THE 3 BIGGEST MISTAKES TO AVOID WHEN USING GRAPHIC IMAGES IN PRINT

Nothing beats great color and crisp images in a printed marketing piece. But if you've ever had a print job rejected for poor image resolution, or been disappointed with the color on a finished print piece, you know there's a lot more to getting great results than meets the eye.

We've asked print professionals around the country to share tips and information on the biggest mistakes people make when setting up print files.

Use this guide to avoid these common pitfalls on your next print design project!

MULTI GRAPHIC MARKETING

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1 IMAGE RESOLUTION IS NOT HIGH ENOUGH

Using an image with a too-low resolution is one of the most common errors designers make when creating for print. The result is a fuzzy, pixellated look when printed. If you don't pay attention to your image resolution right from the start, you may end up having to completely recreate your design file from scratch. Here's a few tips on what to look out for, and how to ensure your images are set up with the correct image resolutions.

FIRST, WHAT IS IMAGE RESOLUTION?

All images and photos (that are not vector art) are made out of pixels or dots. The resolution of an image refers to the number of the pixels that make up that image or graphic. The higher the resolution, the crisper and more detailed the image will be. Image resolutions are measured in Dots Per Inch (DPI) or Pixels Per Inch (PPI). DPI and PPI essentially mean the same thing.

THREE WAYS TO REFER TO THE SIZE OF AN IMAGE:

1. **Size:** the actual size of the image as measured in inches. For example, a 4" x 6" image.
2. **Resolution:** the number of dots or pixels in each inch of that image. Expressed as DPI or PPI. For example, 300 DPI.
3. **Pixel Dimension:** primarily used to refer to the size of website images. The total number of pixels in the entire image. A 4" x 6" image at 300 DPI would have a pixel dimension of 1200 x 1800. The only way to increase the pixel dimensions would be to re-sample the image in a program like Photoshop but beware - you may not like the results, as Photoshop can only use the data in the file to estimate what the image might look like at a higher resolution.

When using an image in a document for print, make sure the resolution is at least 300 DPI at the ACTUAL size you'd like to print it. A 4x6 photo that is 300 DPI (or 1200 x 1800 pixels) can be printed at that size. If the photo is enlarged to 8" x 12", it's pixel dimensions will remain the same, but the resolution will be reduced to 150 DPI, which is not high enough for print. If you want to use the image at 8" x 12" you'll need to replace it with a version with higher resolution.

FIX-IT TIPS FROM THE PROS:

1. **Check the size, resolution and pixel dimension** of images and photos you want to use and make sure they are the right size for your needs. If you're creating art in Photoshop, make sure your document is INITIALLY created to actual size at 300 DPI and cmyk colorspace. Remember, re-sampling up afterwards can lead to fuzzy graphics.
2. **Stock photography tip**. Most sites will show size, resolution and pixel dimension. If you purchase a photo that ends up being too small for your needs, you can go back and purchase the higher res. version and only pay the difference.
3. **Large format graphics need lower resolution.** It's counter-intuitive, but sometimes 150 DPI is preferred resolution at the finished size needed. This is due to the graphic being viewed at a distance. Talk to your print professional about how to best provide files for your particular large format project.
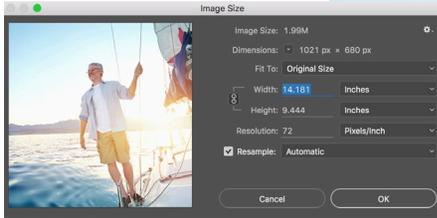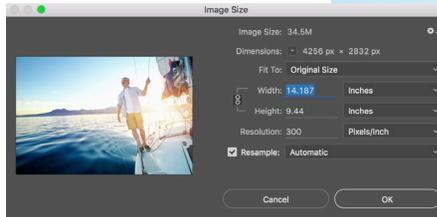
Above: Image size dialogue box in Photoshop. This image is low res (72 DPI) at 14.18" x 9.4" for a total pixel dimension of 1021 x 680.

Crop in of actual size at 72 DPI. See how it's pixellating?

Above: Image size dialogue box in Photoshop for the high res version of the same photo. DPI is 300 at 14.18" x 9.4" for a total pixel dimension of 4256 x 2832.

Crop in of image at actual size at 300 DPI

Look at the low resolution image of the sailor (above) compared to the high resolution version below it. When imported in InDesign, both photos are 14.18" x 9.4", but their resolutions are different. In order to use the low res version for print, it must be reduced in size until the actual - or effective PPI (or DPI) is 300. InDesign conveniently shows you "Effective PPI" as you enlarge or reduce an image. You can also calculate the size the image needs to be by dividing the pixel dimensions by the resolution it needs to be. Since the low res image is 1021 pixels wide, divide 1021 by 300 and you get 3.4. The widest you can use this entire image for print is 3.4" (see image to the right).

The low res photo scaled down to 4.2" wide. At this size, the resolution is 300 DPI and OK to print
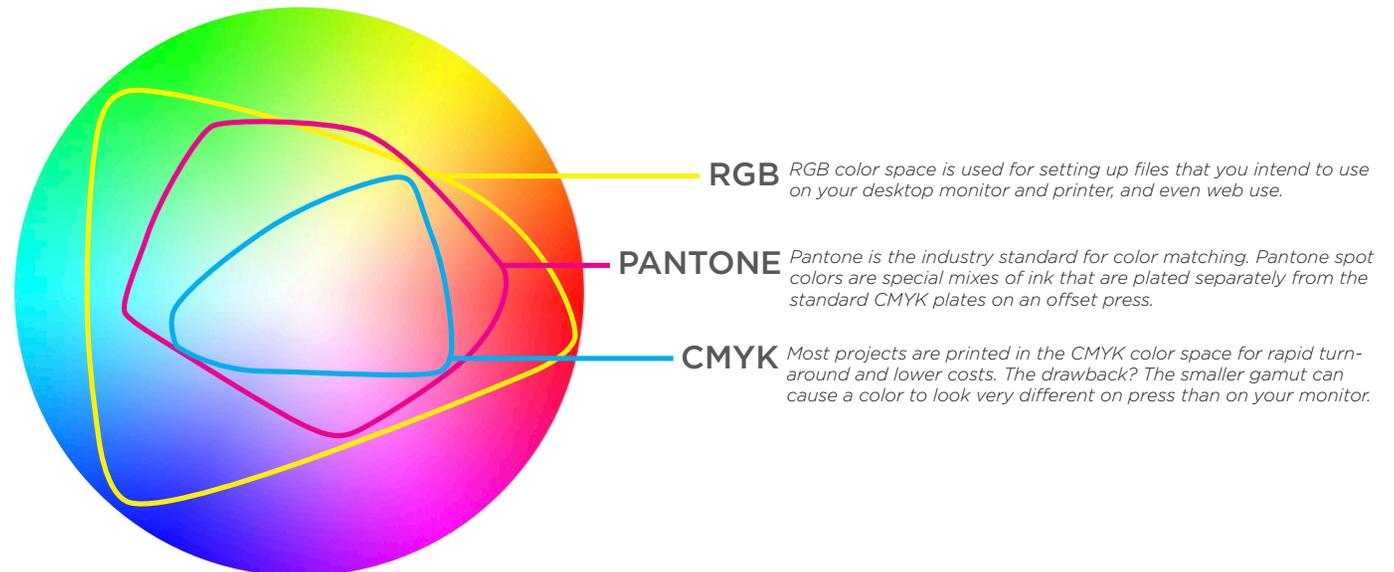
2 YOU'RE NOT LOOKING AT COLOR THE RIGHT WAY

WELCOME TO OUR GAMUT

The world around us is filled with a dazzling array of beautiful colors, but not all can be replicated with ink on paper. Understanding the limitations of the different color gamuts can help you better prepare your file for print, and get the color you expect!

A color gamut is simply the range in which a specific color space can show color. Let's start with your monitor since that's where most projects begin. Your monitor displays closest to the RGB color space which is a fairly large color gamut. Your monitor uses pixels and light to replicate color. That's why a color can look much different on your monitor and on paper. An offset press, on the other hand, uses four plates - each is inked up with either Cyan, Magenta, Yellow and Black color, or a Pantone spot color.

Pantone is an ink reference publishing company. They produce a series of color books that every professional in the print and design industry uses to specify and match color.

RGB — *RGB color space is used for setting up files that you intend to use on your desktop monitor and printer, and even web use.*

PANTONE — *Pantone is the industry standard for color matching. Pantone spot colors are special mixes of ink that are plated separately from the standard CMYK plates on an offset press.*

CMYK — *Most projects are printed in the CMYK color space for rapid turn-around and lower costs. The drawback? The smaller gamut can cause a color to look very different on press than on your monitor.*

Imagine that the circle above represents the full gamut or range of colors we can see. The RGB color space is represented by the yellow shape. The Pantone is represented in magenta. As you can see, there are a few pantone colors that fall outside the RGB space. The light blue shape represents the range in color using CMYK color space.

If you like an RGB or Pantone color that falls outside of the CMYK color gamut, you'll need to adjust your color - or your expectations - when printing offset!

GO BY THE NUMBERS

Pantone color books show a wide range of colors, and numbers associated with them to reproduce in the other color gamuts as well. Pantone books also show how a color build and spot color behave on coated vs. uncoated paper. Color can appear to be dramatically different when printed in spot vs. CMYK, and on coated vs uncoated stock.

It's not unusual for a brand to have a different Pantone color specified for its coated vs. uncoated items, or to modify the CMYK build based on a particular paper stock they often use. Again, pay close attention to the numbers - not your monitor or desktop printer! Working closely with a print service specialist can help you navigate this.
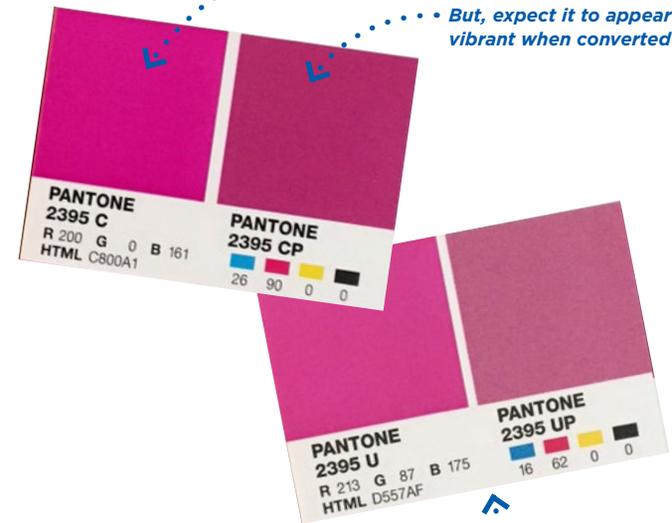
PMS 2395 is a vibrant spot color.

But, expect it to appear much less vibrant when converted to CMYK.

How PMS 390 appears when running as a Pantone spot color on coated paper.

PANTONE 390 C
R 181 G 189 B 0
HTML B5BD00

PANTONE 390 CP
27 0 100 3

PANTONE 2395 C
R 200 G 0 B 161
HTML C800A1

PANTONE 2395 CP
26 90 0 0

PANTONE 390 U
R 151 G 169 B 38
HTML 97A926

PANTONE 390 UP
28 0 99 13

PANTONE 2395 U
R 213 G 87 B 175
HTML D557AF

PANTONE 2395 UP
16 62 0 0

Same 390 Pantone color on uncoated stock. The uncoated stock produces a much darker green than coated. You may need to choose a different PMS color for coated vs. uncoated print.

Uncoated swatches for PMS 2395 show the same vibrancy issue when converted to CMYK.

FIX-IT TIPS FROM THE PROS:

- **Reference a Pantone color book** when choosing colors. Some spot colors convert well to CMYK and others don't. You can tweak the CMYK values to get a bit closer, but talk to your print professional on how to best do that.
- **Know what color space your printer needs** files provided in. Convert your colors in the working file using the Pantone guide. Adobe Illustrator, Photoshop and InDesign sometimes convert the same color with different builds, so be mindful of that!
- **Consider purchasing a Pantone book** if you want to have more accurate color information at your fingertips. Choose the Pantone Plus Bridge sets in coated and uncoated. Your print marketing expert can also show you a Pantone book.
- **Spots need special care!** When printing a Pantone spot color, avoid special effects like gradients and blending modes overlaying the spot color. This causes unexpected results on press that don't always show up in a pdf proof.

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USING A RASTERIZED IMAGE INSTEAD OF VECTOR ART

There's a LOT of confusion regarding the difference between raster and vector art and the different file types associated with them. Here's how the two types of files are different, and why it matters.

RASTERIZED IMAGE is an image that is made of pixels or dots. Photos are always raster art. Certain file types like TIFF, JPEG, PNG and BMP files are inherently raster art. They can NEVER be vector art. All images that are rasterized are subject to image resolution issues when scaling up. So, the nifty photo or JPEG of your logo you used on your business card will most likely NOT reproduce well on a huge banner. See tip 1 in this document for more information on image size & resolution.

VECTOR IMAGE is one that is made up of points, lines and curves. Vector images reproduce well at any size. When they are scaled up, the lines, points and curves enlarge using mathematical expressions. The result is no loss of data. Files saved as AI and EPS formats are vector files UNLESS the native art isn't properly created as line art.

Art created as vector art and saved as an EPS file.

Art created as vector art and saved as a JPEG file.
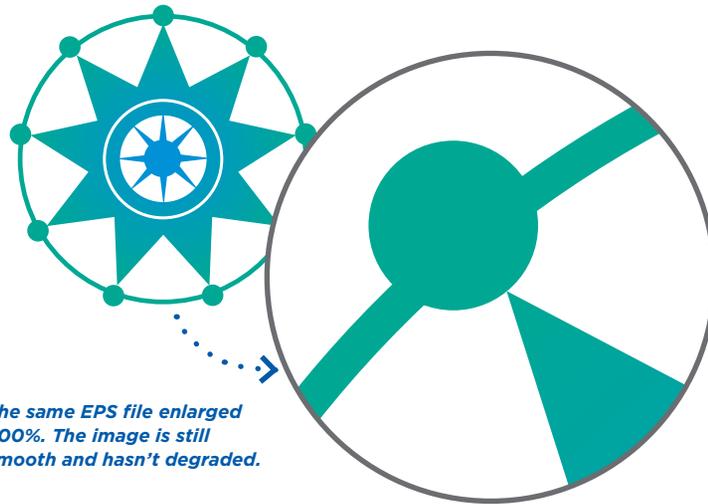
The same EPS file enlarged 300%. The image is still smooth and hasn't degraded.
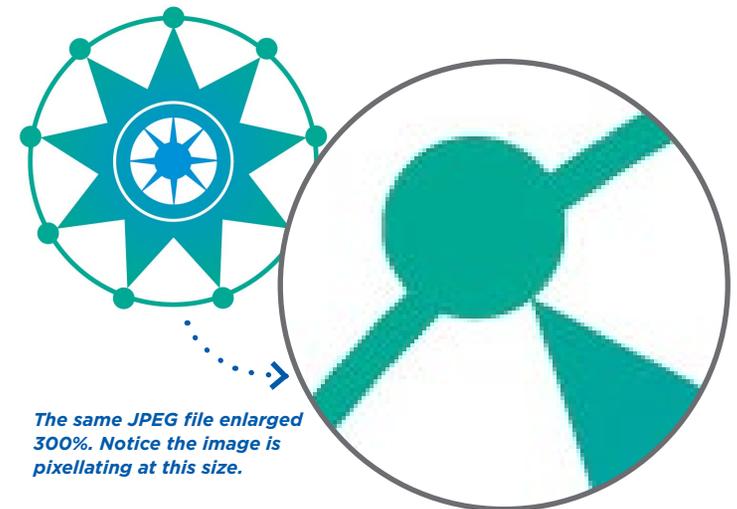
The same JPEG file enlarged 300%. Notice the image is pixellating at this size.

FIX-IT TIPS FROM THE PROS:

- **Only save vector images as EPS or AI** files to maintain their integrity as line art. Remember, you can create any file type from a vector file, but once the file is rasterized, you can't save it as a vector image.
- **Vector art** created with no background will appear in their file types with a transparent background.
- **Rasterized art** in TIFF, JPEG format will always have a white background. When transparency is needed for web use, save your vector art as a PNG file.