Print Photos That Tell a Clear Story

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Topic Overview

- Resolution
- Megapixels to Inches
- File Management
- Image Production Workflow

Resolution Defined

- Resolution is defined as the measure of fine detail.
  - Its limit is defined by the finest spot a system can render

Resolution Defined (more)

- Resolution is commonly measured in units per inch or centimeter
  - PPI is pixels per inch
  - DPI is dots per inch
  - LPI is lines per inch

Resolution Defined (more)

- PPI is pixels per inch
  - Pixels ("picture elements") are the units that describe the resolution of image files
    - The more pixels, the higher the resolution
      - Number of pixels determines file size too
    - Pixels are variable in actual size, however
      - The same number of pixels can be stretched over any length and width

Resolution Defined (more)

- DPI is dots per inch
  - DPI is the basic measure of resolution for print devices
  - DPI is determined by the technology's limits
    - 360dpi for inkjet, 600dpi for laser printers, etc.
  - For quality, PPI must correlate with DPI
    - Generally, 300ppi is enough

Resolution Defined (more)

- LPI is lines per inch
  - Lines per inch is the measure of resolution used for printing presses
    - The higher the quality paper printed on, the higher the LPI that can be used
      - A yearbook may print at 150lpi, a newspaper at 100lpi or lower

  - PPI must correlate to LPI as well
    - 300ppi is generally enough here too

Resolution: Cameras

- Camera CCDs
  - Digital cameras use CCD sensors that have sample points arranged in an area array
    - Their resolution is measured in megapixels
   - They capture RGB
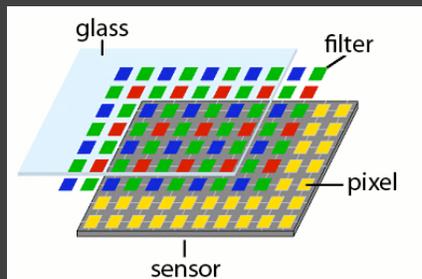
Resolution: Cameras

- Megapixels
  - Multiplying the total number of individual sample points by length and width will give the megapixel value
    - 2048 x 1536 = 3.1 megapixels (3,145,728)

Resolution: Cameras

- Megapixels to ppi for print
  - Megapixels translate to file size (MB)

  - File size translates to total number of pixels

  - The rule of thumb: For the highest quality, you need enough pixels to give you 300ppi at the final print size

Resolution: Cameras

- Megapixels to pixels per inch
  - A 6.3 megapixel camera will create enough pixels to produce an 18MB file
    - 6.827x10.24 @300ppi
   - Can be resized. . .
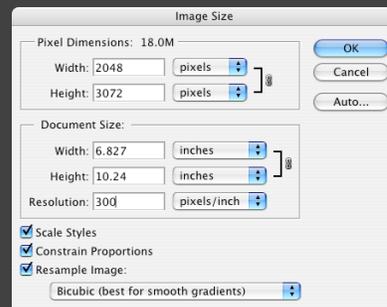
Resolution: Resizing for Print

- Resizing a file is often necessary
  - Most cameras capture at a file size different than what is needed

  - For quality, there are some rules of thumb to follow when resizing. . .
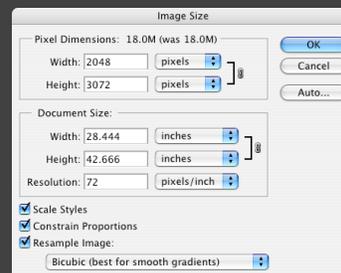
Resolution: Resizing for Print

- Software can effectively downsize better than it can enlarge files
  - Start with the largest camera file you think you will need
    - You can resample up to enlarge to 300%
    - You can resample down as much as needed

Resolution: Resizing for Print

Print resolution is determined by the number of pixels *per inch*, not by the total number of pixels.
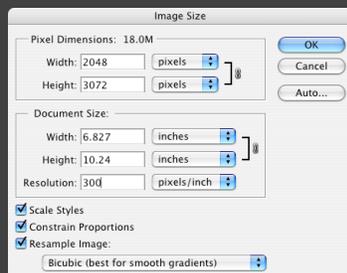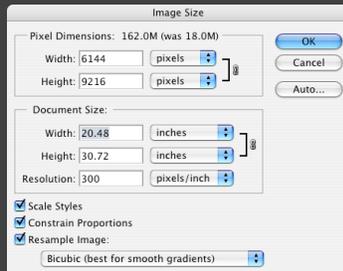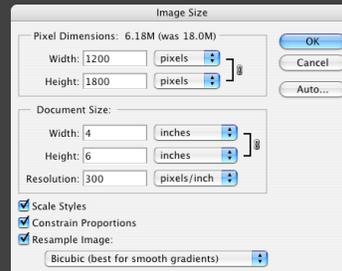

Original file @ 300ppi

Same file size @ 72ppi

Resolution: Resizing for Print

Resampling a file changes its file size. It is important to maintain a resolution at 300ppi.

File resampled up

File resampled down

Resolution: Resizing for Print

- When to resize
  - Set your camera resolution to the highest resolution that you might need
    - Resize your images only after you know your basic layout scheme
      - How big are the picture boxes in your layout?
      - What are the largest picture boxes you have?

Resolution: Resizing for Print

- The right tool for the right job
  - Image resizing needs are determined by page layout and design but. . .
  - For best quality, all image resizing should be done in image editing software
    - e.g.: Photoshop

Resolution: Resizing for Print

- Something from nothing
  - The great mistake that many make is starting with a "low res" image file and then trying to improve it
  - Rules of thumb:
    - Start with at least a 5MB file whenever possible
    - Don't use internet images
      - For quality and legal reasons

Resolution: Print vs. Monitor

Left eye at print resolution   Left eye at display resolution

File Organization

- Once you've acquired good image files
  - You need to stay organized
  - You need to be able to search and retrieve

- You need a plan. . .

File Organization

- Folder structure and naming conventions
    - Create a folder hierarchy that makes sense
        - Set up the organization scheme before you begin work and maintain it as you go

    - Name your files intelligently & intuitively
        - Make sure naming conventions are maintained

File Organization

- Working files vs. final files
    - There must be separate folders for original image (camera) files, image selects that are being worked on, and the final versions of each image file.
        - This is part of your folder hierarchy

File Organization

- Working files vs. final files
  - File types will overlap this organization
    - JPEG = original camera files
    - PSD = files being edited
    - TIFF = files ready for print

File Organization

- Back-up everything
  - File storage is cheap
  - Redoing your work at the 11th hour is not

- Back-up your work often

Adjusting Images for Print

- Most images need a little fine tuning. . .
  - Here's the workflow to follow
    - Adjust highlight
    - Adjust shadow
    - Adjust midtones
    - Adjust color
    - Convert to B&W or CMYK

Adjusting Images for Print

- If you are using Photoshop. . .
  - Always use Adjustment Layers
    - Allows for flexibility during editing
    - Allows you to learn without hurting the file
    - Allows for the "undoing" of any change so long as the layers are still not "Flattened"

Adjusting Images for Print

- The first adjustment is to the highlights
  - Highlights are the lightest pixels within an image that have (or should have) detail
    - e.g.: clouds, a white shirt, etc.

  - This adjustment can correct for exposure
    - Will result is an overall lightening or darkening of all tones and colors in the image

Adjusting Images for Print

- The next adjustment is to the shadow
  - Shadows are the darkest pixels within an image that have (or should have) detail
    - e.g.: dark gray or black objects, etc.

  - This sets the limit for how dark anything will get in the reproduction

Adjusting Images for Print

- The midtone adjustment follows
  - Midtones are all of the point in-between the highlight and shadow limits
    - This is <u>most</u> of the image

  - This adjustment sets the visual contrast for the image and reveals the detail in the areas you want to emphasize

Adjusting Images for Print

- Color adjustments follow tone
  - HL, SH and midtones adjustments alter all colors in an image file, so we do them <u>first</u>.
    - If HL, SH and midtone adjustments are done well, there is little need for color adjustments

  - Overall color adjustments should be done before more selective adjustments

Adjusting Images for Print

- If converting to B&W, you only need to adjust HL, SH and midtone
  - But, if you use an Adjustment Layer to get a B&W preview, color adjustments may help make for a better result

- You can convert to B&W (grayscale) early or late, but keep your original RGB camera file for later use either way. . .

Adjusting Images for Print

- If your print service provider specifies that you need to convert all files to CMYK, follow their exact instructions on how to do so
  - Convert image files only when they are done being edited. Before this point, they should remain in RGB

Summary

- Resolution matters, a lot
  - Start with the data you need in the end

- Stay organized
  - Begin with a plan and stick to it

- Image adjustment is a process
  - And a little more a science than an art

Questions?

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