

09 Web Graphics

6.1 Know your editor

There are a lot of great graphic editors on the market today, which have a wide range of tools to help you design good-looking, professional graphics. Don't be fooled though. A good graphics editor won't make you an artist any quicker than a good word processor will make you a poet. It takes practice and experience to develop a good eye for design.

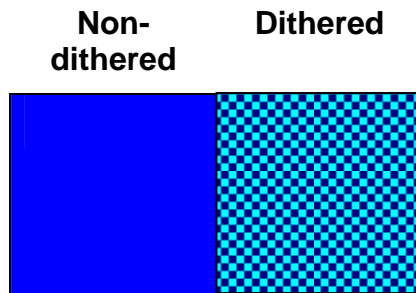
Having a good editor can go a long way to helping you develop those design skills and becoming familiar with your chosen editor can make a big difference. Despite the wide range of features present in most graphics editors, many of them cater mostly to printing without many features for web graphics. Some recent products such as Adobe Image Ready (included with Photoshop version 5.5 and above) and Macromedia Fireworks aim to change that by providing tools specifically aimed at web graphics. There are however, a lot of valuable techniques that can be used in most good editors.

This chapter aims at providing you with some tips that can be used in most graphic editors to create graphics optimised for the World Wide Web. Although the exercises will be set out for users of Adobe Photoshop CS, these techniques can be used in any editor with standard image editing features. Most of these tips will be for editing GIF files. This is because JPEG files aren't much different from other file types with the exception of choosing the amount of compression when they are saved.¹

¹ For differences between GIF and JPEG images, refer to <http://www.oneil.com.au/pc/general/CommonRasterImageFormats.pdf>

2 Colour issues

Many web designers work on computers that can display millions of colours. Don't assume that everyone visiting your website enjoys the same luxury. Most computers these days, however, can display at least 256 colours. The problem is that these 256 colours may not be the same from one computer to another, or even from one browser to another. This means that the colours in your graphics may not appear the same to others as they do to you. If specific colours are important, this can be a problem. Microsoft Windows and Apple Macintosh computers both have a set of 256 standard colour but only 216 of those colours are the same in both operating systems. If a computer doesn't have a colour you are using dithering will occur. Dithering uses different coloured dots to simulate a certain colour. Eg.



Browser safe colour palettes

Many graphic editors include a "browser safe" colour palette. This is basically a collection of 216 colours that can be safely used in most browsers and operating systems without being dithered. If you choose colours in your image from such a palette, you can be pretty sure that the colours in your image will look right everywhere.

Exercise 1

Selecting a Colour Palette

The following exercise uses Adobe Photoshop 5. If you are not familiar with this application, your instructor will direct you.

- 1 In Photoshop, make sure your Swatches palette is showing.
- 2 Click the triangle ▶ in the top right corner of the palette to access the palette menu.



- 3 From the menu select **replace swatches**. (Use **load swatches** if you want your old colours to remain in addition to the new ones)
- 4 Browse to the folder where Photoshop is installed and find the folder called color palettes under the folder called goodies
E.g. C:\Program Files\Adobe\Adobe Photoshop CS\Presets\Color Swatches
- 5 Open the file called "Web Safe Colors.aco"

Tip

When using hexadecimal colour codes in your html, codes with pairs (eg. #FF00FF), will be browser safe. Others (eg. #98D0F8), won't be browser safe.

3 Pixel Depth

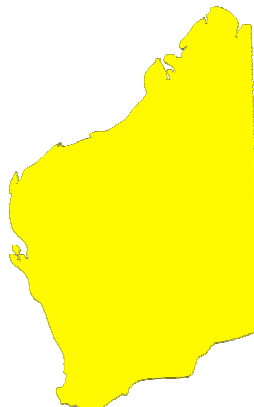
When you save an image as a GIF file you are restricted to 256 colours. This may not sound like much but it is often a lot more than you need. Reducing the number of colours in an image often won't have any visible effect on the quality, but it will have an effect on the file size. Knocking a bit off the size of each of your graphics adds up and it can all make a big difference to how quickly your pages load.

An image's pixel depth determines how many colours it has as the following table illustrates. The last column shows the approximate file size for a colour image that is 100 pixels wide and 100 pixels high.

1 bit	= 2^1	= 2	= 2 colours	351 bytes
2 bit	= 2^2	= 2x2	= 4 colours	531 bytes
3 bit	= 2^3	= 2x2x2	= 8 colours	894 bytes
4 bit	= 2^4	= 2x2x2x2	= 16 colours	1511 bytes
5 bit	= 2^5	= 2x2x2x2x2	= 32 colours	2104 bytes
6 bit	= 2^6	= 2x2x2x2x2x2	= 64 colours	3050 bytes
7 bit	= 2^7	= 2x2x2x2x2x2x2	= 128 colours	4504 bytes
8 bit	= 2^8	= 2x2x2x2x2x2x2x2	= 256 colours	5925 bytes



Notice that in the last few instances it is difficult to spot any difference in the quality of the graphic but there is a considerable difference in file size. With some graphics, like the one below you may be able to reduce the bit depth to as little as 4 colours without any noticeable loss in quality.



Exercise 2**Pixel Depth**

- 1 Open the file cougar.bmp
- 2 From the **Image** menu select **Mode, Indexed color**.
- 3 Make sure the **Preview** check box is selected so your image will update to show you the effect of changes.
- 4 Change the number of colours from 256 to 128 and click **OK**.
- 5 Save the file as cougar1.gif (non-interlaced). Close the file.
- 6 Re-open cougar.bmp.
- 7 From the **Image** menu select **Mode, Indexed color**.
- 8 Select different pixel depth / colour values. Watch the picture as you select each option and note any change in quality. Select the smallest pixel depth you can get without too much noticeable loss in quality. A pixel depth of 5 or 6 should be about right. Click ok
- 9 Save this file as cougar2.gif (non-interlaced). Close the file.
- 10 Look at the files in windows explorer and compare the file sizes.
- 11 Open both pictures in your graphic editor and compare them.

4 Transparent GIFs

One of the great advantages of GIF files is the ability to make part of them transparent. When this type of GIF image is used in a web page, the background will show through the transparent part. So this means that all you need to do is make the background of your picture transparent and all will be fine right? Unfortunately, it's not that simple. Often the edges of a picture will blend with the background. Consider the following examples.



In this example where white became the transparent colour, only the section marked would become transparent. That would be fine on a light background, but what if we put the same picture on a darker background.



Although white is the transparent colour, the areas that aren't quite white won't be transparent. This means that the edges will stand out against the background, which is normally not what you would want. To get around this problem, it is best to make sure that the colour in your picture that you want to be transparent is similar to the colour of the background that will show through. The following exercise will illustrate how much difference this can make.

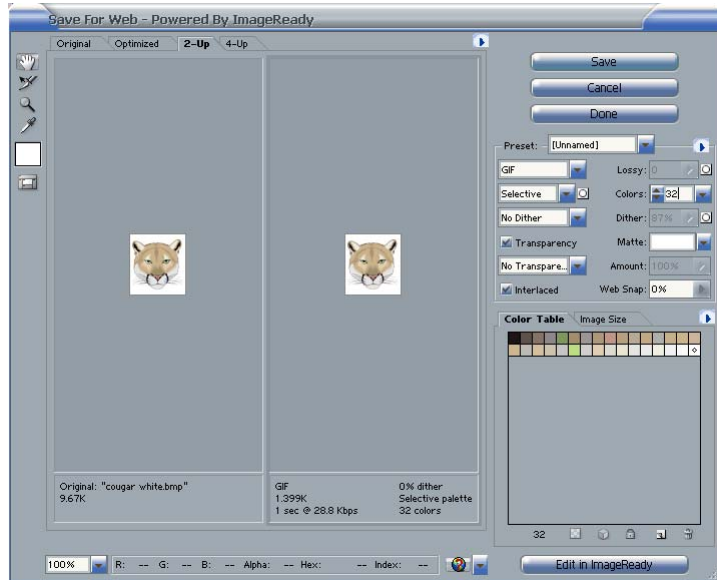
Tip If you are saving an image in .png format you can have partial transparency, though many browsers, such as Internet Explorer don't support this feature.

Exercise 3

Transparent GIFs

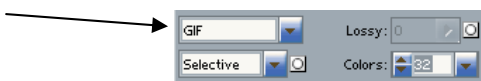
In this exercise we will create a gif with a transparent background to replace the image at the top of our navbar. We will also look at Photoshop's Save for Web option. (The image itself is no different, but you'll get a chance to do it yourself)

- 12 Open the file called cougar white.bmp
- 13 From the **File** menu select **Save for Web**.





Click the 2-up tab at the top to see a preview of your modified image next to the original image. Below the image is an estimate of the file size after saving. The options on the right allow you to change image settings.


Set image type to GIF



Select an appropriate number of colours

- 14 Click on the eyedropper icon. 

- 15 Under the colour table, click the transparent icon. 

- 16 Click on the part of the image you want to be transparent (white). You can select more than one colour to be transparent. In the Colour table, each transparent colour will have a line through it. 

- 17 Click Save to save the file in your pics folder with the name nav_logo.gif, overwriting the existing file.

- 18 Preview frames.html in your web browser. Note that the 'not quite white' parts of the image contrast with the background, creating an unsightly edge. Now we'll try it again with another copy of the image that has a background colour more closely matching the background of the website.

- 19 Open the file called cougar green.bmp

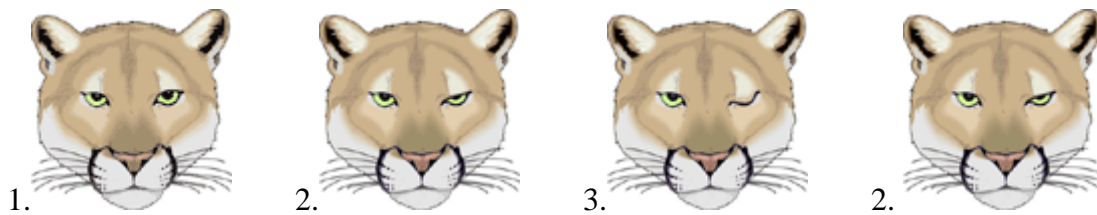
- 20 Repeat steps 2 through to 6, this time choosing the green background as the transparent colour.

5 Animated GIFs

A large portion of animation on the World Wide Web is accomplished through GIF files. Most GIF files are in the GIF89a standard (guess what year this standard became available!). This allows for transparency and interlacing. The GIF89b standard supported by most web browsers goes one step further by also allowing for animation. Animated GIF files consist of several images displayed in a sequence with a specified delay between each. Most graphic editors can't display the animation, as it will appear in a browser. For this reason, several software applications have been developed with animated GIFs in mind. In the following exercise we will use Microsoft's free GIF animator to work with animated GIFs.²

The images in an animated GIF don't have to be the same size. In fact, having smaller GIFs in your animation can reduce the file size as the following example illustrates (some animated GIFs are painfully slow to download).

Here are three images that will be used to create a GIF animation (the second image is repeated as the image loops):



Notice that in each image, only a small part is changing (the winking right eye). Instead of replacing the whole image with each step, the file size could be significantly reduced by replacing only the part that changes as in the example below:



The smaller images are positioned in the appropriate places e.g. 60 pixels right, 35 pixels down (the distance can be measured in your graphic editor). Because the animation is made up of smaller images, the files size is greatly reduced.

Both of these animations look identical when put together. The difference? 5.7 kilobytes vs 19.7 kilobytes!

Note











The latest versions of Photoshop include Image Ready which has good animated GIF editing features. Macromedia Fireworks also allows the quick creation of animated GIFs.

² You can download a copy of GIF Animator from <http://www.oneil.com.au/pc/html/>

Exercise 4

Animated GIFs

In this exercise we will create the animated gif from the second example above using Microsoft GIF animator³. Once the animation is finished, it can be placed in a website like any ordinary GIF image.

- 21 Open GIF animator. Click the file open icon  and open the file animation1.gif
- 22 Click the insert  icon to insert a new picture. Insert the picture called animation2.gif. Click the icon again to insert the file called animation3.gif.
- 23 Use the move up and move down icons   to ensure that the pictures are listed in the correct order (1 at the top, 3 at the bottom). You can also change the order of images with the **↑** and **↓** keys on your keyboard or by dragging them with your mouse.
- 24 Click the **Animation** tab. Make sure **Looping** and **Repeat Forever** are both selected.
- 25 Click the **Image** tab and click on the first image. Set the **Duration** to 200 (2 seconds) and set **Undraw Method** to **Leave** (Setting it to **Leave** means that this picture will only replace parts of the previous picture that it covers. Any parts that aren't covered will remain. This setting is important for the smaller images).
- 26 For the second image, set the **duration** to 10 ($\frac{1}{10}$ second). Set the **Undraw Method** to leave. Position the image by setting **left** to 58 (58 pixels from the left) and setting **top** to 31 (31 pixels from the top). Repeat these setting for the third picture.
- 27 Select the second image and click the copy icon . Click the past icon  to paste a copy of the second image. Use the up and down arrows   to position this copy after the third image so that it becomes the fourth image. Ensure that this new image has the same **Image** settings as the second and third one.
- 28 Click the preview icon  to see how your animation looks.
- 29 Click the save as icon  and save your file as animation.gif.

³ You can get a copy of this program from the *Other HTML Resources* section at <http://www.oneil.com.au/pc/html/>