

## **Resolution for Printing vs. Emailing**

With a camera such as the Nikon Coolpix 885, the image resolution is 2048 by 1536. This means that an image contains 3.14 mega pixels.

When an image is captured by the camera, it is stored as a jpeg. The jpeg is stored at 72 dpi which means that the picture dimensions, if printed, would be 2048/72 or 28.44" wide by 1536/72 or 21.33" high. This is too large to print and the 72-dpi resolution would provide poor print quality.

### **What resolution should be used for printing?**

Epson recommends that you use an image resolution of 1/3 of the printer resolution. If the printer has a 720-dpi resolution, then the image resolution should be 720/3 or 240 ppi. If you resize the Nikon image to 240 ppi, it will now be 2048/240 or 8.5" wide by 1536/240 or 6.4 high. Using 200 ppi, the image would print at approximately 10.2" by 7.7" (8 by 10). The 200 ppi image quality is likely to be slightly degraded from the 240 ppi image.

Notice that images are specified in ppi or pixels per inch and printers in dpi or dots per inch since the principles are different. A printer requires several dots to print each pixel which is not true for screen viewing.

### **Now - what about viewing on a screen.**

If a screen resolution is 1024 by 768, the Nikon image will fill 4 screens since it has twice as many pixels in each direction as the screen. This will still display properly but a lot of the information is wasted.

Typically, for screen viewing, a good resolution for an image is 1024 wide by 768 high.

### **How do you reduce the file resolution?**

First and foremost, always save the original image in a safe place before producing a reduced resolution image for viewing or emailing.

There are several factors that dictate the file size. They include compression, number of colors and the number of pixels. All camera images are in 24-bit color so this can be ignored for this discussion. The number of pixels can be changed by most image editing software using re-sampling.

## **Re-sampling vs. re-sizing**

Re-sampling is the removal or addition of pixels using a software algorithm. This is usually performed to reduce the image size. Re-sizing, on the other hand, does not change any pixels in the image but merely tells the printer, thru software, at which dpi to print the image. If you lower the ppi, then the printed image size will increase and conversely. There is usually an option to constrain the file size which means you are re-sizing only.

Many software programs have a feature for doing this. It is usually under a menu item labeled Image->Re-Size.

After changing the number of pixels, the file can be further reduced in size by reducing its quality. When a jpeg is saved, there usually is an option for setting the quality or amount of compression. Nikon compresses images by a factor of 4, 8 or 16 depending on the camera settings. When saving a jpeg in your image editor software you can choose between Maximum, Average or Low quality resulting in decreasing file sizes with attendant reduction in image quality. The best setting for you is determined by trial and error and will vary depending on the image content.

## **Re-cap**

Large files are required for printing and smaller files for viewing or email. Small files are achieved thru re-sampling or compression, which is a reduction of pixels and possibly reduction of quality. You usually require two separate images, the original for printing and a reduced file size for emailing.