BMP Heads

Head

$1 \sim 2, 2\text{B}$

```
42 4D
BM
const
```

Only `BMP` file head.

FileSize

$3 \sim 6, 4\text{B}$

```
xx xx xx xx
int
```

文件大小.

此处及之后 `int` 型数据均以此方式存储:

$$x_1, x_2, x_3, x_4, : x_i = \text{hex}(\text{size})[-2i : -2i + 2].$$

bfReserved

$7 \sim 8, 9 \sim 10, 2 * 2 = 4\text{B}$

```
00 00 00 00
const
```

bfOffBits

$11 \sim 14, 4\text{B}$

```
xx xx xx xx
int
```

偏移量,即文件头总长度.
`24位位图` 为 54 即 `36 00 00 00` .

24位位图 Heads

After BMP Heads.

biSize

$15 \sim 18, 4\mathrm{B}$

```
28 00 00 00
const int
```

24位位图 Heads 长度,为 40 即 `28 00 00 00`.

biWidth,biHeight

$19 \sim 22, 23 \sim 26, 2 * 4 = 8\mathrm{B}$

```
xx xx xx xx   xx xx xx xx
int
```

宽和高.

biPlanes

$27 \sim 28, 2\mathrm{B}$

```
01 00
const
```

biBitCount

$29 \sim 30, 2\mathrm{B}$

```
18 00
const short
```

像素 `bit` 数,为 24 即 `18 00`.

biCompression

$31 \sim 34, 4\mathrm{B}$

```
00 00 00 00
const int
```

压缩等级,为 0 即 `00 00 00 00`.

ImageSize

$35 \sim 38, 4B$

```
XX XX XX XX
int
```

图片内容大小(像素数∗3B).

Others

$39 \sim 54, 16B$

```
00 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00
```

24位位图 模板

```
42 4D XX XX XX XX 00 00  00 00 36 00 00 00 28 00
      [FileSize ]
00 00 XX XX XX XX XX XX  XX XX 01 00 18 00 00 00
      [ Width  ] [ Height  ]
00 00 XX XX XX XX 00 00  00 00 00 00 00 00 00 00
      [ImageSize]
00 00 00 00 00 00
```

Total: $54B$

e.g. $1280 * 720$

$\text{Width} = 1280 = 0x0500, \text{Height} = 720 = 0x02D0,$
$\text{ImageSize} = 1280 * 720 * 3 = 2764800B = 0x002A3000,$
$\text{FileSize} = \text{ImageSize} + 54 = 2764854B = 2.64MB = 0x002A3036.$

```
42 4D 36 30 2A 00 00 00  00 00 36 00 00 00 28 00
      [FileSize ]
00 00 00 05 00 00 D0 02  00 00 01 00 18 00 00 00
      [ Width  ] [ Height  ]
00 00 00 30 2A 00 00 00  00 00 00 00 00 00 00 00
      [ImageSize]
00 00 00 00 00 00
```

e.g. $1920 * 1080$

Width $= 1920 = 0x0780$, Height $= 1080 = 0x0438$,
ImageSize $= 1920 * 1080 * 3 = 6220800B = 0x005EEC00$,
FileSize $=$ ImageSize $+ 54 = 6220854B = 5.93MB = 0x005EEC36$.

```
42 4D 36 EC 5E 00 00 00  00 00 36 00 00 00 28 00
      [FileSize ]
00 00 80 07 00 00 38 04  00 00 01 00 18 00 00 00
      [  Width  ] [  Height  ]
00 00 00 EC 5E 00 00 00  00 00 00 00 00 00 00 00
      [ImageSize]
00 00 00 00 00 00
```

e.g. $2560 * 1080$ (choose this)

Width $= 2560 = 0x0A00$, Height $= 1080 = 0x0438$,
ImageSize $= 2560 * 1080 * 3 = 8294400B = 0x007E9000$,
FileSize $=$ ImageSize $+ 54 = 8294454B = 7.91MB = 0x007E9036$.

```
42 4D 36 90 7E 00 00 00  00 00 36 00 00 00 28 00
      [FileSize ]
00 00 00 0A 00 00 38 04  00 00 01 00 18 00 00 00
      [  Width  ] [  Height  ]
00 00 00 90 7E 00 00 00  00 00 00 00 00 00 00 00
      [ImageSize]
00 00 00 00 00 00
```

e.g. $7680 * 4320$

Width $= 7680 = 0x1E00$, Height $= 1080 = 0x10E0$,
ImageSize $= 7680 * 4320 * 3 = 99532800B = 0x05EEC000$,
FileSize $=$ ImageSize $+ 54 = 99532854B = 94.9MB = 0x05EEC036$.

```
42 4D 36 C0 EE 05 00 00  00 00 36 00 00 00 28 00
      [FileSize ]
00 00 00 1E 00 00 E0 10  00 00 01 00 18 00 00 00
      [  Width  ] [  Height  ]
00 00 00 C0 EE 05 00 00  00 00 00 00 00 00 00 00
      [ImageSize]
00 00 00 00 00 00
```