

Image Editing: Sizing for printing

(the foolproof way)

This handout is designed to show you a foolproof way of sizing images to ensure best quality.

Terms:

Sampling: When a digital image is created, the light cast onto the camera sensor is broken down into discrete segments called *pixels* (from the words picture and element)

Pixel: The smallest unit of visual information in a digital image. It may contain only a single color selected from the *infinite* world of color.

Resampling: When changing the size of the image within an image-editing program, it may be necessary to add or subtract pixels to obtain proper dimensions. In doing this, existing pixels may need to be combined or split apart (“resampled”) to create new pixels.

Resolution: The measurement of pixels per unit. The most popular in the United States would be pixels per inch (ppi), though we also speak about dots per inch (for printing) and samples per inch (for scanning). In other parts of the world they may measure in millimeters or centimeters (ppm or ppc).

DPI: The measurement of dots of ink per inch. This is specifically related to the size of the droplet of ink in the printer, not to be confused with ppi (pixels per inch), even though you may, at times, see the two terms used interchangeably.

What is the proper resolution?

This is a tough question to answer. It requires more questions.

- (1) How do you intend to display the image?
- (2) If you are choosing to print the image, who makes your printer?
- (3) If you’re having it printed, what are their specifications?

Image display

Since a screen projects light through a glass surface, the wavelengths of light blend together and create smoother tones at lower resolution. Most computer monitors display at 72ppi while some screens will display at 96ppi.

Printing

The **industry standard** for “Fine Art” photographic inkjet prints is **300ppi**.

The generally accepted range of resolution for printing is 200-300 ppi, however not all printers are made the same.

Epson printers, for example, have a print head that lays down a matrix of ink droplets based off of a 1440dpi x 2880dpi measurement. Numbers like 200ppi don’t break evenly into these measurements. This can cause problems in very fine detail areas of your images.

Laser printers may use fewer than 200 pixels per inch depending upon their design.

So how do you know?

Pay attention to the specs for your printer or service bureau.

Turn this page over for the how-to instructions.

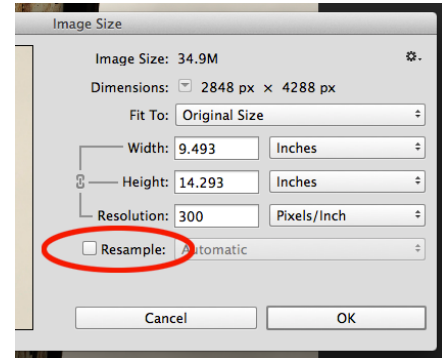
Steve's foolproof way to resize your images

This is the way that I was taught. I think this is the way everyone is taught at first. However, I've never seen it written down.

Open the Image Resize dialog box (Image > Image Size)

1. Uncheck "Resample Image"

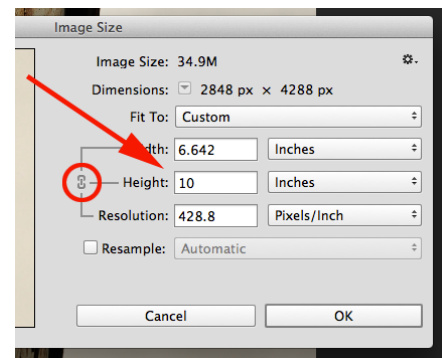
Notice how the Width, Height, and Resolution become joined together (circled in the next image). This "locks" in your pixel dimensions ensuring you are neither adding nor losing any pixels.



2. Set the Document Size for the size you want your image to print. I find it easiest to set the largest dimension of my image but make sure that both dimensions fit on the paper (with appropriate margins).

Notice how when you change one number, the other 2 also change.

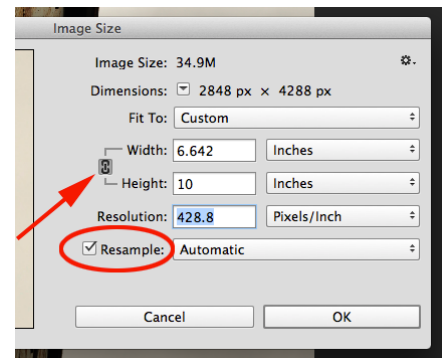
Make sure that when you set your width or height that the resolution is greater than 300ppi



3. Re-check "Resample Image"

When you recheck resample image, it unlocks the pixel dimensions so that you can down-sample the image. (never up-sample unless it's absolutely, without-a-doubt necessary.)

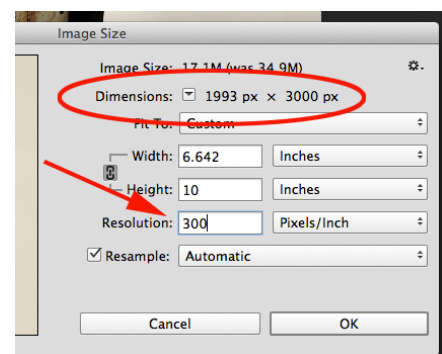
Also, make sure that the "Constrain Proportions" link between width and height is darkened; otherwise, you will stretch your image. We want to maintain our aspect ratio!



4. Set the Resolution for your print.

Down-sample to 300 pixels/inch

Notice how the Pixel Dimensions decrease when you set your resolution.



5. Use "SAVE AS" to save this as an output version. Save it in a lossless compression like Photoshop .PSD or .TIFF (filename_for-printing.psd). NEVER save over top of the original.