Color Palettes

256-color, or 8-bit ($2^8 = 256$), palettes are used to keep image file sizes small. Usually, the standard system palettes for Macintosh and Windows do an adequate job of representing the colors in a wide range of documents. The two palettes are quite different from each other however – the Mac palette tends to be a bit softer in tone, while the Windows palette has some brighter colors, and the sequence of colors is very different between the two. Windows reserves 20 colors (10 at the start of the palette, 10 at the end) for its use in the system interface; the Mac only requires that white be the first color (position 0) and black be the last (position 255). As a result, an image indexed to the Mac palette will generally have more subtle color gradations and be softer overall than the same image indexed to the Windows palette. Of course, this also varies with the specific content of the image.

If you are working only in black and white, you can use a Grayscale palette, which has 256 evenly distributed levels of black from 0% to 100%.

The Web-safe palette (also known as the "Netscape palette") only has 216 colors, all the combinations of six evenly distributed values of red, green and blue (R, G, B). HTML represents colors as a triad of RGB values in a six-digit hexadecimal (base 16) number, such as "0033FF" (which means 0% Red $[00_{16}]$, 20% Green $[33_{16}]$, 100% Blue $[FF_{16}]$) – a bright blue color. Each of R, G and B can have one of these six hexadecimal values: 00, 33, 66, 99, CC, FF. By combining all possible trios of R, G and B with those values, you arrive at 216 possible colors. This is one reason why Web page colors seem somewhat limited. The benefit is that these colors are supposed to look identical under all browsers and on all platforms (Mac, Windows, UNIX), so your image, or text color, or background color should look the same in all cases.

Below is the Netscape "color cube", which contains all of the 216 colors in a logical sequence:



(color cube flattened-out)

The following table shows the allowable values for each of R, G and B in the Netscape palette:

RGB	Hex	%
0	00	0
51	33	20
102	66	40
153	99	60
204	CC	80
255	FF	100



the 256 color Macintosh System palette



the 256 color Windows System palette (note first 10 and last 10 colors)



the 216 color Web-safe palette



the 256 color Grayscale palette