

Producing output from PhotoDisc

Using PhotoDisc Images for On-screen Presentations and Multimedia

PhotoDisc images can easily be used as a part of your on-screen presentations and multimedia projects. Each of the images comes ready to use for any on-screen purpose in 72 dpi TIFF format. Simply import the image into any presentation or multimedia program that supports the TIFF format. If your presentation or multimedia program does not support TIFF format, you may convert your PhotoDisc images to PICT (for Macintosh users) or BITMAP (for PC users) in many popular image manipulation software applications.

Calibrating your monitor

For on-screen presentations or multimedia uses, the computer screen is your final output. For PhotoDisc images to look their best, it is important to calibrate your monitor to accurately represent color on the screen. In some cases, calibration may be done by a utility or special piece of hardware provided by the monitor manufacturer. Some applications also provide their own calibration software. Consult the documentation from your monitor or software application on how to best calibrate color images for on-screen purposes. If neither your monitor or software program provides calibration, you should at least adjust the contrast and brightness of the monitor to display the images according to your preferences.

Printing PhotoDisc Images to Desktop Printers and Film Recorders

PhotoDisc images can be used to create a variety of publications, graphics or presentations which may be printed to color or black & white desktop printers or film recorders. After printing the original, additional copies can be created using a black & white copier, color copier or slide duplication mechanism.

To use PhotoDisc images when printing to a desktop printer or film recorder:

1. Locate the desired image(s) in the full-color printed catalog.
2. Copy the desired image(s) from the CD-ROM disc to your hard disk.
3. Open or import the image(s) in your desktop publishing, graphics or presentation program.
4. Make sure you have the necessary printer driver selected for the particular device.
5. Print a sample page to ensure that the results are correct.
6. Print out the page(s) or slide(s) to the device by following the instructions provided with your page layout program.

On-screen images versus printed results

You may notice a difference between the way PhotoDisc images look on your monitor and the way they appear after printing to a desktop color printer. Colors and the overall lightness or darkness of the image may vary due to the different ways a monitor displays a photograph and the way a desktop printer creates its output.

The CMYK TIFF and CMYK EPS formats tend to produce better overall results. You may want to convert your images from RGB to this format before printing to a desktop color printer. Even though many programs automatically convert RGB to CMYK during printing, making the conversion yourself will allow you to see a better on-screen representation of your printed output.

The best thing to do is to print out a test page to the printer to determine the types of variances you can expect. Once these variances are determined, you can compensate before you print the complete job to the desktop color printer.

Producing Color Separations from PhotoDisc Images

All PhotoDisc images come ready to use as your final images for four-color separations. Most volumes contain images that have been optimized for a 150-line screen output. Larger files are available for most PhotoDisc volumes. Please call PhotoDisc Customer Service at 1 800 528 3472.

By following the guidelines below, you can determine how to get the best results producing four-color separations with PhotoDisc images. As always with four-color process printing, it is best to discuss all of the details of your publication with a representative at your commercial printer before you create the final film output.

Determining image resolution

To produce a high-quality separation of a color image, you need to ensure there is enough data to create the proper halftone dots. There are three factors that determine the quality of printed images.

Image resolution, measured in pixels per inch (ppi). This represents the density of data stored within the image file. All else being equal, higher resolutions create larger image files. Larger files can produce better results but require more time by the computer and imagesetter to process.

Printer resolution, measured in dots per inch (dpi). This is the amount of detail that the printer or imagesetter will produce such as 1270 or 2450 dpi. The higher the dpi, the better the ability the printer has to create accurate halftone dots.

Screen frequency (or screen ruling), measured in lines per inch (lpi). This determines the visual quality of the final printed picture. As you increase the lpi, the picture will show more detail and appear sharper. Other factors contribute to what screen frequency should be used such as the type of press and paper stock the picture is printed on.

We recommend the image resolution be twice the screen frequency of the color separations. For example, if you want to print the image at 150 lpi, the image resolution should be 300 ppi. Remember the following guideline: **recommended ppi = desired lpi x 2**

Note that resizing an image directly can change the effective image resolution. When increasing or decreasing the resolution of a PhotoDisc image, be sure to constrain file size. Doing so will ensure that your resolution adjustment will result in the largest possible image dimensions for the new resolution.

Making images smaller: If you want to use PhotoDisc images smaller than the standard inch size, you can reduce the file size without sacrificing any quality. By reducing the file size, you can save hard disk space as well as cut down the processing time of your computer and the imagesetter.

Making images larger: PhotoDisc images have been optimized for a screen frequency of 150 lpi. You can, however, print the images at a larger size. For the best quality, remember the general guideline of keeping the image resolution (ppi) equal to twice the screen frequency (lpi). Here are some of the possible ways to use PhotoDisc images at larger sizes:

Resample the image to a higher resolution. Many image editing programs will allow you to resample an image to a higher resolution. Resampling will enable you to maintain the 2 to 1 ratio of ppi to lpi. Software programs are able to add data to your image by interpolating the colors of adjacent pixels in the image. This can cause the image to appear somewhat out of focus or blurry. To compensate for this, you may want to apply a sharpening filter to the image to eliminate some of the blurriness. We recommend that you experiment with this technique to determine if the results will be satisfactory for your needs.

Use a lower ppi to lpi ratio, such as 1.5 to 1. The recommendation of the image resolution (ppi) equaling twice the screen frequency (lpi) is to ensure the highest quality. You can go below this ratio with relatively little noticeable difference in quality. You should never go below a 1 to 1 ratio of ppi to lpi. Be sure to experiment with different ratios to determine which works best for your requirements.

Ensuring the best results

There are many factors which affect the quality of four-color printed publications. Here are some suggestions to help ensure the best results possible. As always, we recommend that you work closely with the representative from your commercial printer.

Calibrate your system: Your system and environment can determine the quality of your results. Here are some general guidelines we recommend:

Calibrate your monitor daily. Use the method prescribed by your monitor manufacturer or see the section earlier in this manual on calibrating monitors.

Calibrate your desktop color printer as prescribed by the manufacturer. Without proper calibration, these results will not be of much use.

Calibrate your imagesetter daily. This is the most critical part because this is the device that creates the film output that the commercial printer will use to create printing plates.

Proof your results: Four-color printing is a very expensive process and mistakes can be very costly. One of the best ways to avoid mistakes is to proof your work through the various stages of the production cycle. Here are 2 important types of proofs you should make as you create your publication:

1. Print to a color desktop printer to check the overall publication for errors and to obtain general color information. While your actual commercially printed piece will vary substantially from that of a desktop color printer, you can use desktop output to obtain general information about the color images.

2. After creating the color separations, have a Chromalin, MatchPrint or other proof created which uses the actual film separations. This is the most reliable proof you can use and we recommend that you use this type of proof for every four-color printing job you create. The representative from your commercial printer will be able to explain any differences you might expect from this proof and your actual printed piece.

Select the right service bureau:

If you plan to work with a service bureau to create your color separations, here are some things to consider:

- Ask to see samples of some four-color images they have separated.
- Do they have an imagesetter dedicated to film output?
- How often do they calibrate their imagesetter?
- Do they have a technician available to assist you if any problems arise?

You should also check to see how the service bureau wants you to deliver your files. You may be asked to deliver your files in one of two ways:

In the file format of the program that created it. If you are using a desktop publishing program such as Aldus PageMaker or QuarkXPress, the service bureau may simply want you to give them a copy of your PageMaker or QuarkXPress file. Remember that these programs maintain links to high-resolution image files. This means that you will need to provide a copy of every image file you are using along with the desktop publishing file. Check the documentation of your page layout program for further details regarding file linking.

As a PostScript file. Some service bureaus prefer that you provide a PostScript version of your file that has all of the separation information included in it. If this is the case, make sure your PhotoDisc images are properly linked to your page layout program before you create the PostScript file. Also, double check all of the separation settings to ensure the correct results.

GLOSSARY

Bitmap image - An image with 1 bit of color information per pixel, also known as a bitmapped image. The only colors displayed in a bitmapped image are black and white.

Brightness - One of three dimensions of color; the other two are hue and saturation. The term is used to describe differences in the intensity of light reflected from or transmitted through an image independent of its hue and saturation.

CMYK image A four-channel image containing a cyan, magenta, yellow and black channel. A CMYK image is generally used to print a color separation.

Color correction - The changing of the colors of pixels in an image, including adjusting brightness, contrast, mid-level grays, hue and saturation to achieve optimum printed results.

Color proof - A representation of the final printed product, to check color accuracy and other elements.

Color separation - The process of splitting full-color artwork into its CMYK components; one or all four of the separate pieces of film from which a four-color version will be printed.

Continuous-tone image - An image containing gradient tones from black to white.

Contrast - The tonal gradation between the highlights, midtones and shadows in an image.

DPI-dots per inch - a measure of image resolution.

Four-color process printing - The basic method of re-creating a broad spectrum of colors on a printing press.

Grayscale image - An image consisting of up to 256 levels of gray, with 8 bits of color data per pixel.

Halftone - The reproduction of a continuous-tone image, made by using a screen that breaks the image into various size dots.

Highlight - The lightest part of an image, represented in a halftone by the smallest dots or the absence of dots.

Hue - The main attribute of a color that distinguishes it from other colors.

Image resolution - The amount of data stored in an image file, measured in pixels per inch (ppi).

JPEG Joint Photographic Experts Group - This group established a standard method for compressing and decompressing digitized photos and images. The high-resolution images from PhotoDisc are compressed according to JPEG standards.

LPI-lines per inch - a measure of resolution, usually screen frequency in halftones.

Luminance lightness - the highest of the individual RGB values plus the lowest of the individual RGB values, divided by two; a component of a Hue-Saturation-Lightness image.

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Midtone - Tonal value of dot, located approximately halfway between the highlight value and the shadow value.

Moire pattern - An undesirable pattern in color printing, resulting from incorrect screen angles of overprinting halftones. Moire patterns can be minimized with the use of proper screen angles.

Pixel - A single dot on a computer display or in a digital image.

PICT - A standard file format for exchanging graphics or image information.

PPI - Pixels per inch, a measure of the resolution of a computer display or digital image.

Printer resolution - The amount of detail a printer or imagesetter will reproduce, measured in dots per inch (dpi).

Process color - The four color pigments-cyan, magenta, yellow and black-used in color printing.

Resample - To change the resolution of an image. Resampling down discards pixel information in an image; resampling up adds pixel information through interpolation.

Resolution - The number of pixels per inch in an image, or the number of dots per inch used by an output device.

RGB - Red, green and blue, the additive primaries; RGB is the basic additive color model used for color video display, as on a computer monitor.

Saturation - The amount of gray in a color. More gray in a color means lower saturation; less gray in a color means higher saturation.

Screen angle - The angle at which the halftone screens are placed in relation to one another.

Screen frequency - The density of dots on the halftone screen, commonly measured in lines per inch (lpi). Also known as screen ruling.

Shadow - The darkest part of an image, represented in a halftone by the largest dots.

Thumbnails - Miniature pictures, resembling slides, that the LightBox catalog displays. Each thumbnail contains specific information for each image from PhotoDisc.

TIFF - Tagged Image File Format, a file format for exchanging bitmapped and grayscale images among applications.

Answers to Commonly Asked Questions about PhotoDisc

What is the difference between the JPEG and TIFF images I find on my PhotoDisc volume?

Every PhotoDisc volume contains both high and low resolution versions of each image. The low resolution images are screen resolution (72 pixels per inch) RGB TIFF files—ideal for laser comps, for position only (FPO) layouts and on-screen previews. The high resolution images are print quality (300 pixels per inch) JPEG-compressed RGB TIFF files. Once decompressed, these images can be converted to CMYK, saved to your hard drive, digitally manipulated and ultimately placed into your page layout program.

Why are PhotoDisc images in RGB format instead of CMYK?

PhotoDisc images are meant to be as versatile as possible for the end user. When an RGB image is converted to CMYK, several parameters must be taken into consideration. Things like paper stock, 4-color film output device, layout software programs used, types of inks used and special effects intended by you, the designer. We don't want to make these decisions for you. We would rather you have the control in deciding exactly how your images are converted to CMYK.

How can I get PhotoDisc images into CMYK format?

There are a number of excellent image manipulation software tools you can buy that include RGB-to-CMYK color conversion in their feature sets. Of these, Adobe Photoshop, Aldus PhotoStyler, CorelDraw! and Quark XPress are among the best. Photoshop, PhotoStyler, and CorelDraw! convert the image files to CMYK before placement into a page layout program while Quark XPress converts RGB files "on the fly" during Raster Image Processing ("RIP"ing) on a four-color film output device. Check the documentation of your digital image manipulation software for more details.

