

Expert Photo Tips

A photographer demystifies the relationship between pixels and resolution so you can take stunning photographs of your dog.

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You want to take a great photo of your dog, but you want to do it the right way. Understanding the often-misunderstood relationship between pixels and resolution can help improve the quality of your digital images.

Pixels are the tiny blocks of color and tone that make up a photograph (1 megapixel equals 1 million pixels). Pixel count is related to image resolution. At first glance, it would seem that more pixels would equal higher resolution, which would mean a better photo. The idea that more is better is misleading. Sometimes, more is just more. It really depends on what you plan to do with your images.

Resolution simply refers to the number of pixels high by the number of pixels wide. The quality of the image (sharpness or clarity) depends on the output. There's a huge difference between the optimal resolution for screen display and the optimal resolution for prints. The pixels are handled differently.

Assuming the image file is to be printed, those pixels are spread out across the designated print size. Increasing the print size doesn't change the resolution. It's still the same number of pixels high by the number of pixels wide. The pixels are just stretched to create the larger print. If you stretch them too far, the image quality will degrade. Stretch them enough and you can even see the pixels.

In general, a minimum of 240 pixels per inch (PPI) is needed for a photo-quality print. Some photo labs might recommend 300 PPI.

Let's say we want to make a 4-by-6 inch print and we want to print it at 300 PPI. We would need a file resolution of 1,200 (four times 300) pixels by 1,800 (six times 300) pixels. That would be a total of 2,160,000 pixels (or roughly two megapixels).

Most image-editing software allows you to adjust the pixels if needed to achieve the optimal resolution for printing. You can "up-res" files (increase the resolution) in moderate amounts without losing visible image quality.

Here's a chart that gives a general guideline for the resolution needed for common print sizes. The last column indicates the approximate starting file size needed, accounting for the up-res of files in image-editing software that may take place.

Print Size

Resolution at 240 PPI

(pixels high by pixels wide)

Resolution at 300 PPI

(pixels high by pixels wide)

Approximate megapixels

needed for print

4x6

960 x 1440

1200 x 1800

2

5x7

1200 x 1680

1500 x 2100

3

8x10

1920 x 2400

2400 x 3000

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