



## Image Sizing Guidelines

### **Image Resolution**

At 300 pixels per inch (sometimes called dots per inch – dpi) the 300 pixels occupy a space of one inch. At 72 ppi, the same 300 pixels are spread out at 4.167 inches. The number of pixels is the same, but the area is larger. This distorts the quality as the pixels become larger in order to fill in the larger area.

The actual screen size of an image at 100% zoom depends on two things:

- Number of pixels in an image
- Resolution (ppi)

There are four resolutions that you should be aware of:

- 72 ppi – resolution at which the image usually downloads from a camera. Sometimes this resolution is used for the web as the older monitors work at 72 ppi. This is the reason that the cameras are programmed to record at 72 ppi.
- 96 ppi – resolution at which you save a JPEG for online work, web, and screen viewing.
- 150 ppi – resolution which is usually sufficient for inkjet printers.
- 300 ppi – resolution for publication printing

### **Image Resampling and Resizing**

**Resampling** means changing the number of pixels in an image.

**Resizing** means changing the density while keeping the same number of pixels.

You should only resample down, reducing the pixels. Otherwise you lose image information and when you attempt to enlarge the image pixelization occurs.

When you **resize** an image in Photoshop > Image > Image Size always make sure that before you enter the desired resolution you **deselect** the Resample Image box and select the Constrain Proportion box.

When you **resample** an image, select both the Resample and the Constrain Image boxes and enter the desired size in either inches or pixels.

### **A Basic Introduction to Preventing Jpg Image Degradation**

This short write-up is to outline some information about JPG images and editing these image files optimally. Along the way toward this end you'll learn how this image compression method converts color photos into those smaller image files. More importantly you will hopefully take away some ideas that will help you make better quality JPG's and archival copies of your originals.

**The Golden Rule:** when editing an existing image, **do not edit a JPG AND then save it as a JPG** even to simply crop the image and then save it - First save the JPG as a TIFF and work from this. Now that this

strong statement has been made a "Rule" to stress it, I can add that it's really not going to kill the image doing this once. However more often than not, as a JPG photo gets passed around, downloaded, handled over a couple years it can get re-edited numerous times, resized, cropped, etc. This path will in the end lead to image degradation that leads to the "fuzzy" image. So, this "Rule" mentioned is really just suggesting that this practice of working from TIFF image format be cultivated into a good habit - because as you will read you can very easily ruin the images you value without understanding why.

So, when you get a new image from a camera, a scan, a download from the Internet, wherever, if it happens to be a JPG, then before you crop it or do anything it should ideally be saved in the TIFF image format. (Need to know more about TIFF format too, Google around and you'll find plenty.) Then work from this TIFF or make a copy of the TIFF and edit this copy - in the end saving your edited image as a brand-new JPG - or perhaps some other image format - but we're mainly talking about JPG's here.

Relative to Web publishing, there really are just two common formats of images available to use: JPG and GIF (pronounced: jay-peg and giff). And there is no question that for color photos JPG's are the way to go. The reason being that JPG is so good for color photos is that it does the majority of its compression on the colors specifically, NOT on what is called luminescence, or brightness data. The GIF image format may yield better results for these latter criteria that are the more essential for greyscale photos.

This issue of JPG image degradation is true for small images with low resolution for the Web - and equally true as well as for the more demanding image criteria for large photographic print images. Either way the fact is many people eventually lose their original copy and years later all they have is some over-saved JPG's that is a blurry image with strange square tiles all over it. It is strongly recommended therefore that as a general rule try to be aware of the history of a given image - and whether the original image is in your hands or safely stored elsewhere. Then act accordingly in your editing procedure.

Now for a little detail about the process starting with the knowledge that the compression algorithm used to produce the JPGs is based on 8x8 pixel squares. And there is a correlation between these 8x8 blocks and the file's compression. Understand that even if you were to use the highest possible Quantization Coefficient, (100 in Photoshop's Save for Web command), there will be the loss of information as the image's compression algorithm attempts to reduce the image size - which consists of higher frequency colors being discarded and lower frequencies that contain significant color changes being kept. As mentioned above if you look closely at some overly-saved JPG you will notice 8x8 tiles of pixels across the surface that result in a blurry image.

Therefore, you understand better now that if the master copy is lost for an image then the original quality is gone forever and successive editing of a JPG will ruin the original image in time because of lost information. As best practice for the future therefore try going back to the original JPG, make a TIFF of this; perhaps you have the original in TIFF format already, great. Original images are often stored as TIFF image format because this format retains all of the original image's information. Either way try getting in the habit of making your new JPG's from an archived TIFF and you'll have great success at creating beautiful images from the original for years to come.

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