## STEGMNOGRMPHY

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## MTERMARKS







## STEGMNOGRMPHY

#### steganography

/st**eg**ə'n**pg**rəf**ı**/

noun

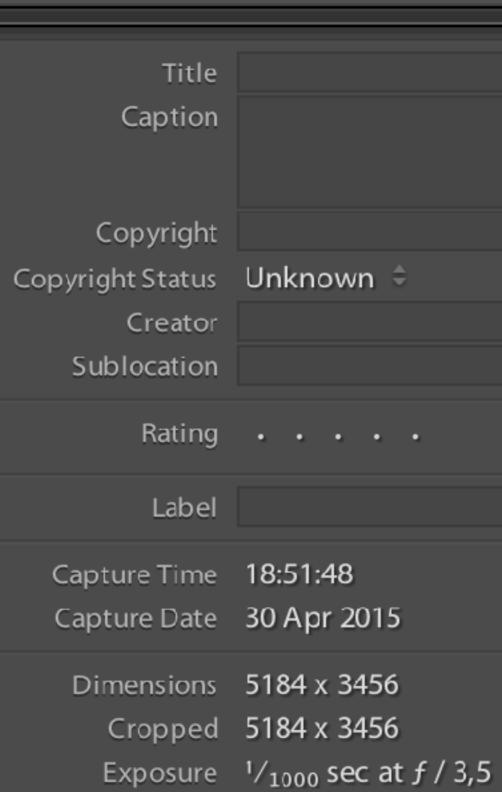
the practice of concealing messages or information within other non-secret text or data.

## IMAGES





ISO 3200	18 mm	f / 3,5	<sup>1</sup> / <sub>1000</sub> sec
"!" Photo is missing			



Flash Did not fire

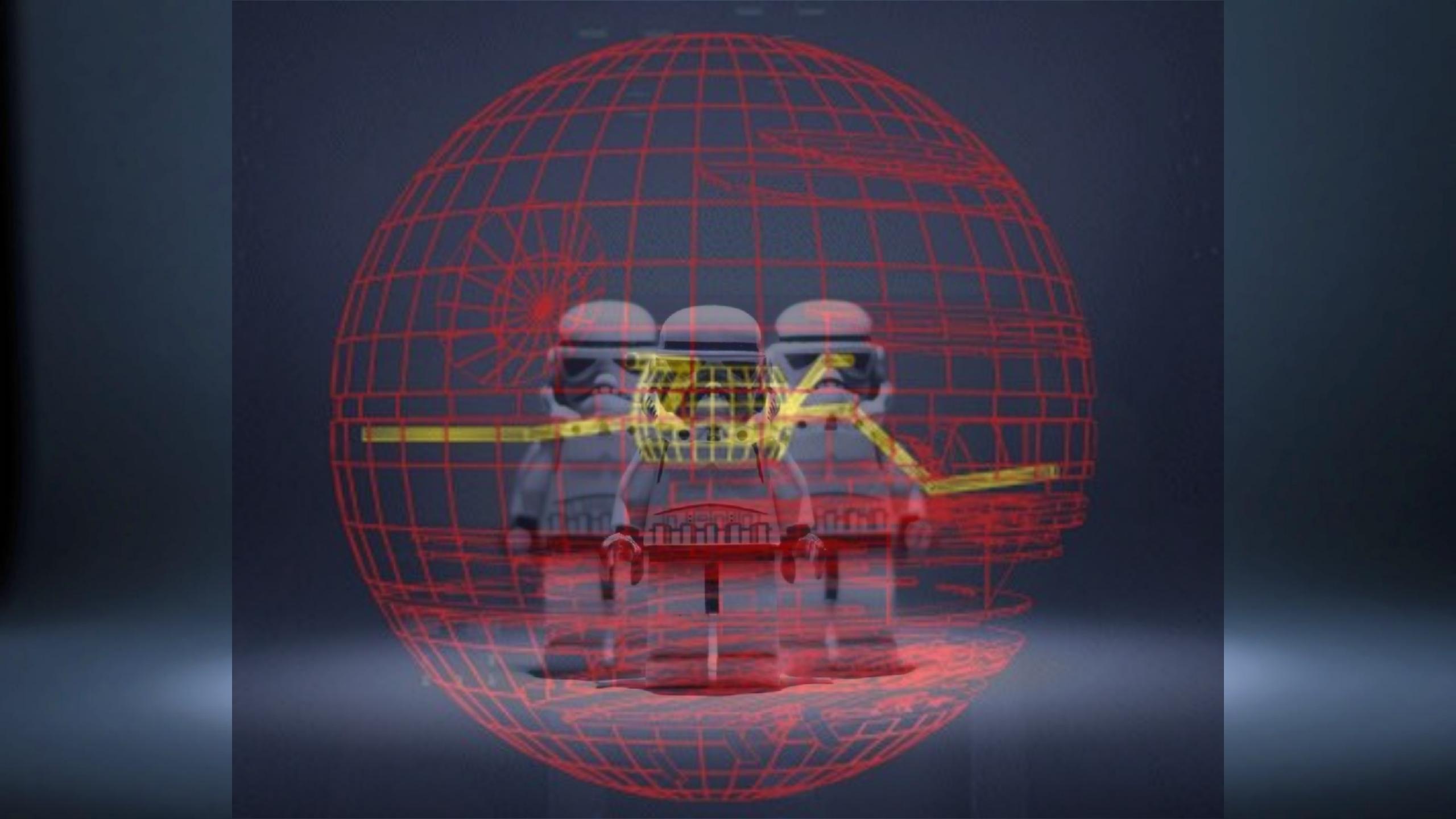
Model Canon EOS 700D

Lens EF-S18-55mm f/3.5-5.€

Make Canon

EXIF, iTXt (PNG), comment (JPEG)

Are extremely easy to spot and to strip

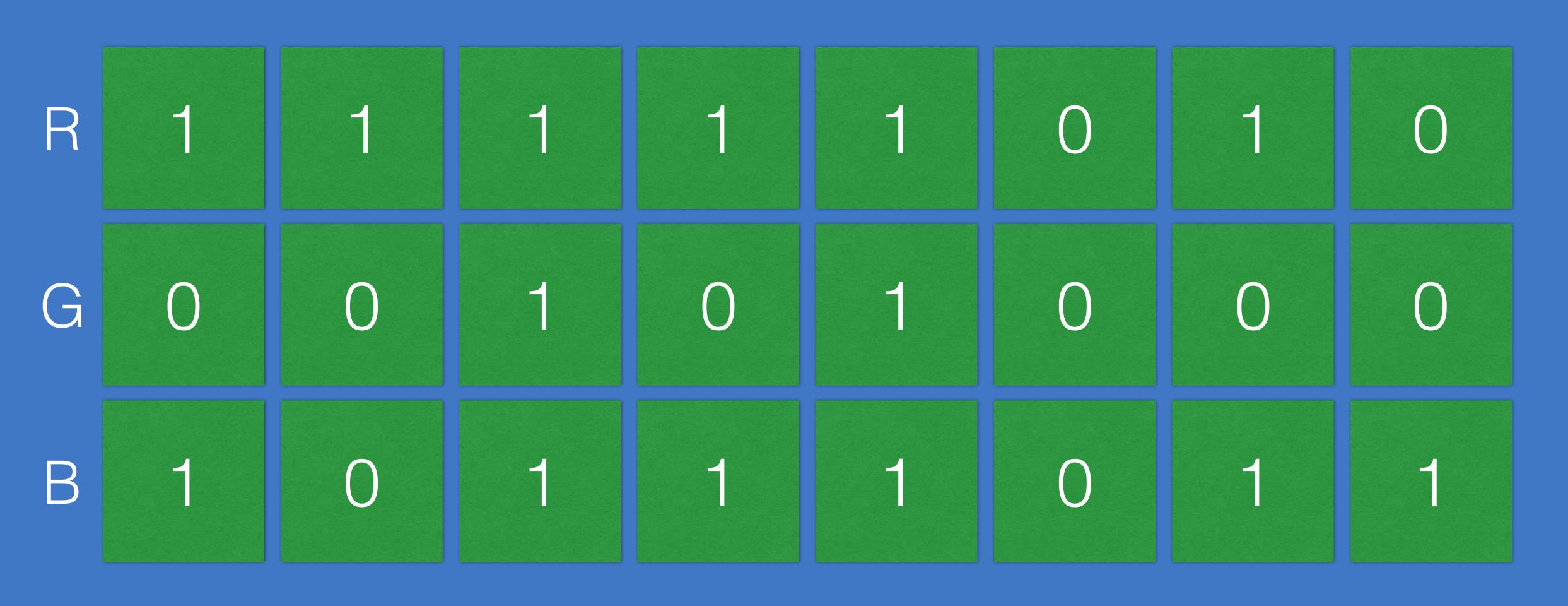




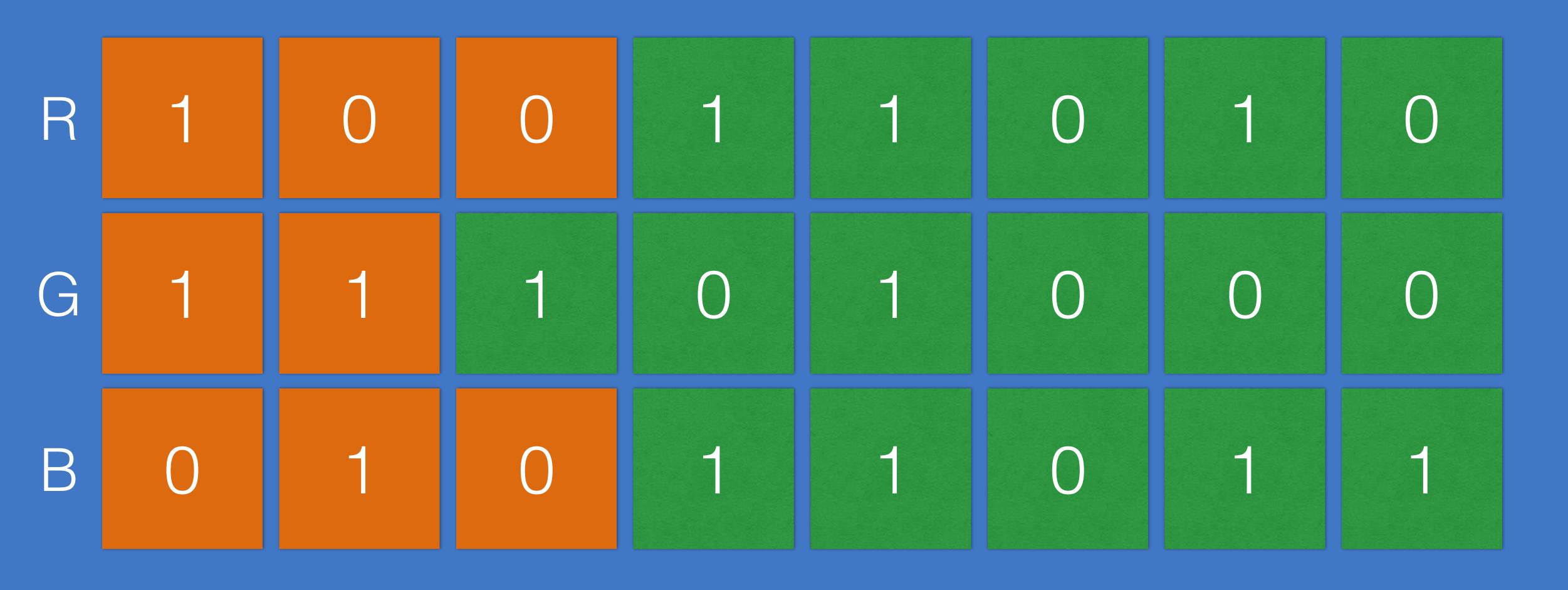
#### Byte of data



## Bytes of color



## Bytes of color



1byte of data = 1pixel

```
def build_file_package(file)
  file_name = File.basename(file)
  data = file.read
    file_name.length,
    file_name.unpack('C*'),
    [data.length].pack('q*').unpack('C*'),
    data.unpack('C*')
  ].flatten
end
def infuse_components_with_byte(store, r, g, b, byte)
  store << (byte ? (r & 248 | ((byte >> 5) & 7)) : r)
  store << (byte ? (g & 252 | ((byte >> 3) & 3)) : g)
  store << (byte ? (b & 248 | (byte & 7)) : b)
end
```

```
# image.ppm
P3
4 4
15
        b
#r
                  b
     g
                      g
     0
 0
                      0
                                         15
        0
               0
                  0
                            0
                                   0
                                              0
                                                15
                               0
 0
     0
               0 15
                            0
                                0
        0
                                          0
                                    0
                                              0
                                                  0
 0
     0
                               15
                                          0
        0
                  0
                                                  0
               0
                      0
                                              0
15
       15
     0
               0
                   0
                      0
                            0
                                          0
                                                  0
                                0
                                    0
                                              0
```

# RESULT





# PROBLEMS

- · Compression (e.g. PNG => JPEG)
- · Manipulation (Filters, Tints, Rotation, Resizing)

# PLMNS

- · Opensource all algorithms
- · Remove dependency on ImageMagick