

Image Resolution

Fact Sheet

Everything you need to know to find the resolution of an image.

Brought to you by SAGE Publications' Art Department

Basic definitions...

Pixels — Think MONITOR. Pixels are the back-lit squares of color that make up your photo on a monitor.

Dots — Think PRINT. Dots are what the pixels become when you print them with inks.

Resolution — Pixel density. The number of pixels, or dots, used to display one inch of an image. Also known as “Res”.

72 ppi (pixels per inch) — On-screen resolution. Your monitor fits 72 pixels in one inch. Also known as “Low Res”.

300 dpi (dots per inch) — Print resolution. A printing press fits 300 dots in one inch. Also known as “High Res”.

PPI vs. DPI — Many software programs and scanner interfaces use these two terms *interchangeably*—but that’s not exactly accurate. The term PPI should be used when referring to *image resolution*, and the term DPI should be used when referring to *printing resolution*. How can you remember this? *Monitors display pixels, and printers produce dots.*

Image Size — The number of pixels across the width and height of the image. (Example: the photo is 3000 pixels x 2000 pixels.) The quality of the print, and the size of the print are limited by the number of pixels in the original image. You can’t increase one value without effectively decreasing the other:



STRETCH
the image, and you will lower the
QUALITY

Low Res vs. High Res



72 ppi



300 ppi

Find the pixel dimensions in just 4 clicks!

Change file view to “Details”

Select “More”

Right-Click this bar for a list of detail options.

Check on “Dimensions”

Pixel Dimensions appear for .jpg, .tif, .bmp, and .gif files. Now you can calculate the print size in inches (divide by 300 for print, or by 72 for on-screen).

Calculating Image Size:

$$\text{Pixels} \div \text{PPI} = \text{Inches}$$

A computer monitor displays images at **72 ppi**. A good-sized photo in email, or on the Internet, might be something near 600x400 pixels at 72 ppi:

$$600 \text{ pixels} \div 72 \text{ ppi} = 8.3 \text{ inches}$$

by

$$400 \text{ pixels} \div 72 \text{ ppi} = 5.5 \text{ inches}$$

Therefore an image with 600x400 pixels is a good size for viewing on a monitor. Unfortunately, these dimensions are too small to make a quality photographic print. Here’s why...

Printing is conducted at a higher pixel density: **300 dpi**. In order to produce a “photo quality” print, we must have at least 300 dots for every inch of the print. *The number of pixels never changes, only how many you cram in one inch.* Recalculate the same 600x400 image and you have a much smaller image:

$$600 \text{ pixels} \div 300 \text{ dpi} = 2 \text{ inches}$$

by

$$400 \text{ pixels} \div 300 \text{ dpi} = 1.3 \text{ inches}$$

Unless you want this small size, an image with 600x400 pixels is a poor size for printing.

What to send the Art Dept

The Art Dept prefers a file size of about 1200x1800 or higher for optimum 4x6 prints, and 2400x3000 for an 8x10 print.