

Understanding the Digital Image

Pixels

Every digital image is made up of millions of Pixels. Pixels are very small squares of color. Pixels reside on a Bit Map or grid. From a distance, one doesn't see the grid of pixels; they see whatever he/she took a photograph of. But if we were to zoom into an image as if we're using a microscope, we would see small blocks of color organized in a grid fashion. In fact, at this zoomed in state, it's difficult to identify what the subject of the picture is.

Megapixels

As stated above, every digital image is made up of millions of Pixels organized on a grid. The amount of pixels per grid varies, depending on the Megapixel. A Megapixel is shorthand for 1 million pixels. So a 6 Megapixel image has 6 million pixels. We calculate the Megapixel of an image by multiplying the pixel width by the pixel height. A 6 Megapixel camera will render an image of 3000 pixels by 2000 pixels. If you multiply 3000 x 2000, you get 6,000,000 or 6 million or 6 Megapixel. You should be able to calculate the Megapixel of your camera via Menu -> Quality.

Resolution

Resolution is the organization of pixels on the grid (not to be confused with the amount of pixels) and is generally measured in inches. Such as, pixels per inch or "ppi." The same 6 Megapixel image can have a resolution of 72 ppi or 150 ppi or 300 ppi. The image hasn't gained or lost any pixels, it has just organized them differently. Each resolution, 72, 150 or 300, etc., has a specific purpose. For our purposes, we'll work with a resolution of 300 ppi or greater. This will render prints with an acceptable amount of detail.

Converting Megapixels into maximum print size

Not every digital image has the Megapixels to print an 8 x 10 with an acceptable amount of detail. The photographer should calculate the maximum print size of his/her digital image by dividing the desired resolution (for a print, that would be 300) into the pixel width and height. For example, a 6 Megapixel image has a resolution of 3000 x 2000 pixels. I would divide the width by 300 and the height by 300. The result is the print size in inches. $3000/300 = 10$. $2000/300 = 6.66$. So the **maximum** print size for a 6 Megapixel image would be 10 inches by 6.66 inches. Any larger, quality suffers.