

How Saving A Bit Map Works



Bit-mapped graphics represent one of the most popular graphics file formats used on PCs. For example, the Paint program in Windows creates bit-mapped images. Each bit map includes one or more bits that describe the color of each tiny square, known as a **pixel**, that form the image.

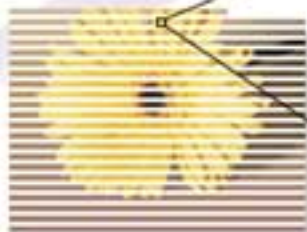
In a 24-bit color graphic, such as the one below, each pixel is represented by 3 bytes: one red, one green, and one blue. These are known as the graphic's **RGB values**. Because this is a 24-bit graphic, each of its pixels has the possibility of using 256 shades of red, green, and blue. This means a pixel could be any one of more than 16 million colors.

To save these files, the RGB values must be converted into palette values, which are determined by the program you are using to save the file. Each pixel in the file is listed by its palette

number rather than by each color value number. The palette numbers are used to limit the amount of bits needed to describe each pixel. Although bit-mapped files can still be quite large, saving the values for each pixel takes only a couple of seconds. Here is how it works:



You can create a 24-bit image in a graphics program such as Paint.



A graphics program saves the image line by line, from the bottom to the top.



Each of the pixel's three-color values, RGB (red-green-blue), are read from left to right.

R 250	R 244	R 238
G 210	G 195	G 182
B 94	B 69	B 51
R 242	R 235	R 222
G 190	G 176	G 160
B 60	B 42	B 26
R 228	R 218	R 201
G 167	G 153	G 148
B 27	B 17	B 53

A graphics program translates the RGB values into palette values. The palette values are a software-specific decision; each program's values are different.

Each palette value, a hexadecimal value in this case, is stored in the same order as displayed in the image.

FAD25E	F4C345	EEB633
F2BE3C	EBB02A	DEA01A
E4A71B	DA9911	C99435

The pixel values are stored in the bit-mapped file in the same width and depth as the original image.



Forming A Pixel

A pixel is the smallest part of an image that a computer's monitor can control. Each pixel consists of three colors: red, green, and blue. Each of the three colors is assigned a value that shows its intensity; the values are from 0 to 255. You can think of each value as a percentage. For example, 127 has a 50% intensity. These are known as the RGB values.



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