages if a printer error occurs. The Print Pages setting lets you specify a range of pages to print—pages outside this range are skipped.

## Custom Profile and Rendering Intent

When printing an image with color management enabled, Custom Profile and Rendering Intent controls are displayed at the bottom of the Print dialog box.

If you select a custom profile Picture Window transforms your image from its native color space using the specified profile before sending it to the printer. This requires that you have a profile for your printer -- sometimes generic profiles are supplied with the printer driver or from the paper manufacturer. Or for the most accurate results you can use a color profiling program to create a custom profile for the printer, inks, and paper you are using. In this case you must disable any color management or color adjustment by the printer.

The Rendering Intent control lets you specify how colors are transformed from the original image color space to the printer color space:

### **Maintain Full Gamut**

Expands or contracts the full image gamut to cover the full printer gamut. This is the normal setting for photographic images.

### **Preserve Saturation**

Gives priority to matching saturation when searching for the printer colors that best match the corresponding image colors. This setting is intended for use with business graphics such as charts.

### **Preserve Identical Colors**

Match printer colors as accurately as possible to the corresponding image colors. This setting is useful when an absolute match is required as in printing an image of a sweater in a catalog that needs to be as close as possible to the color of the actual sweater.

### **Preserve Identical Colors and White Point**

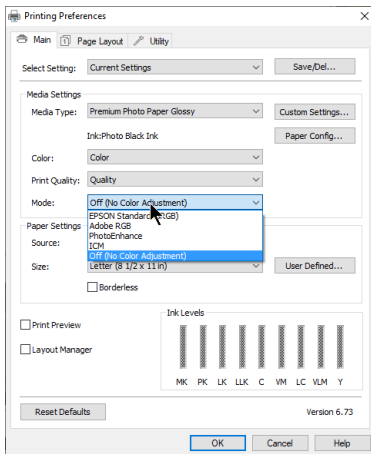
Match printer colors as accurately as possible to the corresponding image colors while keeping white unchanged.

### **Preserve Identical Colors and Black Point**

Match printer colors as accurately as possible to the corresponding image colors while keeping black unchanged.

# Printing without Color Management

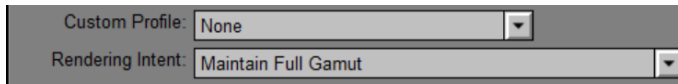
To print without using color management, convert your image to sRGB or AdobeRGB and set the Custom Profile to None. Then let the driver control color by selecting sRGB or AdobeRGB as the Mode (see below for an example using the Epson P800).



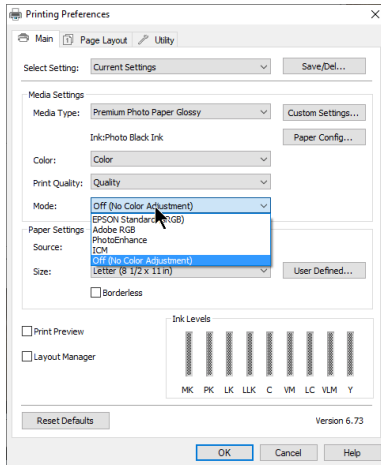


# Printing with Color Management

There are two ways to print using color management. These differ as to how you set the Custom Profile at the bottom of Picture Window's Print dialog box:



And how you configure the printer driver (Epson P800 used as an example)



## Let the printer driver do the work

In this scenario, you set Custom Profile to None and tell the printer driver to handle color management by selecting sRGB, Adobe RGB or ICM, if the image is in sRGB, Adobe RGB or some other color space. This usually works well if you are using inks and media supported by the printer manufacturer.

## Use a printer profile

Use this scenario if you are using non-standard media or inks and you have a custom profile for your printer that was created for the inks and media you are using. Set the Custom Profile to the printer profile and tell the printer driver to print with No Color Adjustment.

Either of these two methods can produce good results, with the custom profile giving a little more control. Don't try to mix and match them however or you may get either no color management or color management applied twice.

# Monitor/Printer curves

Monitor/Printer Curves let you make the print look more nearly like the image displayed on your monitor. The preview reflects any printer curves you may have selected, so you should see a change in the image when you select a set of curves.

## Monitor/Printer Curves

Color management engines generally assume prints will be viewed under optimum conditions, namely strong illumination by an ideal light source. In the real world, bright enough illumination with the desired spectral properties can be hard to find, and prints viewed under non-ideal conditions may not match what you see on your monitor very well. The most common problem is moderate or subdued lighting which make prints look murky with considerable loss of shadow detail. Other problems such as prints looking too blue or too yellow can be caused by deviation of the illuminant color temperature from the white point to which your monitor is calibrated.

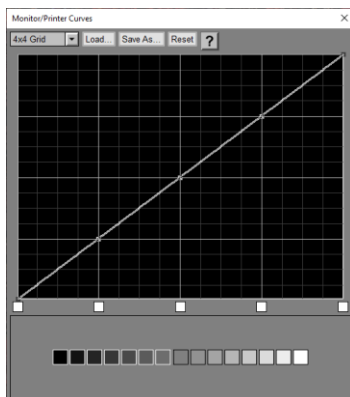
Picture Window's File / Monitor/Printer Curves command can help you get a better monitor to printer match by letting you alter the monitor display of a test image to look like a print of that image.

Monitor curves are simply a set of color curves applied to all images as they are displayed. To create a custom set of monitor curves, first print the test file Gray Wedge 15.tif that we supply:



Or you can use one of your own images so long as it has both shadow and highlight detail and enough mid-tones to fill out the entire tonal range.

Next, open the image in a window and select the File/Monitor/Printer Curves command from the main menu. This displays the Monitor/Printer Curves dialog box:

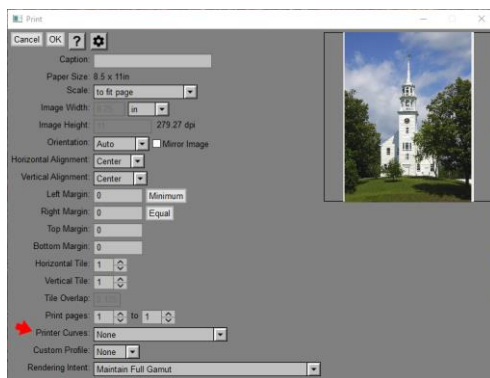


If the print looks darker than the screen, drag middle three control points downward to darken the image on the screen until it matches the print. Normally you will want to leave the black (leftmost) and white (rightmost) control points in their initial corner positions.

Once you get a good tonal range match, if there are residual color casts in any part of the tonal range, click on one of the white boxes below the curves and adjust the color for the corresponding part of the brightness range. For example, if the screen is yellower than the print, make the color more blue and vice versa.

When you save the monitor curves, corresponding inverse monitor curves are created saved as printer curves.

When you exit Monitor/Printer Curves, the screen display is returned to normal, but Picture Window can use the printer curves you created when you make prints. In the Print dialog box, select the printer curves you created.



If the monitor curves darkened the on-screen image, applying the corresponding printer curves will lighten the image by the same amount before printing and vice versa. The current monitor curves are saved and reloaded automatically from session to session so you only need to create them the first time. In addition, you can save or reload monitor curves manually and create a library of different curves for different printers or viewing conditions and switch between them.

# Tips

## Printing crop marks

To add crop marks to an image, use the Crop Marks transformation before printing. Crop marks are a useful aid in trimming prints to exact dimensions.

## Printing multiple images on a page

To create multi-image page layouts, first use the Layout Transformation to create a single image at the desired resolution and then print the composite image.

## Printing images at a specific size

To print an image at a specific size, set the Scale to Custom and enter the desired image width into the Image Width control and then (after waiting for the preview to update) the desired image height into to Image Height control. Once you have entered the desired size, if the proportions of the print don't already match those of the image, adjust the cropping rectangle displayed over the window of the image you are printing to the part of the image you want to print.

## Printing images at a specific location on the page

To position the printed image off-center on the page, adjust the left/right or top/bottom margins.

## If your prints are too dark...

There are several causes of this problem:

Your monitor is too bright—using a monitor calibrator can help you set your monitor to a standard brightness level. Using a high monitor brightness setting makes on-screen images look more luminous, but printers cannot duplicate the contrast range of a high dynamic range monitor so prints will look dull by comparison.

You are viewing prints is too dim a light. The standard viewing light for prints is actually quite bright. Viewing prints in dimmer light makes them look muddy and obscures shadow detail.

The image is dark. Check the histogram and make sure it runs all the way to white or close to it.

If your prints are still consistently coming out too dark, consider creating a set of Monitor/Printer curves as described above.