

Introduction

A BMP file is typically used to store an uncompressed image. The example below shows the file format.

The file characteristics are:

1. All numbers are in "little endian" format.
2. The image is nearly always uncompressed.
3. The color palette is not included for 24 bit/pixel images.
4. Image data starts with the lower/left corner pixel and proceeds up/right, finishing with the upper/right corner pixel.
5. Each image line must be modulo 4 bytes in length (pad with zeros). For example, a 24 bit/pixel image with an image width of 75 uses 225 RGB bytes plus 3 zeros for each image line.

Table 1: BMP File Format Example For 32 x 32 Image with 24 bits/pixel *

	Num Bytes	Example Data	Description
54 Byte Header	2	0x42,0x4D	always = "BM"
	4	0x36,0x10,0x00,0x00	total size of file
	4	0x00,0x00,0x00,0x00	reserved
	4	0x36,0x04,0x00,0x00	offset to start of bitmap data
	4	0x28,0x00,0x00,0x00	size of header (always = 40)
	4	0x20,0x00,0x00,0x00	image width
	4	0x20,0x00,0x00,0x00	image height
	2	0x01,0x00	number of bit planes (always = 1)
	2	0x18,0x00	number of bits/pixel (must be 1, 4, 8 or 24)
	4	0x00,0x00,0x00,0x00	compression type (0 = no compression)
	4	0x00,0x0C,0x00,0x00	image size in bytes
	4	0x12,0x0B,0x00,0x00	horizontal resolution in pixels/meter
	4	0x12,0x0B,0x00,0x00	vertical resolution in pixels/meter
	4	0x00,0x00,0x00,0x00	num color indexes in palette (0 = all, i.e. 2, 16 or 256)
	4	0x00,0x00,0x00,0x00	num color indexes in palette which are important (0 = all)
Color Palette	4	blue,green,red,0	color palette index 0 RGB value
	4	blue,green,red,0	color palette index 1 RGB value
	4	blue,green,red,0	color palette index 2 RGB value
	4	blue,green,red,0	color palette index 3 RGB value
	4	blue,green,red,0	color palette index 4 RGB value
		- - - etc - - -	- - - etc - - -
	4	blue,green,red,0	color palette index n RGB value
Bitmap Data	3	blue,green,red	lower/left image pixel
	3	blue,green,red	lower/left image pixel + 1
	3	blue,green,red	lower/left image pixel + 2
	3	blue,green,red	lower/left image pixel + 3
	3	blue,green,red	lower/left image pixel + 4
		- - - etc - - -	- - - etc - - -
	3	blue,green,red	upper/right image pixel - 3
	3	blue,green,red	upper/right image pixel - 2
	3	blue,green,red	upper/right image pixel - 1
	3	blue,green,red	upper/right image pixel

* Color palette is shown for illustration, normally 24 bit/pixel images do not have a color palette.