

Making Files for the Web using Photoshop and Fireworks

Three of the file formats we will create for Project 2 are supported by the web. Descriptions and methods of production follow:

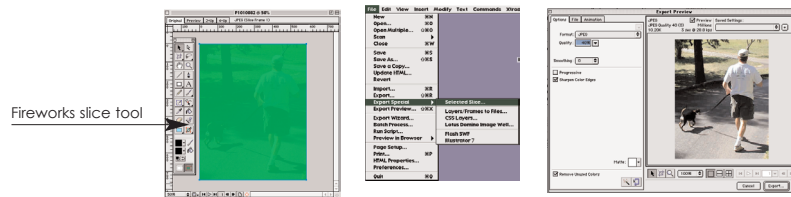
JPEG

Definition: Short for Joint Photographic Experts Group, and pronounced jay-peg. JPEG is a lossy compression technique for color images. Although it can reduce files sizes to about 5% of their normal size, some detail is lost in the compression.

Characteristics: JPEGs often contain thousands of colors that can simulate "continuous tone". For this reason, JPEG is the format of choice for compressing photographic imagery. At high rates of compression, JPEG's begin to display "artifacts", or noticeable areas of image decay. Look for artifacts especially around areas of high contrast in images.

Production: Photoshop 5.5 or later – go to File>Save for Web. Make sure "JPEG" is selected in the drop-down menu at the top-right. Generally, 40-50% yields files that still look decent at a fraction of the size. Any version of Photoshop – go to File>Save a Copy. Select "JPEG" as the file type and slide the image quality slider to the appropriate area of compression.

Fireworks – Draw a slice around the image using the slice tool in the toolbar. Go under File> Export Special> Selected Slice. Select "JPEG" from the drop-down menu on the upper-left, and enter a compression level.



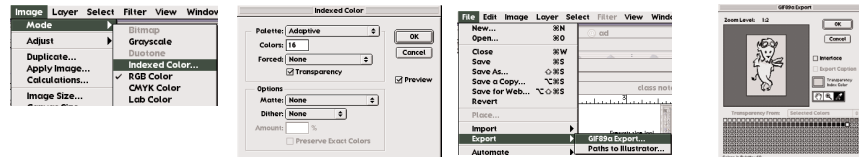
GIF

Definition: Pronounced Jif or Gif, take your pick, Gif stands for Graphics Interchange Format.

Characteristics: GIF's are made up of 256 colors or less-which is why, when used for photos, they don't look very good, or at least kilobyte for kilobyte look much worse than JPEG's. GIF's are very good for images that contain very few colors, like logos and bold graphics.

Production: Photoshop 5.5 or later – go to File>Save for Web. Make sure "GIF" is selected in the drop-down menu at the top-right. Play with color and diffusion settings until you've reached something acceptable at a low file size.

Any version of Photoshop – go to Image>Mode>Indexed Color. Choose a palette (adaptive works pretty well), colors, etc. Now go under File>Export>Gif89a Export. To define a transparent color, select one from the image with the eye-dropper. Click OK.



Fireworks – Draw a slice around the image using the slice tool in the toolbar. Go under File> Export Special> Selected Slice. Select "GIF" from the drop-down menu on the upper-left, and adjust settings accordingly.

PNG

Definition

PNG (pronounced ping as in ping-pong; for Portable Network Graphics) is a file format for image compression that, in time, is expected to replace the GIF. The PNG format was developed by an Internet committee expressly to be patent-free. It provides a number of improvements over the GIF format. Like a GIF, a PNG file is compressed in lossless fashion (meaning all image information is restored when the file is decompressed during viewing). A PNG file is not intended to replace the JPEG format, which is "lossy" but lets the creator make a trade-off between file size and image quality when the image is compressed. Typically, an image in a PNG file can be 10 to 30% more compressed than in a GIF format. PNG's are only viewable in IE 4.0 or NN 4.01 or better, which at this means means just about everyone on the net can see PNG's

Characteristics You can not only make one color transparent, but you can control the degree of transparency (this is also called "opacity"). Images can be saved using true color as well as in the palette and gray-scale formats provided by the GIF. Unlike the GIFs, the PNG format doesn't support animation since it can't contain multiple images.

Production: Photoshop 5.5 or later – go to File>Save for Web. Make sure "PNG" is selected in the drop-down menu at the top-right. Select PNG 8 under the drop-down menu for files that are "gif-like", meaning hard-edged, and select PNG 24 for files that are photographic.

Any version of Photoshop – go to File>Save a Copy. Select "PNG" as the file type and select "NONE" on both the interlace and filter settings.

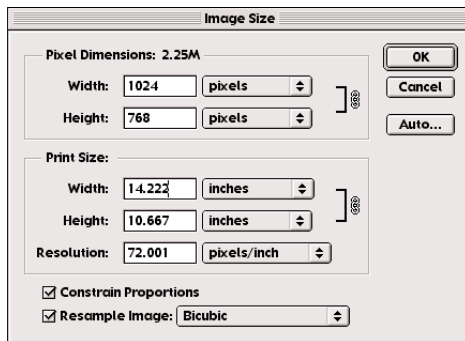
Fireworks – Draw a slice around the image using the slice tool in the toolbar. Go under File> Export Special> Selected Slice. Select "PNG" from the drop-down menu on the upper-left, and adjust settings accordingly.

Image Size—width and height

Photoshop is an image editor. It is the tool we use to manipulate our digital images. Photoshop is essentially a “bitmap” editor. A bitmap is a digital image defined by a group of pixels. Pixels, or “picture elements”, are the smallest part of a digital image. Think of them as the “atoms” in an image. Pixels are square-shaped by nature.

Pixels take up a computer’s memory. The wider and higher the image, or the more pixels in an image, the more memory a bitmap image takes up.

PS measures the width and height of an image with two kinds of values: Pixel Dimensions and Print Size. To get a better idea of what these two terms mean, let’s look at the image size dialogue box:



Pixel Dimensions

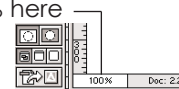
These are measured in pixels. Absolute W and H are the true measurement of an image’s size.

Print Size

This is measured in a variety of measurement units: inches, centimeters, and so on. How these values effect the image’s size depends on whether the Resample Image box is checked or not. When the box is checked, the Print Size width and height values change when Pixel Dimension values are changed. When the box is not checked, they change when the Resolution value is changed.

Resolution

This is the clarity of the image at a given measurement. If an image is 300 pixels per inch, or 300 ppi, an inch of an image has 300 pixels along it’s width. Computer screens have much fewer pixels along each physical inch of screen space, so when you look at a 300 dpi image you are usually looking at it reduced down in size, and each screen pixel represents a few image pixels. If you type in 100% here you’ll get a one-to-one relationship between the image pixels and the screen pixels.

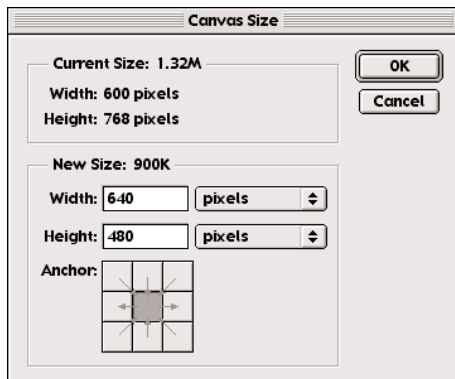


Constrain Proportions

Check this box if you want the image’s width and height to remain proportional; as you change one value, the other will change in proportion.

Canvas Size

Canvas Size allows you to change the overall size of the document canvas without altering the contents of the document. When you increase the document size, the new canvas area is added in the current background color or it will be transparent if you have no background layer. Normally you’ll only be using Canvas size to increase the size of the canvas, but it can be used to decrease (or crop) the canvas also.












The current size is shown at the top. There are fields for entering new width and height dimensions. You can enter your dimensions as percentages, pixels, inches, cm, points, or picas. The anchor diagram lets you specify how the canvas is modified. By default, the middle box is selected which adds an equal amount of new canvas on all sides of your image (assuming you’re increasing the canvas size). When you select any of the other squares, the canvas is modified in the opposite direction. For example, pressing the bottom middle square will add space to the top of your canvas. (from <http://www.ceedbanff.ca/help/photoshop/canvassize.html>).

Image size-bit depth

As well as width and height, there is a third dimension attributed to pixels: bit depth. A bit of memory is the basic building block of everything digital-including images. A bit is either "1" or "0". The more 1's and 0's we use, the more variations in the colors and tones of our pixels, the more memory the images take up.

To confuse things further, Photoshop uses "channels" to describe the number of sets of bits that can be applied to each pixel. Think of channels as jars of play-doh. If you have a clump of red and blue, and you mix them together to make purple play-doh, we can say that the purple play-doh has two channels-red and blue. Think of bits in this case as the pigment. All the clumps have pigment; the purple clump just needs more than one kind of pigment to give it its color.

Depending on which category your image falls under in the Image>Mode menu, each pixel in an image requires a certain amount of memory to display it.

	<table border="1"> <tr> <td>Bitmap</td> <td>1 bit per pixel</td> <td>No channels</td> <td></td> </tr> <tr> <td colspan="4">"Bitmap" is the most confusing term in Photoshop. Every image in PS is a "bitmap". So I think of these as 1-bit images, because that's all they have. Each pixel is either black or white.</td> </tr> <tr> <td>Grayscale</td> <td>8 bits per pixel</td> <td>1 channel</td> <td></td> </tr> <tr> <td colspan="4">Grayscale pixels are made up of up to 256 shades of grey.</td> </tr> <tr> <td>RGB</td> <td>24 bits per pixel</td> <td>3 channels</td> <td>(This circle is red) </td> </tr> <tr> <td colspan="4">RGB pixels have three channels, each of which has 8 bits describing it. This gives the pixel 16,777,216 colors it can be.</td> </tr> </table>	Bitmap	1 bit per pixel	No channels		"Bitmap" is the most confusing term in Photoshop. Every image in PS is a "bitmap". So I think of these as 1-bit images, because that's all they have. Each pixel is either black or white.				Grayscale	8 bits per pixel	1 channel		Grayscale pixels are made up of up to 256 shades of grey.				RGB	24 bits per pixel	3 channels	(This circle is red) 	RGB pixels have three channels, each of which has 8 bits describing it. This gives the pixel 16,777,216 colors it can be.			
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To understand the amount of memory a pixel takes up, we multiply the width of the image by the height of the image by the bit depth of the image, and divide by 8 for a file size of a certain amount of bytes (there are 8 bits in a byte). A 30w by 20h 1-bit image is $600\text{bits}/8 = 75$ bytes, a very small file indeed. A 11"x14" full color 24 bit image used in a poster at 300dpi is $((11*300)*(14*300)*24)/8)/1000 \approx 40$ MB, a very large file indeed. Add to this the additional factor of layers, wherein each layer in a PSD can take up to 40 MB and you can understand how large these files can be.