The Structure of the Bitmap Image File (BMP)

Bitmap File Header
BITMAPFILEHEADER

Signature
File Size
Reserved1	Reserved2
File Offset to PixelArray

DIB Header
BITMAPV5HEADER

Older DIB Headers can be substituted for the **BITMAPV5HEADER**

DIB Header Size
Image Width (w)
Image Height (h)
Planes	Bits per Pixel
Compression
Image Size
X Pixels Per Meter
Y Pixels Per Meter
Colors in Color Table
Important Color Count
Red channel bitmask
Green channel bitmask
Blue channel bitmask
Alpha channel bitmask
Color Space Type
Color Space Endpoints
Gamma for Red channel
Gamma for Green channel
Gamma for Blue channel
Intent
ICC Profile Data
ICC Profile Size
Reserved

Note: The size of
Color Space Endpoints is 36 Bytes

(This diagram does not depict it proportionally.
It is drawn in that manner only to save
vertical space.)

Color Table (semi-optional)

Color Definition (index 0)
Color Definition (index 1)
Color Definition (index 2)
⬧
⬧
Color Definition (index n)

GAP1 (optional)

Note: The presence of the Color Table
is mandatory when Bits per Pixel ≤ 8

Note: The size of Color Table Entries
is 3 Bytes if **BITMAPCOREHEADER**
is substituted for **BITMAPV5HEADER**

Pixel Format

Pad row size to a multiple of 4 Bytes

Image Data
PixelArray[x,y]

Pixel[0,h-1]	Pixel[1,h-1]	Pixel[2,h-1]	...	Pixel[w-1,h-1]	Padding
Pixel[0,h-2]	Pixel[1,h-2]	Pixel[2,h-2]	...	Pixel[w-1,h-2]	Padding
			◇		
			◇		
			◇		
Pixel[0,9]	Pixel[1,9]	Pixel[2,9]	...	Pixel[w-1,9]	Padding
Pixel[0,8]	Pixel[1,8]	Pixel[2,8]	...	Pixel[w-1,8]	Padding
Pixel[0,7]	Pixel[1,7]	Pixel[2,7]	...	Pixel[w-1,7]	Padding
Pixel[0,6]	Pixel[1,6]	Pixel[2,6]	...	Pixel[w-1,6]	Padding
Pixel[0,5]	Pixel[1,5]	Pixel[2,5]	...	Pixel[w-1,5]	Padding
Pixel[0,4]	Pixel[1,4]	Pixel[2,4]	...	Pixel[w-1,4]	Padding
Pixel[0,3]	Pixel[1,3]	Pixel[2,3]	...	Pixel[w-1,3]	Padding

Pixel[0,2]	Pixel[1,2]	Pixel[2,2]	...	Pixel[w-1,2]	Padding
Pixel[0,1]	Pixel[1,1]	Pixel[2,1]	...	Pixel[w-1,1]	Padding
Pixel[0,0]	Pixel[1,0]	Pixel[2,0]	...	Pixel[w-1,0]	Padding

GAP2 (optional)

ICC Color Profile (optional)

Embedded, variable size
ICC Color Profile Data.

(or path to a **linked** file
containing
ICC Color Profile Data)

Note: The ICC Color Profile may be present only when the **BITMAPV5HEADER** is used.

(This diagram wrongly suggests that the size of Color Profile must be a multiple of 4 Bytes.
It is drawn in that manner only to save vertical space.)

Byte offset: 0 1 2 3 4 5 6 7 8 9 10 11