

Talkin' Bout the Resolution

Digital photography has become the dominant format for taking pictures. The art and science of creating digital images can be complex, but with some good information and guidance, you can navigate the world of digital in no time. This is a quick reference guide that will explain some of the most common terminology and give you a foundation of technical knowledge that will allow you to be more deliberate about your choices, both here on Bandwidth and more broadly.

What's a Pixel?

Imagine a hand knit sweater and the tiny knots that create the sweater. Pixels are like those knots and instead of a sweater they create the digital image. Pixels are also sometimes referred to as dots. As a sweater is thicker if it has more knots, a digital image is clearer and more brilliant if it has more pixel density. Essentially, the greater the number of pixels, the better the picture detail and potential print quality.

Camera Resolution (Static)

Each camera has a maximum resolution, which is expressed in millions of pixels or megapixels, and calculated by width multiplied by height. Each picture has its own unchangeable resolution that will play a critical role in reproduction. Again, the higher the number of pixels, the higher the quality of picture.



Example

W 2,592 pixels x
H 1,044 pixels =
5,037,848 pixels or
5 Megapixels

Print Resolution (Changeable)

Print resolution is managed through your printing process. Most commonly expressed in dots per inch (dpi), print resolution is the number of individual dots of ink a printer or toner can produce within a unit of distance. You typically need at least 300 dpi if you will be printing the image. Professional print resolutions typically start at 2400 dpi and go up from there.

Electronic Resolution

Displaying an image on the web requires significantly less dpi, about 72 dpi to the 300 dpi required for print. Most thumbnail images you see are approximately 72 dpi. Typically, your computer will make the adjustment automatically.

Image Size

It is the combination of camera resolution and print resolution that determines the actual size and level of detail of the image that you can print. Thinking again about the knit sweater that is a specific size and will keep you warm if it isn't stretched, a digital image will lose its functionality if you try to stretch it beyond its limit. For example, if you try to blow up an image that is 1600 x 1200 by printing it at 600 dpi, the image will be significantly blurry or pixelated.

Example

W 1600 x H 1200
(2 Megapixels)
With 300 dpi, the maximum
image size you can print will
be **4" x 5.3"**

For more detailed information about the interplay between pixel resolution, print resolution and output, go to <http://www.photoshare.org/phototips/digital101.php> where you will find a helpful table. You can also get more information at: <http://www.critterzone.com/magazineresource/magazine-article-graphics-photo-file-properties-image-size-dpi-jpeg.htm>