

*"Bandwidth is the rule. If you make your audience wait for large graphics to download, you will lose them."*

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## IMAGE PROCESSING FOR THE WWW

### Vocabulary

aliasing	color depth	dimensions	interlace	resolution
anti-aliasing	color mode	dither	lossless	RGB
artifacting	CLUT	dpi	lossy	saturation
bit depth	CMYK	hexidecimal	pixel	scan, scanner, scanning
bitmap	diffusion	hue	ppi	transparency
compression	digitize	inline	progressive	value

### File Formats for Web images

#### GIF Graphics Interchange Format .gif

- lossless
- indexed color = maximum 256 color palette = 8 bits or less
- good for graphics, images with flat color, line art
- INTERLACED, loads in blocky and then comes into focus (as opposed to top down loading)
- TRANSPARENCY of one color allows for organic appearing image shape as opposed to rectangular image shape
- In Photoshop: Mode > indexed, greyscale or bitmap > 8 bit, System, Diffusion
- In CS Versions of Photoshop or Illustrator: use "Save for web"
- most browsers use palette similiar to the system palette
- diffusion dithering most pleasing appearance for low bit depth images (lack of can cause banding), also larger GIF files, removes areas of solid color, adds noise
- Reduce your graphics to the lowest depth that still provides acceptable image quality
- 8 bit usually ok for photos, sometimes 7 bit, try Adaptive palette at 6 bit (with caution)
- GIF 89a format supports multiple frames inside a single image file = Gif Animation

#### JPEG Joint Photographic Experts Group .jpg .jpeg

- lossy, a compression scheme
- full color
- subtle gradients, meant for photographic quality
- progressive (similar to interlacing) loads in blocky or out-of-focus to in-focus, as opposed to top down
- may have artifacting from compression
- small file size
- best if RGB, but sometimes other color spaces work. If the image reads strangely, check the color mode.
- Medium or Low image quality/High compression is usually ok, compression rate is dependent on individual image information
- Always work from original or lossless format (TIFF, PSD, AI or PICT), image information is lost with each "Save" thus "lossy"
- In Photoshop or Illustrator: use "Save for web"
- This is what most digital cameras default as their file type. To archive digital photos Save As TIFF files

#### PNG Portable Network Graphics .png

- created for web images: 24 bit, interlaced, transparency, lossless compression, small file size
- many professionals are reporting PNG images to be disappointing, not fulfilling expectations, although we are starting to see more of them online, and they have strong applications in other software situations
- Firework's native file format

The accepted resolution of images for webpages is 72 ppi.

## HTML for Images

Inline images appear inside the page: use relative path name, if possible, to load only once

```

```

```
 x = measurement in pixels, assists browser in loading quicker
```

```
 loads low resolution file first (2 frame animation)
```

To wrap text use the ALIGN attribute

```
align="left" align="right" align="center"
```

Vertical align (valign) values: top, bottom, middle, texttop, absbottom, absmiddle

To give space in pixels around image:

```
hspace=5 (horizontal space in pixels), vspace=5 (vertical space in pixels)
```

To change the border width of a hyper image:

```
border=x x is width of border in pixels
```

Linking to an image from an image

```
<a href="url/image.type"></a>
```

## Scanning

The most common way to digitize images is through the use of a scanner. There are many types of scanners. The most common are: flatbed scanners that scan flat imagery as well as 3-D objects, such as pencils, placed on the scanning bed (although results for 3-D objects are less predictable), slide scanners that specialize in digitizing transparencies, drum scanners that allow media to be wrapped around a cylinder which spins. Bitmapped or digitized images have three basic types of information: resolution, bit depth, and dimensions. The settings for each of these is selected during the scanning process in the scanning dialog box. Images may be scaled to a larger or smaller size during scanning. Images are also assigned a color mode or color space such as RGB, CMYK or Grayscale.

### Generic Scanning Instructions

1. Place image face down on the scanner
2. Open PhotoShop: File > Acquire > Scanner Name
3. Select settings: Image Type (bit depth), Resolution, File Format
4. Click preview. Adjust as needed.
5. Define scan area: Use the mouse to drag a selection marquee around the area you want to scan, Zoom for close up
6. Click Final or Acquire or Scan
7. Save to your disk

## Scanning Tips

When scanning color images on a flatbed scanner, it is best to scan in 24-bit color and at 150 ppi. A good rule of thumb is to scan at twice the resolution of your target. In multimedia, including webpages, your target resolution is usually 72 ppi, so scanning at 150 ppi is about right. This applies only when the size of the image you are scanning is the correct size or larger. If you need to enlarge the image, then you should scan at a higher resolution.

## Anti-Aliased & Aliased Graphics

Since an image is made up of pixels and pixels are square, the edges of computer images look jagged. Such a jagged appearance is most noticeable on the curves of images—they look like stairsteps. That type of rough, jagged edge is referred to as an "aliased" edge. To avoid the stairstepping and soften an image's appearance, you can use a technique known as anti-aliasing. Anti-aliasing slightly blends the edges of an image into its surroundings so that your eye perceives smoother, more natural edges.

## The Browser Safe Color Palette/Color Look Up Tables (CLUT)

CLUTs display monitor safe colors for both Macintosh and PC platforms. Weinmann's tables give the Hexidecimal equivalents for each color as well. The Browser Safe palette is the actual palette that most browsers use. The palettes used by these browsers are slightly different on Macs and PCs.

- The Browser Safe Palettes only contain 216 colors out of a possible 256. That is because the remaining 40 colors vary on Macs and PCs. By eliminating the 40 variable colors, this palette is optimized for cross-platform use.
- The Browser Safe Palette should not be used to remap color photographs.
- It is better to use an adaptive palette (with no dithering, if possible) and let the end-browser do any additional dithering.
- The Browser Safe Palette is useful for flat-color illustrations, logos with flat-color, and areas in any image that have a lot of a single color.
- When a browser dithers flat colors it looks far more objectionable than when it dithers photographs.

This palette is based on math, not beauty.

RGB values 00, 51, 102, 151, 204, 255

hexidecimal values 00, 33, 66, 99, CC, FF

00 = 0% 127 = 50% 255 = 100%

Coded in webpages as red green and blue values, 2 characters for each= #rrggbb