

# Bitmap, editing, formats

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# Overview

- ◆ Color models
- ◆ Color depth
- ◆ Static image
- ◆ Raster vs. Vector
- ◆ Raster data compression
- ◆ Common raster data formats

# Color models

◆ RGB (RGBA)

◆ CMY (CMYK)

◆ HSB, HSL

◆ YUV

◆ ...

# Color depths

- ◆ Full color – 24 bits, 3 bytes
- ◆ Indexed color (color mapped) – 4 bits, 8bits – 256 colors
- ◆ Color table
- ◆ 1: 255 0 0
- ◆ 2: 123 234 123
- ◆ Gray scale – 1 byte, 8 bits
- ◆ BW – 1 bit

# Static image – how to get it?

- ◆ Digital photo (video)
- ◆ Scan
- ◆ Draw – construct
- ◆ Generate (fractals, etc.)

# Static image – how to represent?

- ◆ Raster

- ◆ 8 bits

- ◆ 1 1 1

- ◆ 2 3 4

- ◆ 3 4 5

- ◆ Palete

- ◆

- ◆ Vector

# Raster



# Raster – zoom in





# Raster vs. vector

**GIS**

**GIS**

# Raster - resolution

- ◆ Width x Height in pixels
- ◆ DPI – Dot (pixel) per inch - in connection to the Printing or Scanning
- ◆  $15 \text{ cm} / 2.5 = x \text{ v palcich}$
- ◆  $6 * 300 \text{ DPI} = 1800 \text{ pixels}$
- ◆  $4 * 300 \text{ DPI} = 1200 \text{ pixels}$
- ◆  $1800 \times 1200 * 3 = 6.4 \text{ MB}$

# Data compression

- ◆ Loss

- ◆ Loss less

# Data compression

- ◆ RLE
- ◆ LZW, Huffman
- ◆ DCT
- ◆ Fractal
- ◆ Wavelet

# Bitmap Formats

- ◆ PNG

- ◆ JPEG

- ◆ GIF

- ◆ BMP

- ◆ Interlacing

- ◆ Alpha

- ◆ Color depth

# OCR

- ◆ By Patern

- ◆ By Shape

# Tools

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- ◆ Drawing
- ◆ Masking
- ◆ Layers
- ◆ Color management
- ◆ Transformation
- ◆ Fake (Retouch)
- ◆ Filters