

4imprint®
Blue Papers™



Logo and Printing Primer

Logo Printing Primer

Knowing a few basics about file formats and color can save you lots of money and headaches when printing your logo. Find out what file formats you should get when your logo is designed and learn how to manage your files to get optimum flexibility at the lowest cost.

There's little room for error. One mistake could cost your company thousands of dollars or unmeasured amounts of credibility.

No, we're not talking about accounting practices. We're talking about ordering a print job. It can be an overwhelming experience. Everything must be just right, from the text and image layout to the printing itself. The minute you sign your approval on a proof, you become personally responsible for the outcome of that project.

For many companies, printing is a significant expense. If the job doesn't come out right, they can ill-afford to redo it. Unfortunately, it's primarily larger organizations that have professional designers on staff who can oversee such projects. In many companies, ordering critical collateral like letterhead and brochures is assigned to the sales staff or office manager. The responsibility is enough to give anyone butterflies, or at the very least, a headache!

To make matters worse, the commercial printing and graphic design industry can be baffling to the average professional. Terms like screen, varnish, dot gain, and bleed get bandied about in the same way your computer technician waxes poetic about the external network connectivity or your DNS server configurations. This is technical stuff, and people study for years to learn the graphics and printing craft.

Fortunately, most printers and graphic designers do a great job of holding their clients' hands through the process. But even with the most conscientious vendors, it can be challenging to understand terminology you aren't familiar with.

So it's time to get educated. We're going to cover some basic printing and design elements as they relate to logo design. But, be forewarned. This paper isn't meant to be comprehensive and there are lots of digital and software enhancements that will soon make some of these issues completely



transparent to you in the near future. But for now, it's a good idea to understand a few basic concepts that will make your next printing job go a lot smoother.

Heck, you may even save some money. Certainly, your printer will thank you. And with a few less butterflies floating around, your stomach will thank you too.

File Formats

To maintain your logo's integrity and save money at the printer, you should have a basic understanding of file extensions.

You've probably seen them thousands of times, but do you know what they actually stand for?

JPEG Bitmaps	.jpg
TIFF Bitmap	.tif
Encapsulated PostScript	.eps
Adobe Illustrator	.ai
CompuServe Bitmap	.gif
Corel Draw	.cdr
OS/2 Bitmap	.bmp

But that still doesn't explain much. Think of extensions as the descriptors of the software the images were created in.

Images are actually created in two main file formats (not extensions): vector and raster.

Vector images are line art. It's like drawing a sketch on a piece of paper. Each arch and curve and line is a vector. Vector graphics are sharper, more flexible, and can be sized infinitely with perfect clarity. Vector images are created using professional design software such as Adobe Illustrator, CorelDRAW, or Macromedia Freehand. These images will generally have a file extension of .cdr, .ai or .eps.



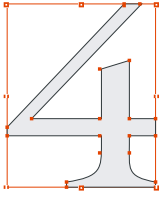
Vector image



Vector image

Because vector formats are created mathematically, vector graphics can be

resized without losing image quality. The formulas simply recalculate to scale and reproduce the lines based on the ratios between points.



How your computer views a vector image

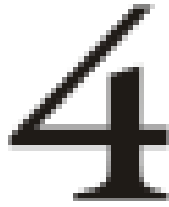
Raster graphics, on the other hand, are bitmapped images based on pixels, or points of color that work together to make up a picture. Each point is individually defined, which make raster images work best for photographs or paintings because pixels can have more depth and texture.



Raster web image



High quality raster image



Low quality raster image

With raster images, the image cannot readily adjust itself to new sizes. Instead, when an image is enlarged the pixels (points of color) get farther and farther apart, creating jagged edges and uneven color. To identify a raster image, look for file extensions such as .gif, .bmp, .jpg, or .tif.



How your computer views a raster image

Format Usage

Since vector formats seem so superior, why even use raster images? First, high quality raster images capture more detail or visual texture than vector graphics. Raster is the appropriate format for photographs or photo-quality images. Raster images are also ideal for electronic display. The quality of raster images is referred to as resolution or dots per inch (dpi). Low resolution images have fewer dots per inch. That means the dots that make up your image are farther apart. Low resolution images, commonly 72 dpi,

papers
pa
pe
B

are ideal for web display. High resolution images, or 300 dpi, are required for printing.

For web pages or email marketing, .jpg and .gif file extensions are the best. These are lower resolution images that take up little file space and will load faster on the screen. As indicated above, they lose image quality when expanded so they are not ideal if resizing is needed.

For in-office printing or use in Microsoft Office applications, .tif files are most appropriate, although a high resolution .jpg can also be used.

It's best if raster file versions have been created from a vector parent file, especially if there will ever be a need to significantly alter the size. Again, vector files can be scaled up or down without losing image quality and are easily edited and manipulated.

Say you wanted to embroider a shirt. For the embroidery to display properly, your logo may need some slight tweaking. The line thickness may need to be increased or the space between letters expanded in order for the stitching to appear its crispest.

With a vector file, the designer can open the image and make the changes with a few clicks. With raster images, those modifications are far more challenging.

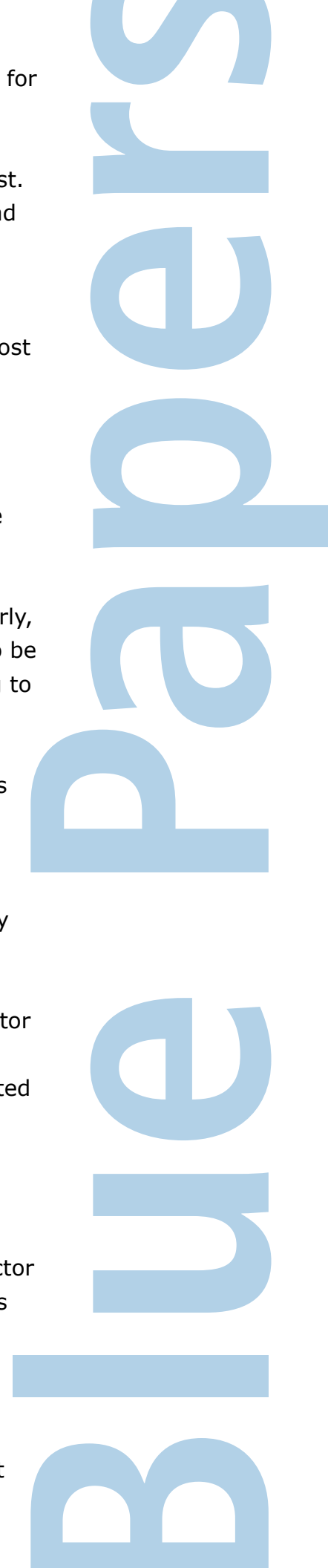
Even if the logo doesn't need modifying, vector files may still be necessary for specialty processes such as embroidery or cut vinyl signs.

With laser cut signs, for example, the machine follows the lines of the vector image like a map, plotting from one point to the next. Laser cuts aren't possible with raster images at this time. Instead the image has to be printed and then adhered to the sign base.

Requesting Files from your Designer

Sometimes graphic designers don't supply customers with the original vector logo files. A designer might not share these files because he or she figures the customer a) doesn't know what a .cdr, .ai or .eps file is, and b) won't have the software to use it anyway.

And that's true. Most business owners don't have the software to use vector files. If you always work with the same graphic designer, you might



not see the need to have them. Your designer can take care of modifying the file and supplying it to printers, right?

Unfortunately, providing original vector files, while definitely a best practice, does not always happen. In some cases, designers will reap recurring revenues by charging a small service fee every time you need your artwork sent to another vendor like a sign maker or a promotional products company. It's hand holding, but it's expensive and you don't necessarily need it. If you keep vector versions of your logo on file, you'll have what you need to work with any vendor.

Another frequent problem with not obtaining your files immediately often presents itself months or even years after the file's initial design. Some designers may charge you a fee for the time spent digging it out of their archives and sending an email. Designers could go out of business or simply lose your file (it happens). Or you could have turnover at your company, so that no one knows who created the logo in the first place.

If the original vector artwork can't be located, you'll need to have another graphic designer redraw your logo into a vector image. While software applications are getting better, they still can't readily convert a raster image back to vector. Sophisticated design software will create a trace of the image which must then be manually retouched (sometimes painstakingly) to duplicate the original graphic. Some companies will charge a few hundred dollars for "logo repair" to convert your raster artwork into a vector file format.

Don't put yourself in this position. Make a list of all the file versions you want and request them from your designer up front. For every version of your logo, you should receive the vector source image and at least a .jpg or .tif file. Better yet, get a low resolution .jpg or .gif that can be used on the web and a higher resolution .tif for office printing.

Be sure to get the files for every version of your logo—color, black and white, and reverse.



Printers
Paper
e
u
B

If you have common office applications, like Microsoft Office, you should also ask for a copy of your logo with a clear background that will be compatible with these programs. Ever tried to lay your logo over a color background in PowerPoint only to discover it has a solid white box around it? Your designer can solve this problem by developing a raster image with a transparent background.

Color: Vector versus Raster

In vector images, color is simply flooded in to the closed space between image lines—just like coloring in a coloring book. In raster images, each pixel is designated a separate color, so it's more like a tile mosaic. This difference between the two impacts the printing method you can use and the file format you provide the printer.

So let's break down the printing methods first. To print full-color photos, a printer must first separate the photo into the four basic ink colors: **C**yan (aqua), **M**agenta (pink), **Y**ellow, and black. (Black is signified with a **K** in reference to an old printing term in which black was applied by the Key plate. But you don't need to remember that.) What you need to understand is that CMYK uses the color mixing concepts similar to the ones you learned in grade school. Magenta and yellow make red, magenta and cyan make blue, and cyan plus yellow makes green. Each single-color layer is then printed separately, one on top of the other, to give the impression of infinite colors. This type of color separation, mixing three or four colors to produce an infinite variety of colors, is called *process color separation* or *4-color process*.



Conversely, spot color separation is used to reproduce colors that should not be mixed. In this situation, each 'spot' color is represented by its own ink, which is specially mixed and generally matched to a PMS or Pantone® color. PMS or Pantone Matching System® is a standardized color palette for consistent color application in the graphic design and printing industries. When you specify a Pantone® color, you get the exact same shade no matter who prints it. Spot colors are effective for emphasizing text and images, but they cannot be used to reproduce full-color images.¹

¹ http://www.webopedia.com/TERM/C/color_separation.html. Cited October 2006.

Most logos are designed to use spot colors since it is typically cheaper to print them and more precise. 4-color process is only as good as the accuracy of the dot sizes. Spot color also typically requires fewer passes on the press; however it typically becomes cost prohibitive when the print job is more than three colors. Each color is applied with a different printing plate, and one color is printed on each run through the press. For example, for a two-spot color job, your project will run through the press two times - remember that black is a color too.



One-spot color



Two-spot color

So which is better then? Vector or raster image when printing? Well ...

It's a trick question! Both can be used for spot and 4-color process. It truly depends on what you are going to do with the file. If you have to resize a raster image to make it work with the printing project, you will run into trouble. The raster image doesn't resize well. In that case, you need to provide a vector image.

However, as long as the raster image is cleanly designed and of an appropriate dpi size, it will print well in spot color – not as precisely as a vector image, but it will certainly pass muster. The problem occurs when you attempt using a 72 dpi raster image off the web and try using it on a 300 dpi print job. Or for that matter, any time you attempt to significantly manipulate the size of the raster image - it will appear fuzzy.

Conclusion

So here's a quick recap. For any type of commercial printing, it's best to provide your logo as an .eps, .cdr or .ai file. While a raster may work, the high quality vector images will likely be easier and cheaper to print because you can use a spot color process and cleanly manipulate the size to fit your print needs. However, if you need to print a photograph, or some other full-color image, it's a raster file you should provide.

papers
paper
paper
paper
paper

Remember to always obtain both vector and raster formats from your graphic designer. While technology and digital innovations are progressing exponentially, you should (like the Boy Scouts®) be prepared and have all the formats accessible or be prepared to experience 'technical difficulties'. And finally, if in doubt, don't hesitate to ask the printer or imprinter if you have any questions. The good ones will be happy to tell you which file types they need and help you through every step of the process.

Blue Papers