

IMAGE FILE FORMATS

IMAGE FORMATS AND COMPRESSION

You may have noticed that there are several different types of picture files—GIFs, TIFFs, JPEGs, etc. These are usually represented by a different file extension (those last three letters after a file name). Different formats have different characteristics. There are innumerable file formats, some of which are considered proprietary (meaning that you can only open certain file formats if you have purchased certain software). Below are three of the most common non-proprietary formats:

JPEG is a compressed file format. This means that files stored as jpegs typically lose a little bit of their quality in order to compress the file to a more manageable size. The jpeg format is typically used for photographs.

TIFF is an uncompressed file format. This means that files stored as tiffs retain their full quality, but the file size is usually extremely large.

GIF is also a compressed file format, like JPEG. The gif format is typically used for drawings or animation files, or for images where you would like to retain partial transparency.

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THE ESSENTIAL DETAILS OF IMAGE EDITING



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WHAT IS A PIXEL?

A pixel is a tiny digital dot that makes up an image. By “image”, we mean anything you can see in a digital format, not just image files. Your computer screen display uses “pixels” to make up the image you see on the screen. Your digital camera display uses pixels to show you pictures you’ve taken.

WHAT IS RESOLUTION?

Resolution is the number of pixels in an image. It can be represented in PPI (pixels per inch), by the width and height of the image, or as the total number of pixels.

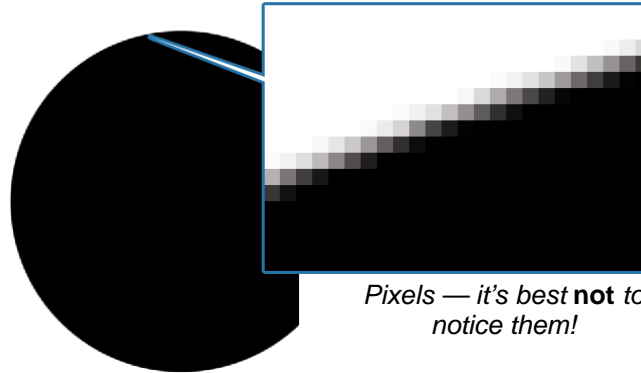
WHAT DO RESOLUTION NUMBERS MEAN?

Digital cameras measure resolution in “megapixels”. In terms of numbers, “mega” = “million”. A 12 Megapixel camera can take pictures up to 4000 pixels by 3000 pixels (4000x3000 = 12,000,000 pixels or 12 Megapixels).

PRINTER RESOLUTION

Printers handle images in terms of “dots per inch” (DPI). DPI is a fixed number for a given printer. Some printers will be able to print higher-DPI images (images that are larger, and/or higher quality), depending on the printer’s specifications.

There are formulas for figuring out the resolution to printing size for best quality.



To figure out how many Megapixels an image needs to be for a desired print size:

$$\frac{(\text{Printed Height} \times \text{DPI}) \times (\text{Printed Width} \times \text{DPI})}{1,000,000} = \text{MegaPixels}$$

To figure out the largest print size available for an image that has already been captured:

$$\frac{\text{Pixels Height}}{\text{DPI}} \times \frac{\text{Pixels Width}}{\text{DPI}} = \frac{\text{Printed Image Height} \times \text{Printed Image Width}}{\text{(expressed in inches)}}$$

PPI

PPI stands for Pixels Per Inch. When you want to print a digital image, you need to check the PPI to see how big you can print the image without losing quality and becoming “pixilated” (when you can see the individual dots represented on the page as large squares). Once your PPI exceeds the printer’s DPI, you will only be able to print images at that DPI.

For example, if you have an image that is 600 PPI, but your printer only prints up to 300 DPI, you will only get a 300 DPI image, because of the printer’s limitations.

PPI STANDARDS

There are certain “standards” for the PPI of a given image, depending upon its use.

Web-Only Images are images that you intend to put on a website, but don’t intend for people to print out. The PPI standard for web-only images is 72 PPI, although because of the increased use of broadband technology, some people claim that 96 PPI can be used as a standard.

On-Screen Text Images are images that contain words that you intend for people to read on a screen, but don’t intend for people to print out. The PPI standard for on-screen text is 100 PPI.

Printable Images are images that you intend for people to print out on a printer. The PPI standard for printable images is 300 PPI (although you can get away with lower resolutions sometimes, depending on how large the image is).

After 600 PPI, the human eye cannot make any determination in image quality.