

Digital Workflow

With Adobe Photoshop

Agenda

- Introduction to Concepts
- Before You Begin
- Generalized Workflow
- Output Specific Steps
 - Projection
 - Web
 - Print

Assumptions of this Presentation

- You are shooting in RAW
 - Some concepts still apply if you are shooting just JPEG
 - JPEG shooters should
 - Set your camera color space to Adobe RGB
 - Set your default working area in Photoshop to Adobe RGB
 - Choose Adobe RGB when importing in camera RAW
- You are using Adobe Photoshop Elements, Photoshop Creative Suite (CS), Adobe Lightroom or similar photo editing software

INTRODUCTION TO CONCEPTS

Non Destructive Workflow

- It's important to understand what actions are destructive to your images
- Destructive in this context means once you've made the change, saved your file, you can't come back and undo your change at later date.

Non Destructive Workflow

- Example of Non Destructive Action
 - An adjustment done on a blank layer or on an adjustment layer
- Example of a Destructive Action
 - Any adjustment done directly to the image layer altering it's pixels such as Levels, Brightness/Contrast or Hue/Saturation in Photoshop
 - Sharpening
 - Blurring
 - Changing an image from 16-bit to 8-bit
 - Using the clone tool or the spot healing brush directly on an image layer in Photoshop

Non Destructive Workflow

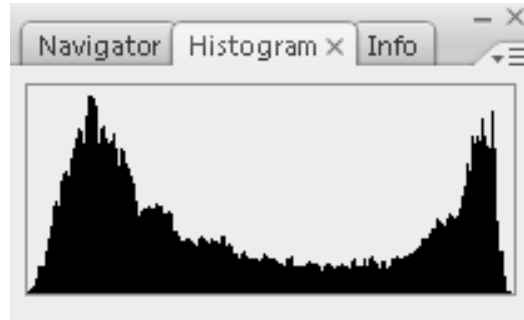
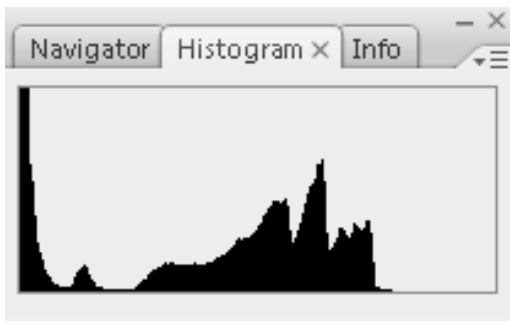
- Why should you care?
 - You can always go back to the original raw file and start over
 - True, but what a waste of time if you just want to make a minor change
 - Also it can be real challenging to replicate what you've previously done to an image

Non Destructive Workflow

- Adobe Photoshop Elements
 - The hardest tool to use for a non-destructive workflow
 - Can still make your life easier by doing what you can
 - Newer version provide more non-destructive capabilities
- Adobe Creative Suite (CS 5 or other)
 - Supports most concepts of a non-destructive workflow, but only if you avoid destructive actions
- Adobe Light Room
 - Non-destructive by design
 - Uses the same metadata concept that ACR (Adobe Camera Raw) uses
 - Doesn't support editing capabilities of Photoshop, but can be used in conjunction with Photoshop (particularly CS)

Get to Know your Histogram

- However it's guide not a rule!



Under Exposed



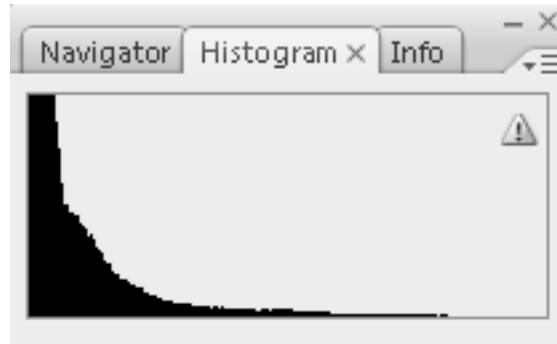
Properly Exposed



Over Exposed

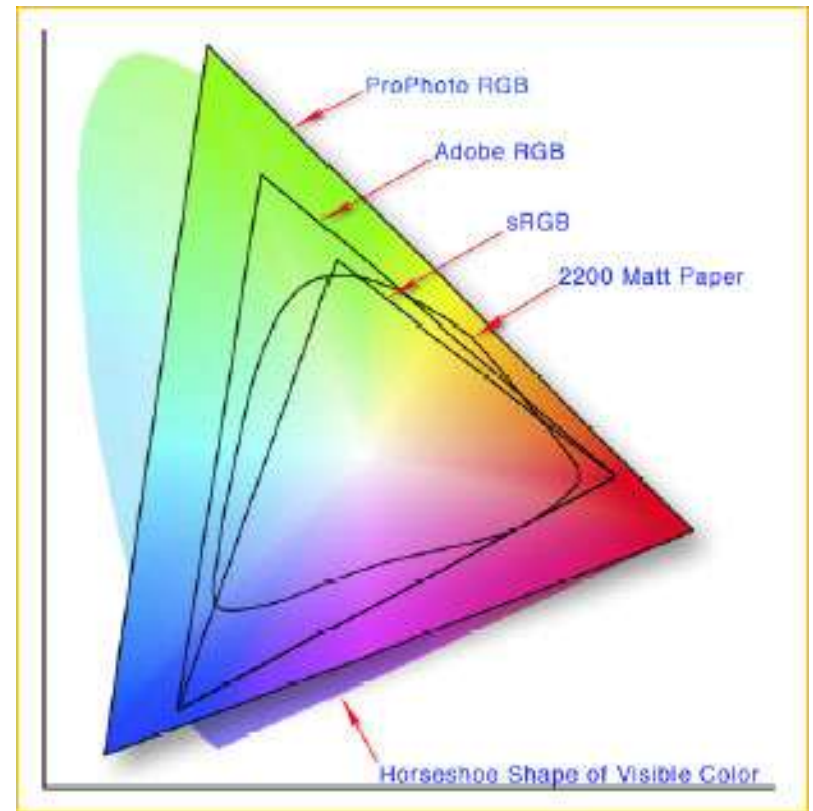
Get to Know your Histogram

- But it's just a guide, not an absolute rule.
- Some images require your best judgment



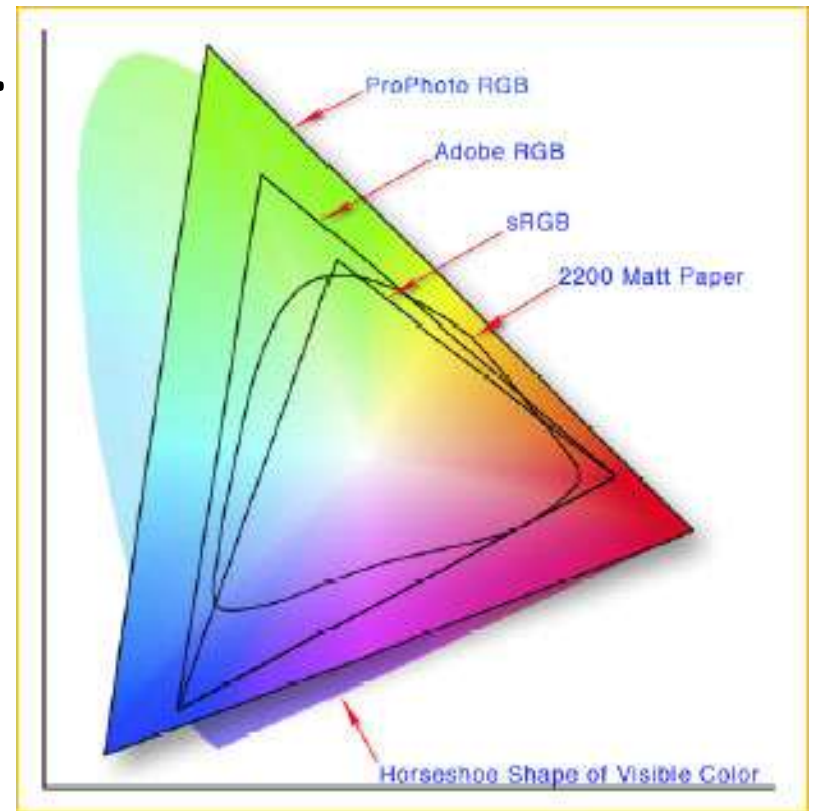
Color Spaces

- sRGB (sRGB IEC61966-2.1)
- Adobe RGB 98
- Pro Photo RGB



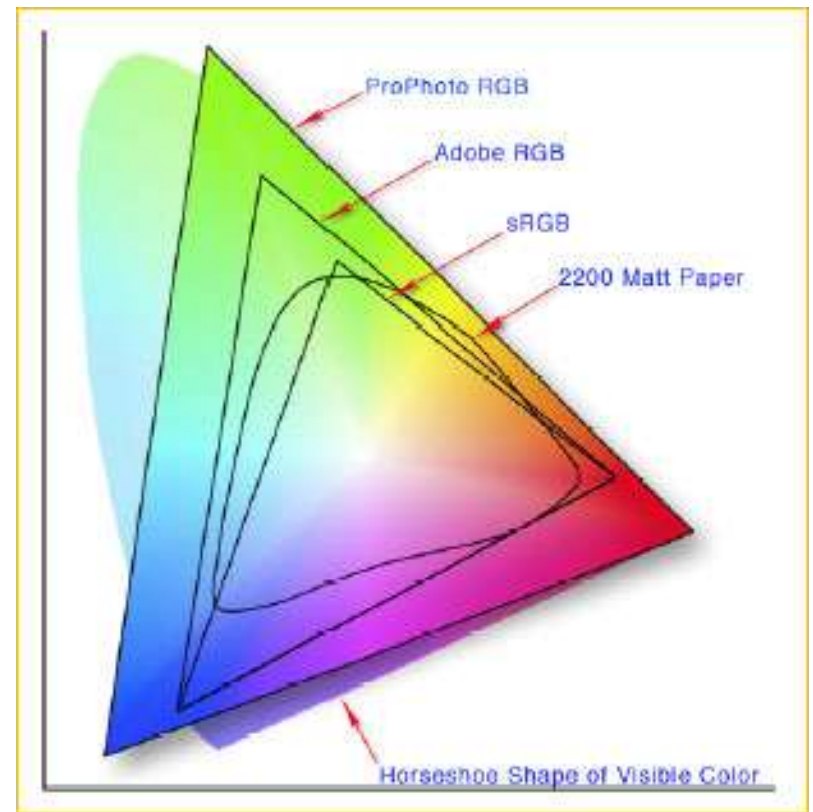
Color Spaces

- Each color space has it's place
- sRGB (sRGB IEC61966-2)
 - Digital Projection
 - Images for websites
 - Images shot in JPEG
 - 8 bit workflows



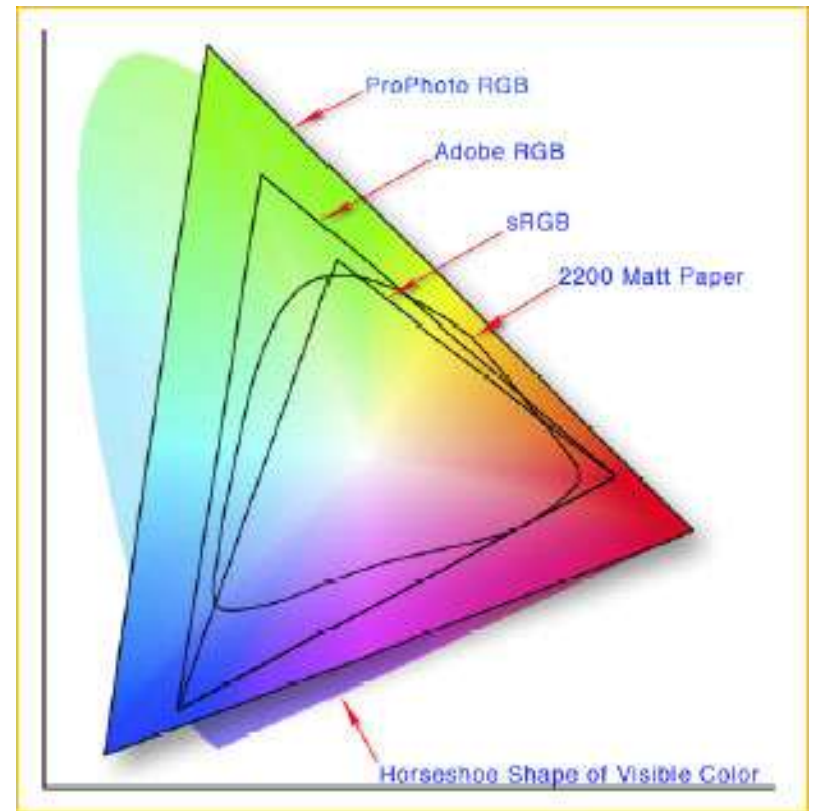
Color Spaces

- Adobe RGB 98
 - RAW or JPEG workflows
 - 8 or 16 bit workflows
 - Tolerates editing without color banding
 - Represents a larger number of colors than sRGB



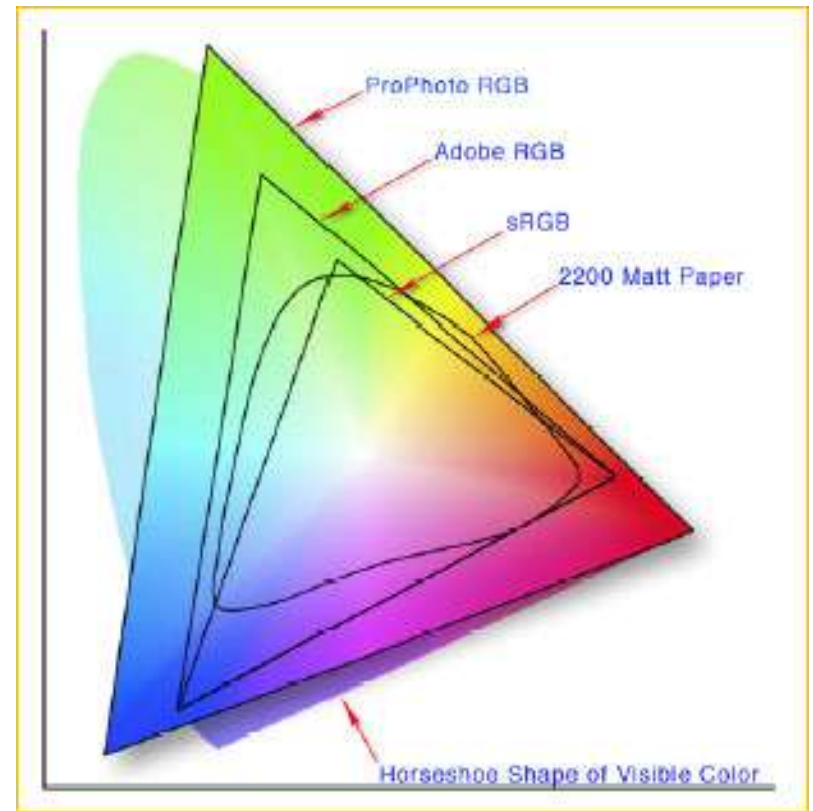
Color Spaces

- Pro Photo RGB
 - RAW workflows
 - 16 bit workflows
 - Tolerates lots of editing with out color banding
 - Represents a larger number of colors (not that many)



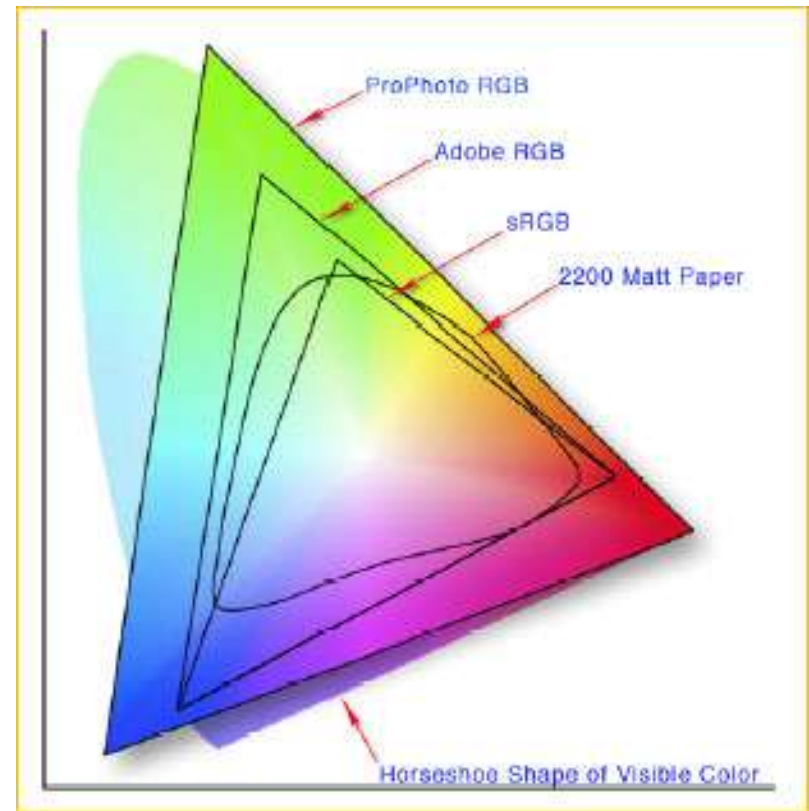
Color Spaces

- Pro Photo RGB shows more colors than any other but...
- The limits of your printer/paper/ink wont show much of this today...
- The color gamut captured by a digital camera can exceed Adobe RGB by a wide margin



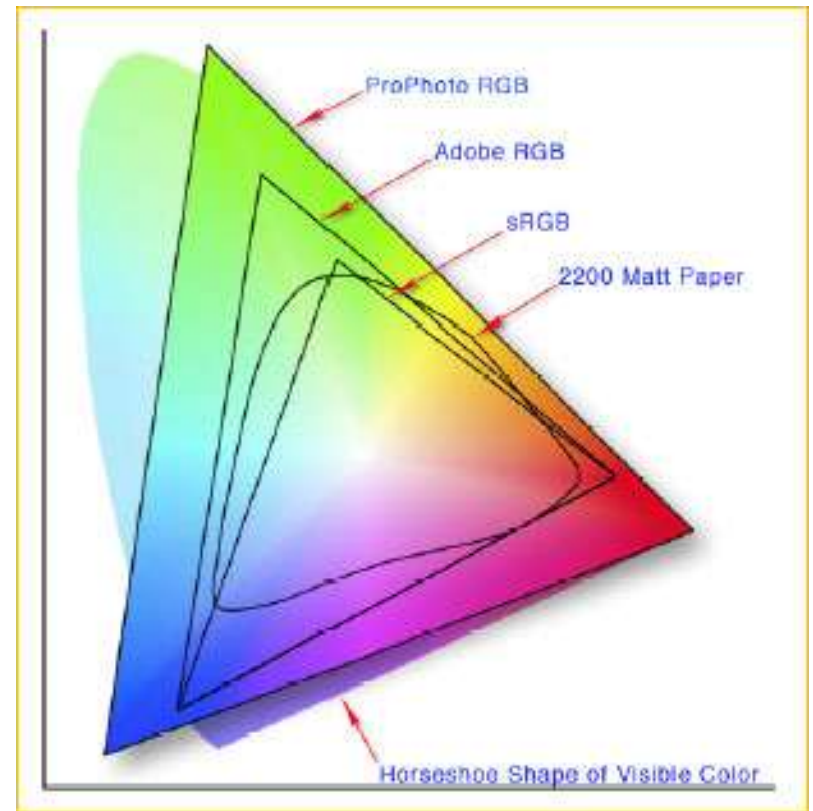
Color Spaces

- Since technology is always changing and often improving things, I recommend using a Pro Photo RGB workflow. As papers, inks & printers improve, you'll be able to take advantage of the larger color space
- Even today there are some advantages particularly in the yellows and yellow-orange area



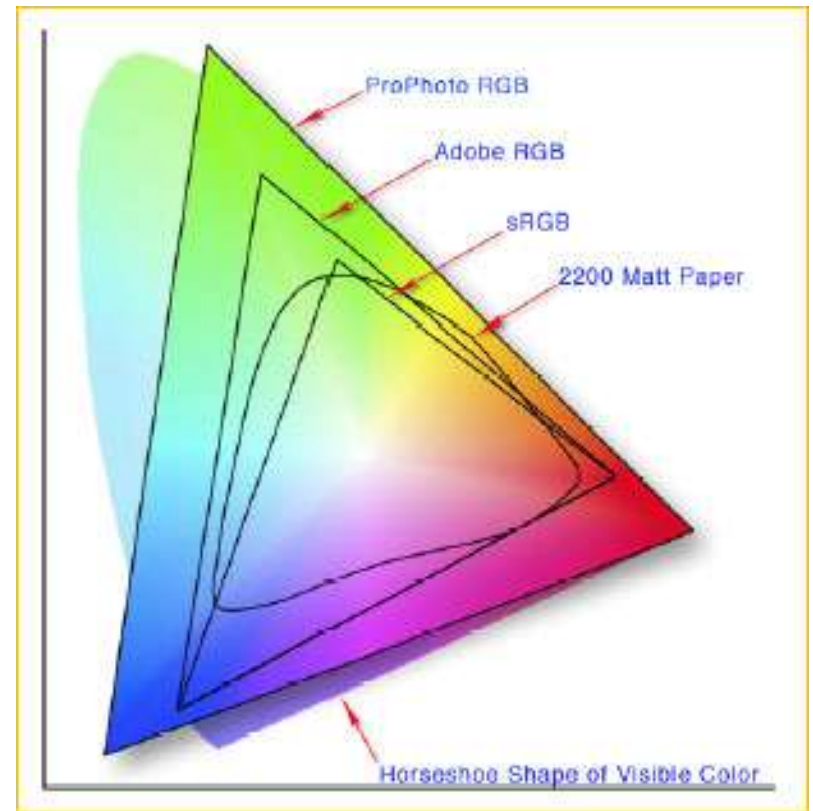
Color Spaces

- There are down sides to Pro Photo RGB
- You must have a 16-bit workflow (larger files)
- To use some creative filters you must be in 8-bit (should convert to Adobe RGB or sRGB for these images)
- However...



Color Spaces

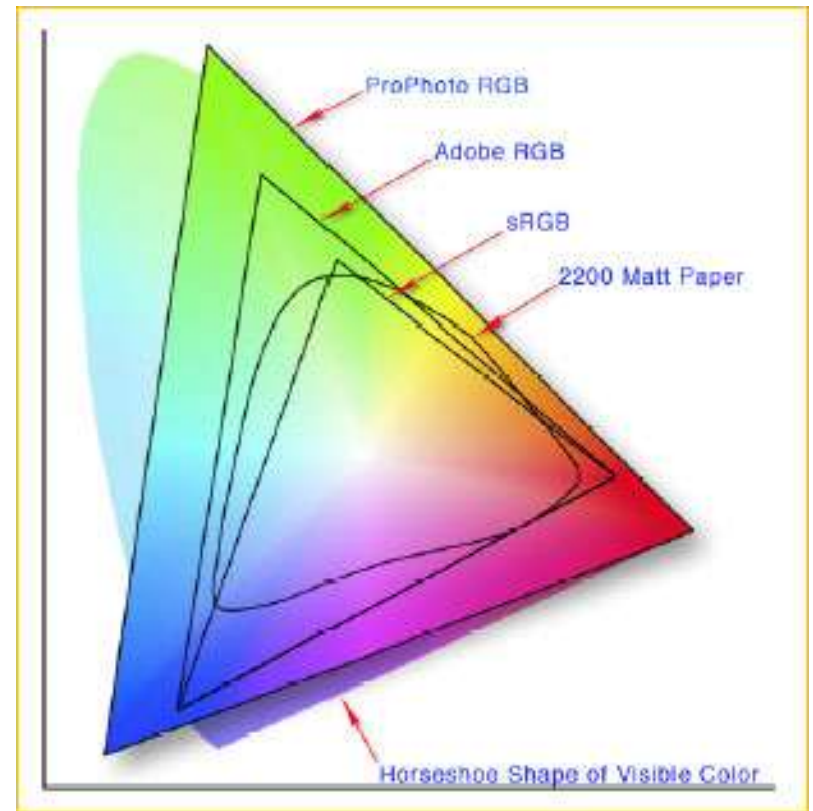
- You can always go from a larger color space to a smaller space without a problem
- Going from a smaller to a larger color space will not improve your image and only makes your files bigger



Color Spaces

- When it comes to color gamuts it is always best to start big and work your way down. So I suggest you convert your RAW images to ProPhoto RGB or Adobe RGB, and then convert to sRGB when needed for a particular purpose.

- Tim Grey



Get the color right!

BEFORE YOU BEGIN

Color Management

- Color calibration of your monitor is required to have predictable color representation of your images
- Color calibration is one of the most important steps in ensuring what your image will look like on projector, printer or on the web
- Use a colorimeter and associated software to calibrate or profile your monitor

Color Management

- A colorimeter can be used to create profiles for
 - Monitors
 - Laptops
 - Projectors
 - Printers
 - Cameras
 - Scanners
 - etc.
- With printers you can use manufactures profiles if you use the correct combination of ink, paper and printer

Color Management

- If you don't calibrate your monitor, don't bother with anything else...it will only lead to unpredictable results
- You will not accurately see your images until you do this
- Setting your colors by eye doesn't take into account the ambient light in the room or the colors & light surrounding you (make sure your spectrometer does!)

Your Viewing Environment

- Your environment impacts how you see color
- Use daylight balanced light bulbs (5000°K)
- Use neutral gray background
- Don't use crazy colors in or around your desktop!
 - Like this example from Akiyoshi Kitaoka's "Color Illusion"



<http://www.ritsumeai.ac.jp/~akitaoka/index-e.html>

Color Settings in Photoshop Creative Suite

- Photoshop CS Family
 - By default “North American General Purpose 2”
 - Recommended changes
 - Change to Adobe RGB or “North American Prepress 2”
 - Change to Pro Photo if you do a 16-bit RAW workflow (must choose advanced or more options to access)
 - Change the Gray working space to match the Gamma of your RGB working space
 - 2.2 for Windows
 - 1.8 for Mac

Photoshop Elements

- Version 7 & Earlier
 - Choose, "**Full Color Management**". It uses Adobe RGB as the working space and honors the ICC profile of any image. If you open a document without a profile, Elements will prompt you to assign either Adobe RGB or sRGB, or to leave the document unmanaged.
 - Version 8 & Later
 - » Choose "always optimize for printing" (if you ever want to print), you can always down sample to sRGB

Lightroom

- You don't have to do anything!
- Uses Pro Photo RGB internally and you can't change it
- You must set up external editing preferences (for Photoshop or other tools)
- Use Pro Photo RGB to maintain the consistency with Lightroom
- Set on the Preferences/External Editing tab

For All Output Medium

GENERALIZED WORKFLOW

Get Ready!

- Use the Pro Photo RGB (16 bit) or Adobe RGB (8 bit) color space
- Apply all changes conservatively
- This is a workflow that is non-destructive
- Allows you to perpetually update image changes without starting over
- Quick and painless
- Most steps are optional
- Steps presented in their recommend order
- Assumes you might want to print your images

General Workflow

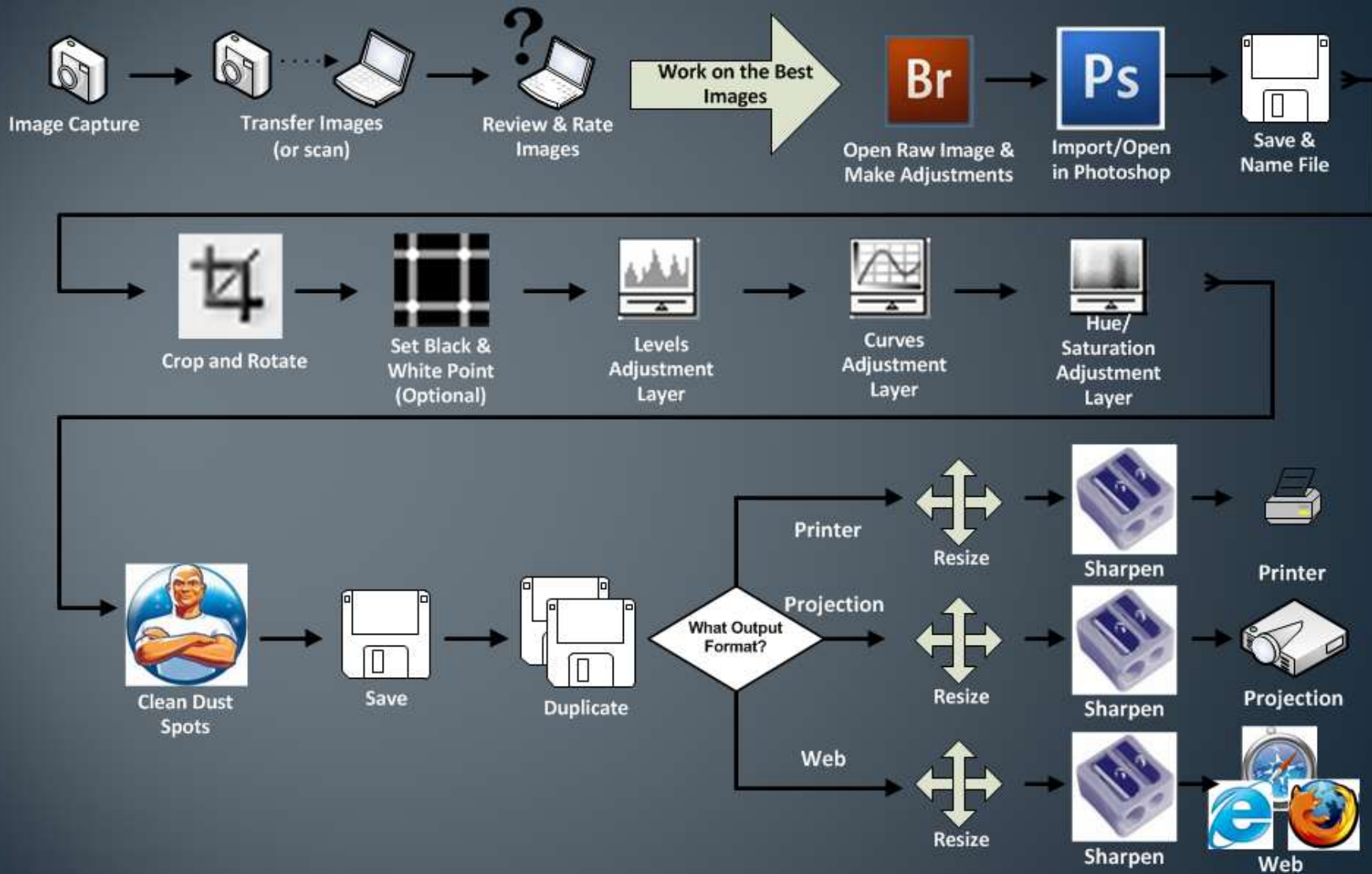

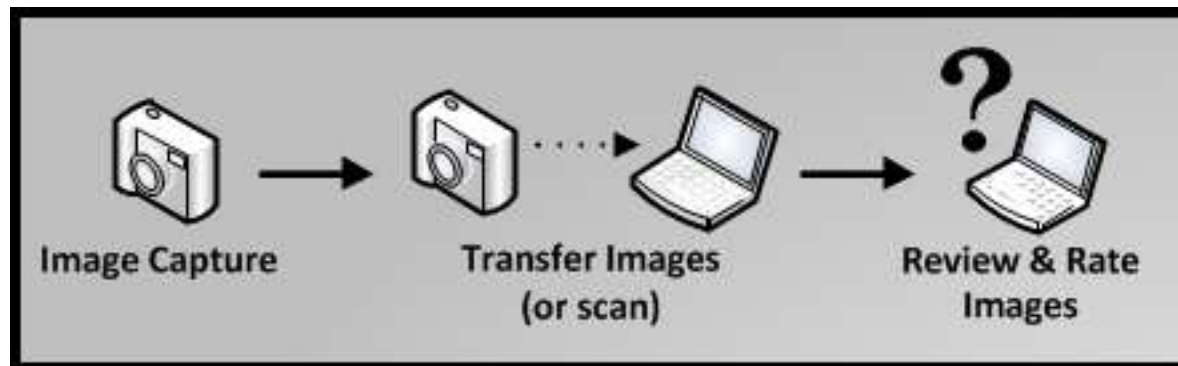


Image Capture, Transfer, Review & Rate

- Image capture is the most important step
- Transfer images to your computer
- Use the image rating features  in Adobe Bridge to pick your best images



Open Raw Image & Make Adjustments

Color space	Pro Photo RGB
Bit depth	16 bit (8 bits of Photoshop Elements)
Size	The default
Resolution	240 PPI (or 300 PPI or 360 PPI)
Sharpening	Not recommended at this point

- White Balance
- Exposure
- Recovery (recover highlights)
- Fill Light
- Blacks
- Occasionally use other controls, but generally other changes are best done in Photoshop

Sidebar: Camera Raw

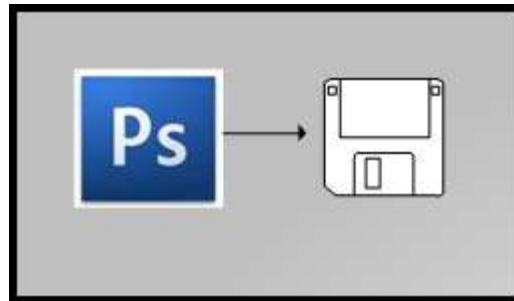
- A RAW converter program maps the RAW image to the specified color profile and converts it to that profile and the requested file format
- Adobe Camera RAW (ACR) is one of these programs that makes these conversions
- *Q: Is my camera's manufacturer's RAW converter better than ACR (Like Capture NX)?*
 - A: Yes and No The camera manufacturer knows more about what profiles are suitable with your specific camera, however integration with your photo editing program provides convenience and time savings.

Import/Open in Photoshop → SAVE!

- Save and retain reference to RAW capture through the file name

– Examples

Raw Image Name	Photoshop File Name
IMG_0681.CR2	IMG_0681.PSD
_IMG_0976.CR2	_IMG_0976_WashingtonMonument.PSD
DSC_001.NEF	DSC_001.PSD



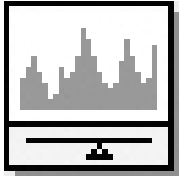
Adjustment Layers vs. Image Adjustments



Cropping

- Cropping with the Crop & Marquee Tool's
- Straighten image with the Ruler Tool (CS Only)
- Cropping can be used to improve composition
- Crop tool can be used to straighten images too

Levels Adjustment Layer



- Levels adjustment layers are for correcting the tonal range and color balance of an image
- These are general changes mapping your black point and white point to the histogram

Curves Adjustment Layer



- Curves adjustment layers are for correcting the tonal range and color balance of an image
- These changes are finer grained changes than levels
- Can also be used to add contrast
- Curves is simplified in PSE
 - Plug available for curves from 3rd party – it's free (I've not tried it)
 - <http://free.pages.at/easyfilter/curves.html>
 - No Mac Support ☹️

Hue Saturation Adjustment Layer

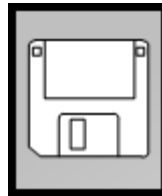
- Add or remove color in your image
- Helpful when preparing for projection
- BE GENTLE especially when adding saturation
 - inappropriate use makes inappropriate colors

Clean Dust Spots

- Use and an empty layer and the clone tool or the healing brush
- Zoom to 100% (actual pixels)
- Use page up and down & ctrl + page up & page down to scan the whole image
 - Home
 - CTRL + Page Down → → →
 - Page Down ↓
 - CTRL + Page Up ← ← ← ←
 - Page Down ↓
 - CTRL + Page Down → → →
 - Repeat as nessisary

Save Your Image

- This is your master image
- You've completed the general flow
- Next is to prepare for output



Digital Projection & Web Output

PREPARING FOR OUTPUT

Digital Projection & Web

- Duplicate Your Image
 - Prevent damaging work done on your master image
 - Don't have to keep the duplicate
 - Photoshop CS → *Image/Duplicate*
 - Photoshop Elements → *File/Save As*
- Make your changes to the copy as the following steps are destructive to your image (cropping, resizing, sharpening, etc.)

Digital Projection & Web

- Flatten your image
 - Photoshop *CS & Elements* → *Layer/Flatten*
 - Lightroom → *N/A*

- Convert to 8 bit
 - Photoshop *CS* → *Image/Mode/8-bits*
 - Photoshop *Elements* → *Did on raw import*
 - Lightroom → *N/A*

Digital Projection & Web

- Convert to sRGB
 - Photoshop CS → *Edit/Convert Profile (never assign, use convert)*
 - Photoshop Elements → *Image/Convert Color Profile/Convert to sRGB*
 - Lightroom → *N/A*

Digital Projection & Web

- *CS 5*
 - *Go to Menu Selection – Edit/Convert to Profile*
 - *Select the sRGB IEC61966-2.1 color profile in the destination space*
 - *Recommended Settings:*
 - *Engine: Adobe*
 - *Intent: Relative Colorimetric*
 - *Use Black Point Compensation*
 - *Use Dither – Makes larger files, but smoother color*
 - *Flatten Image – (on/your choice)*

Digital Projection & Web

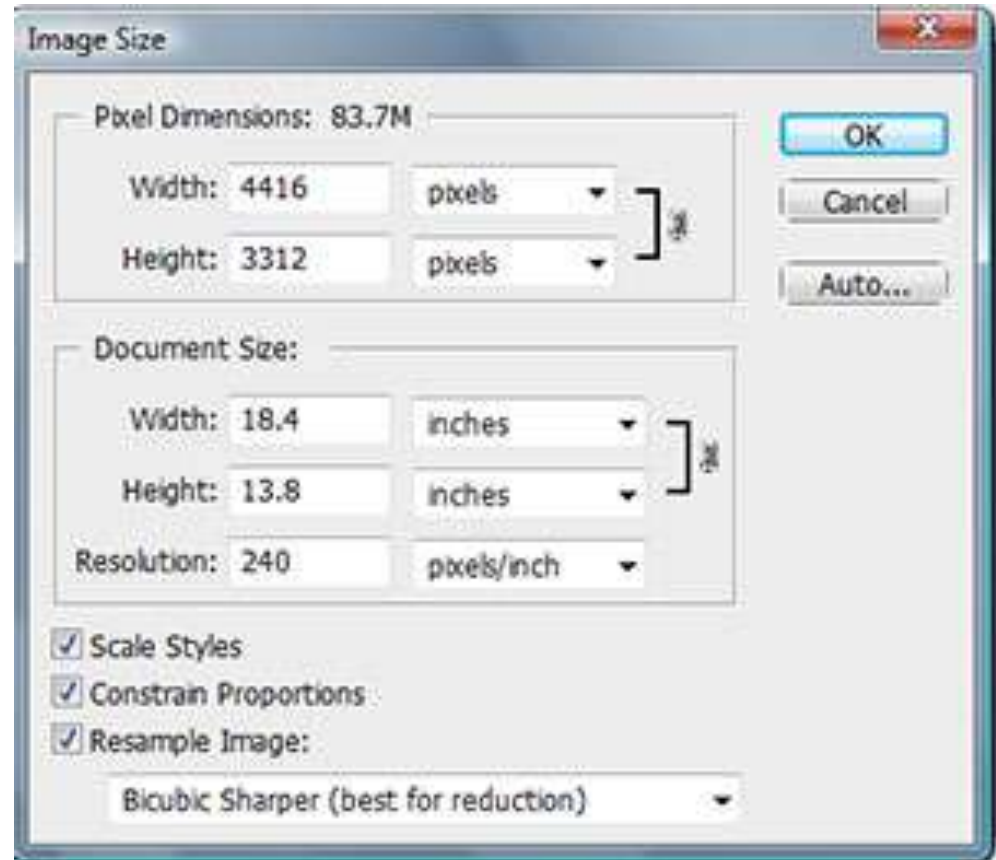
- Set Resolution
 - Unnecessary for digital projection
 - Very important in printing workflow

Digital Projection & Web

- Set Size
 - Want to size your image to match the hardware that will project the image
 - Many projectors are 1024 pixels wide by 768 pixels high
 - Usually smaller sizes on websites
 - 4 Methods demonstrated for sizing your images for projection
 1. Image Size Method
 2. Method for Slightly Out-of-Proportion Images
 3. Crop to Fit Method
 4. Fit Image Method

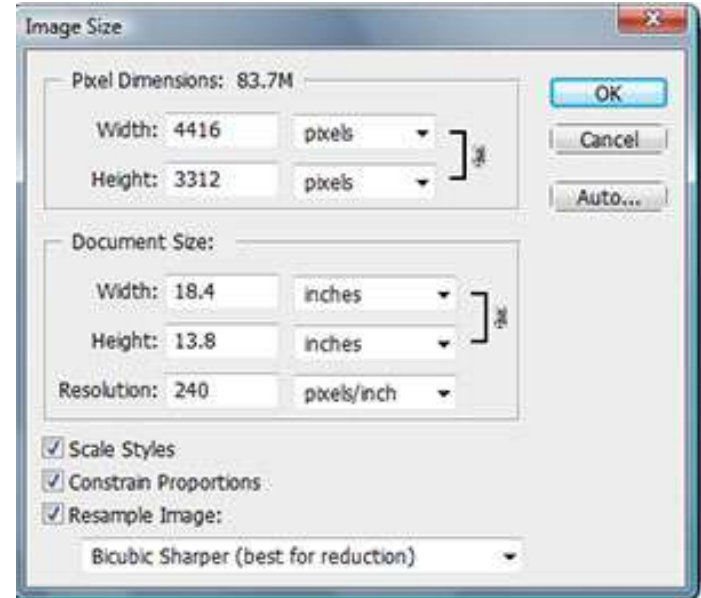
Digital Projection & Web

- Method #1:
Image Size Method
 - Open the Image Size Dialog
 - Check
 - Scale Styles
 - Constrain Proportions
 - Resample image “Bicubic Sharper”



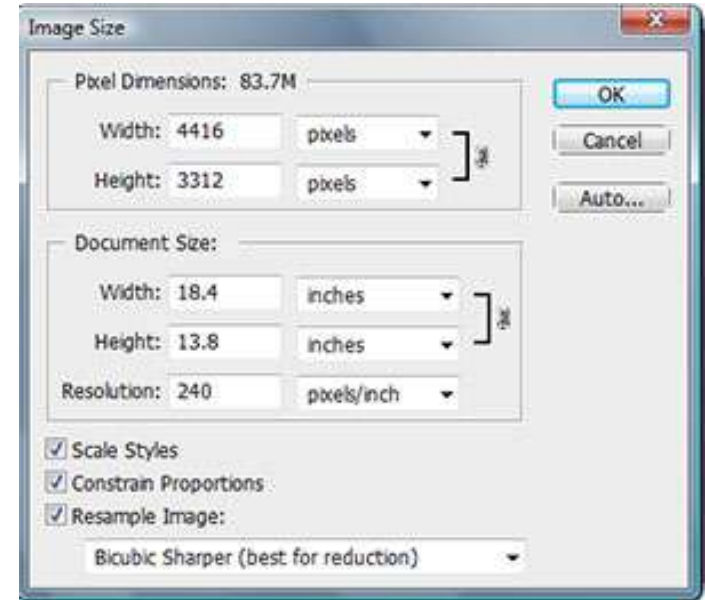
Digital Projection & Web

- For landscape images...
 - Enter 1024 in the pixel dimensions “Width” field
 - If the pixel dimensions for height changes to less than or equal to 768, press “OK”
 - If the pixel dimensions for height field changes to more than 768, change the pixel dimensions height field to 768
 - Press “OK”



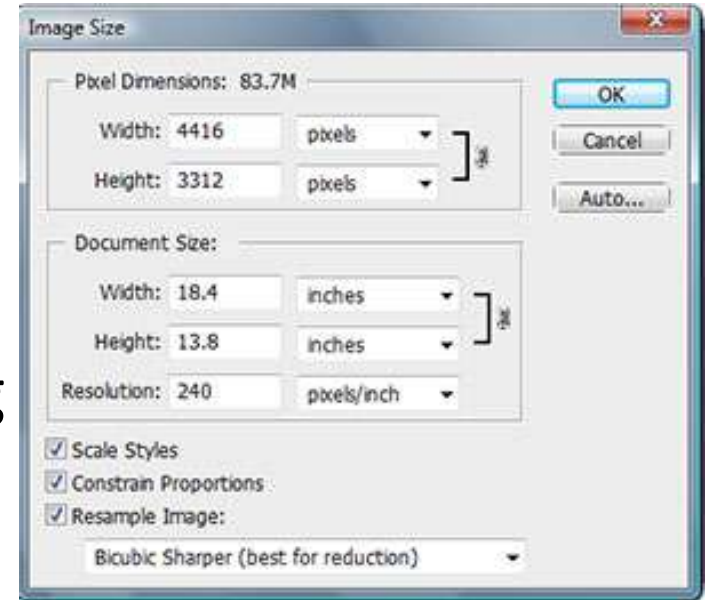
Digital Projection & Web

- For portrait images...
 - Enter 768 in the pixel dimensions “height” field
 - If the pixel dimensions for width changes to less than or equal to 1024, press “OK”
 - If the pixel dimensions for width is field changes to more than 1024, it’s a landscape image and follow landscape instructions
 - Press “OK”



Digital Projection & Web

- Method #2:
Method for Slightly Out-of-Proportion Images
- Used for images where you need to do very minor cropping to fit to your target size
 - Open the Image Size Dialog
 - Check
 - Scale Styles
 - Constrain Proportions
 - Resample image “Bicubic Sharper”

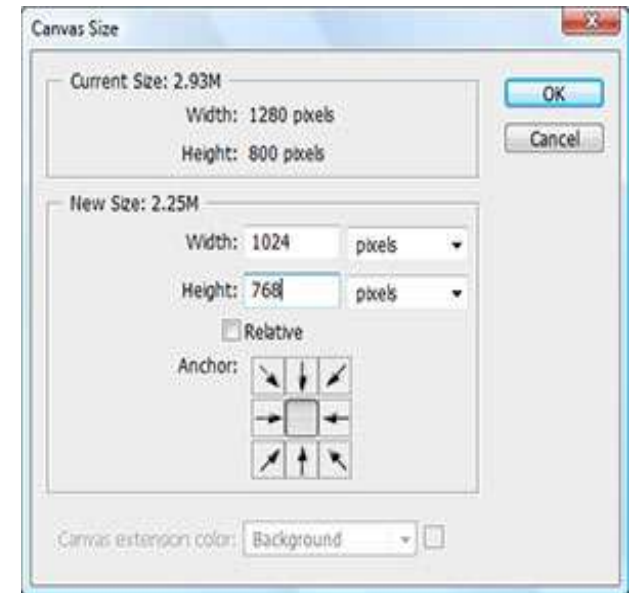


Digital Projection & Web

- For landscape images...
 - Enter 1024 in the pixel dimensions “Width” field
 - Press “OK”
- For portrait images...
 - Enter 768 in the pixel dimensions “height” field
 - Press “OK”

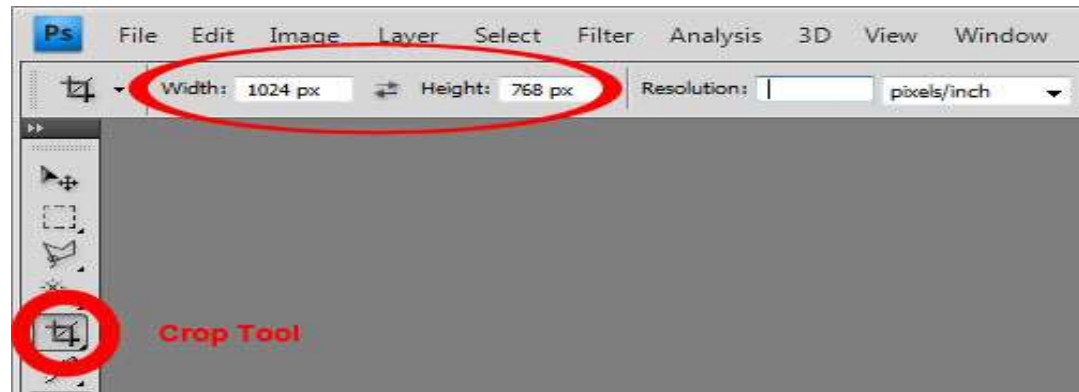
Digital Projection & Web

- Open the Canvas Size dialog
 - Change the units to pixels
 - If the width is larger than 1024 pixels, reduce the width to 1024 pixels
 - If the height is larger than 768 pixels, reduce the height to 768 pixels
 - Click on the anchor arrows if you want to direct the direction of the crop



Digital Projection & Web

- Method #3:
Crop to Fit Method
 - Set Default Image Interpolation to Bicubic Sharper
 - Choose the Crop Tool from the tool pallet the toolbar and specific fields for the crop tool are displayed



Digital Projection & Web

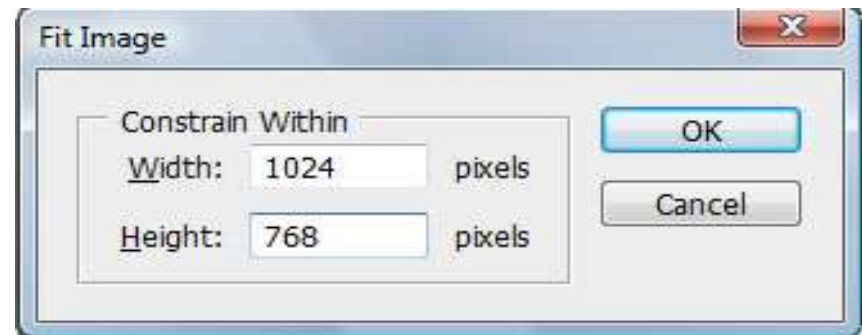
- For a landscape-oriented image:
 - Enter 1024 px in the Width field of the toolbar and clear any entry from the Resolution field.
 - Optionally enter 768 px in the “Height” field of the toolbar.
- For a portrait oriented image:
 - Enter “768 px” in the height field of the toolbar and clear any entry from the resolution field.
- Click and drag out the crop tool to select all of the image or the portion you wish to keep
- Press the enter key or click the checkmark to perform the crop

Digital Projection & Web

- Method #4:

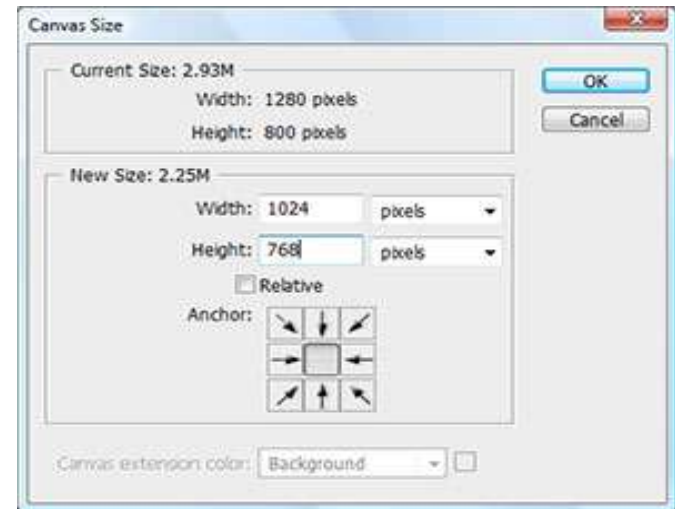
Fit Image Method – CS Family Only

- Set Default Image Interpolation to Bicubic Sharper
- Go to Menu Selection – File/Automate/Fit Image
- Enter 1024 in the width field and 768 in the height field.
- Press OK to confirm your intentions in the “Fit Image” dialog.



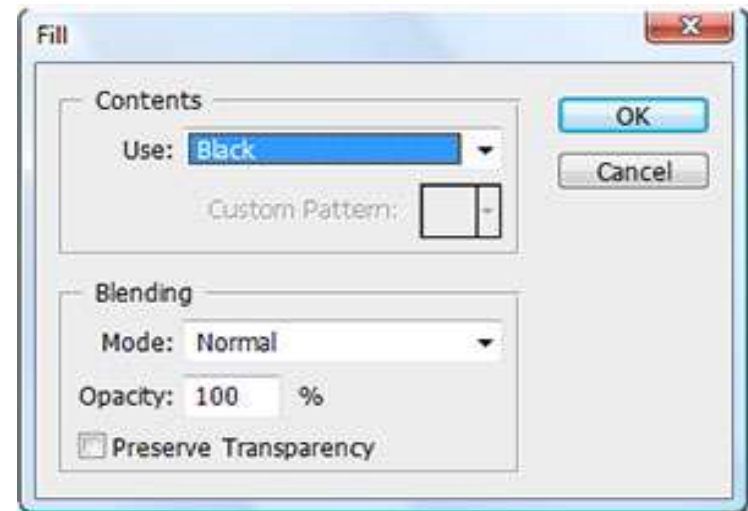
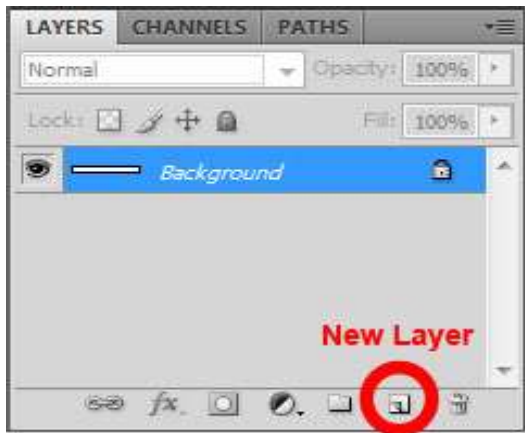
Digital Projection & Web

- Projection Only: Set black background
 - If image is less than 1024 pixels wide or less than 768 pixels high - fill the background with black
 - Set canvas size to 1024 x 768 pixels
 - Open the Canvas Size dialog
 - Image > Canvas Size
 - Change the units to pixels
 - Set width to 1024
 - Set height 768



Digital Projection & Web

- Unlock your background layer
- Create a new layer
- Move new layer to the bottom of the stack
- Fill layer with black

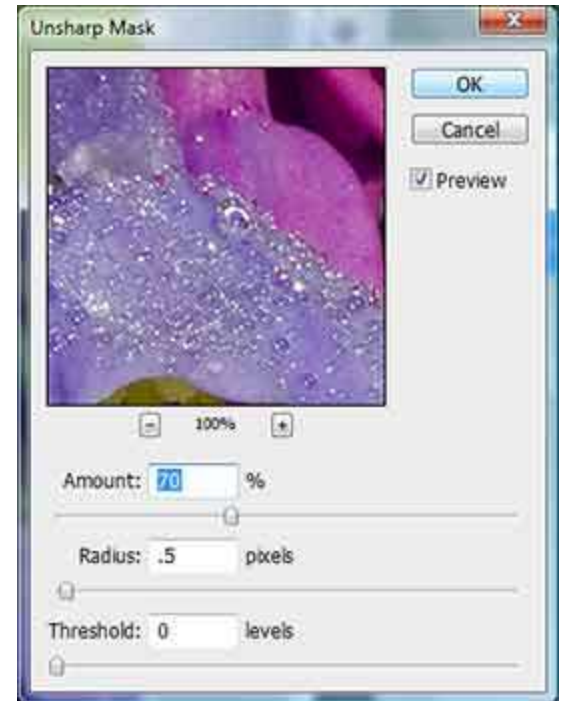


Digital Projection & Web

- Sharpen
 - Optional step
 - Common novice mistake to over sharpen (and over saturate)
 - Sharpening is a complex topic beyond the scope of this presentation
 - Will show a simple sharpening technique that can be used with many images
- Always sharpen as the absolute last step of your workflow
- Don't save you image sharpened
- Never resize a sharpened image
- **ALWAYS SHARPEN WITH YOUR IMAGE AT 100% (VIEW ACTUAL PIXELS)**

Digital Projection & Web

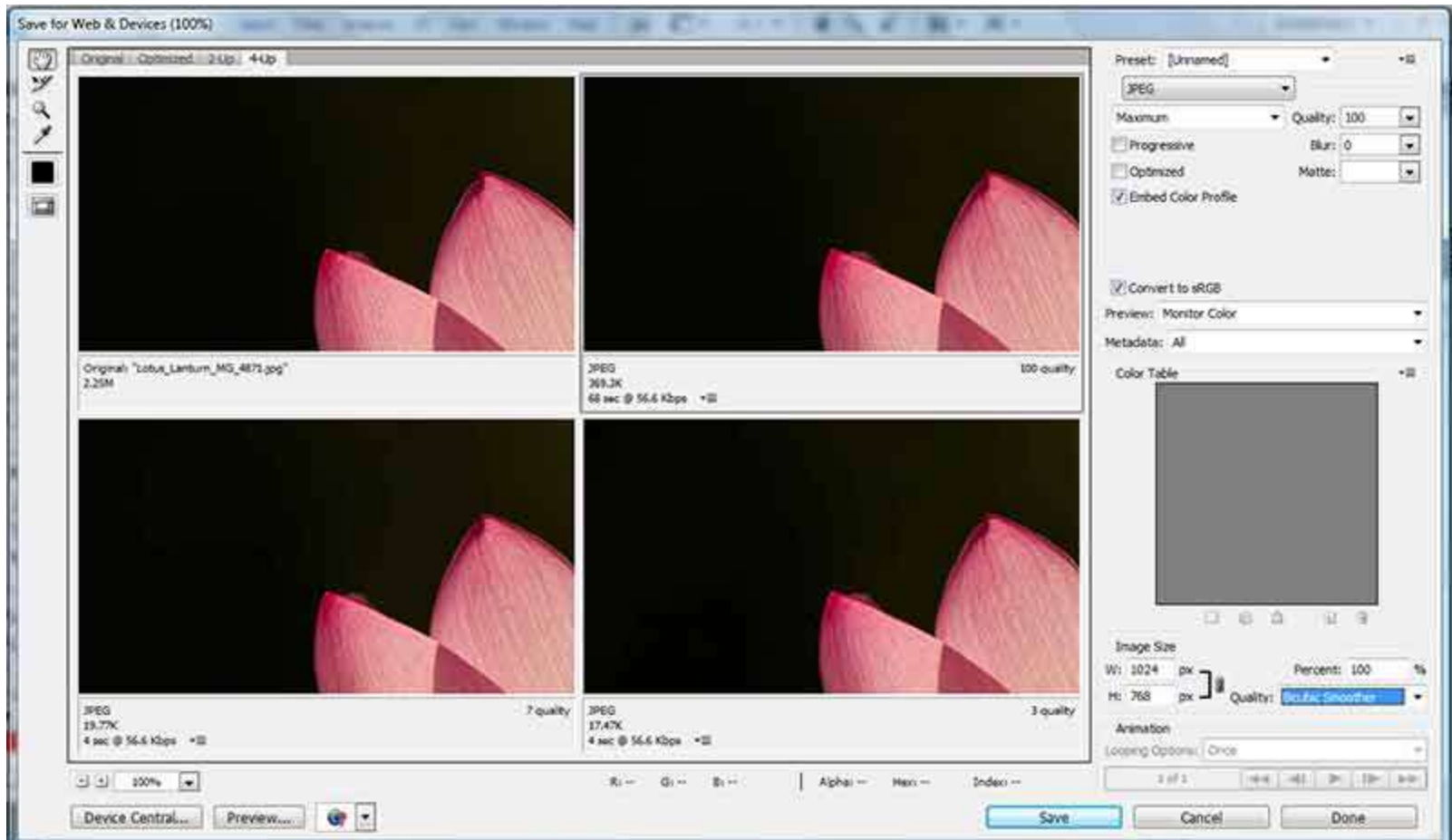
- Choose menu View > Actual Pixels
- Choose menu choose Filter > Sharpen > Unsharp Mask
- Set the radius to .5
- Threshold to 0
- Slowly increase the amount slider until you get the desired amount of sharpening
- If you see halos, or pixilation (hard square edges) you've sharpened too much.



Digital Projection & Web

- Save As Jpeg
- Choose menu File > Save for Web & Devices
 - Save for Web dialog opens
 - Choose JPEG
 - Projection
 - Maximum quality (100)
 - Web
 - 60 – 80 will help keep you files smaller
 - Progressive & Optimize - unchecked
 - Embed color profile - checked
 - Convert to sRGB - checked
 - Preview - Monitor Color
 - Metadata – All (unless contains geo-location information)
 - Image size - 100%
 - Press Save

Digital Projection & Web



Printing

PREPARING FOR OUTPUT

Printing

- Duplicate Your Image
 - Prevent damaging work done on your master image
 - Don't have to keep the duplicate
 - Photoshop CS → *Image/Duplicate*
 - Photoshop Elements → *File/Save As*
 - Lightroom → *Photo/Create Virtual Copy*
- Make your changes to the copy as the following steps are destructive to your image (cropping, resizing, sharpening, etc.)

Printing

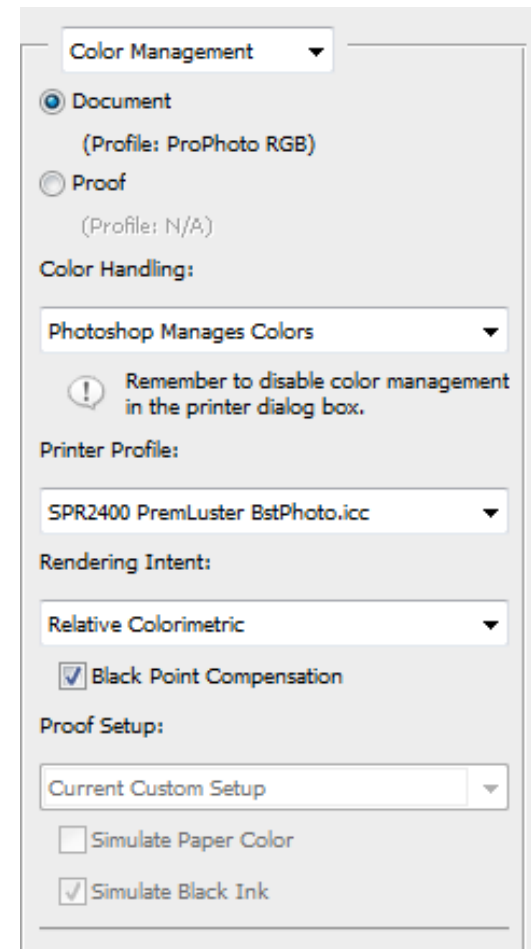
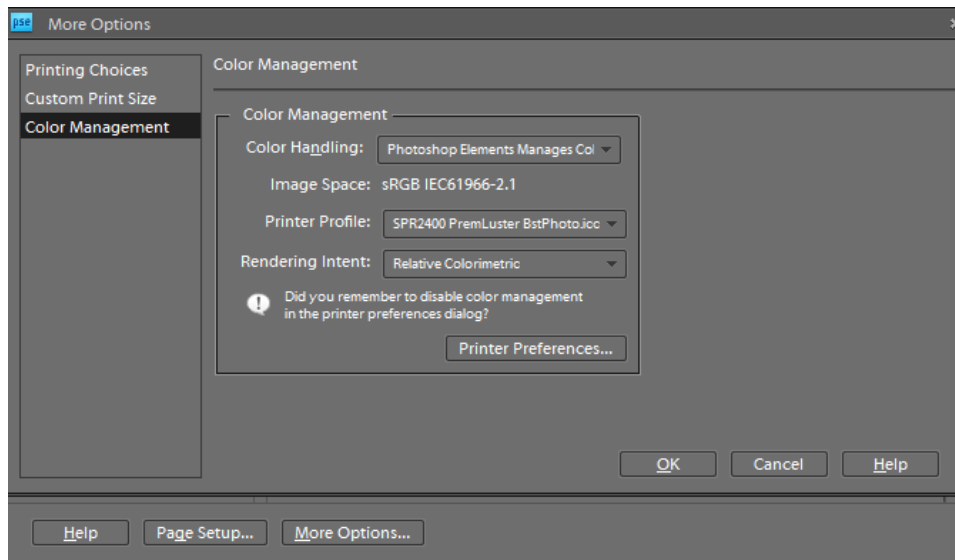
- Don't need to flatten you image, but you can
- *Do not* convert to sRGB, use Pro Photo RGB
- *Do not* convert to 8-bits, stay in 16-bit mode if you can
- Resolution should already be at 240, 300 or 360
- Optimal print resolution is a factor of the printers resolution
 - Epson 360
 - Canon, Hp 300
- Use the previously discussed sizing method to target the paper size you are printing our image on
- Sharpen as previously described

Printing

- Fundamentals
 - You must allow Photoshop to manage printing – do not let your printer do this
 - For accurate representation of your images you should use a profile for the Printer/Paper/Ink combination you are using
 - You must turn color management off in your print dialog

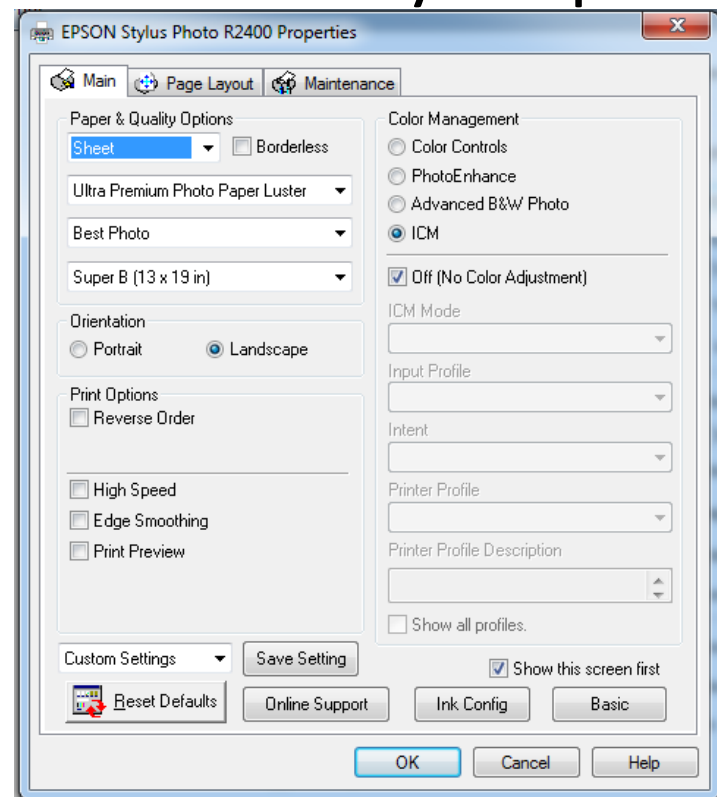
Printing

- You must allow Photoshop to manage color – do not let your printer do this



Printing

- Choose the specific profile for the printer/paper/ink combination being used
- You must turn color management off in your print dialog
- Choose
 - Paper
 - Quality
 - Size
 - High Speed off
 - ICM color management
 - Off (no color management)



Epson Example

Printing

- Epson, Canon & HP have profiles for many of their printers using their papers and ink
- They work well, but you must use their paper and ink for it to work correctly
- There are lots of third party paper manufactures and they also provide profiles to download from their website

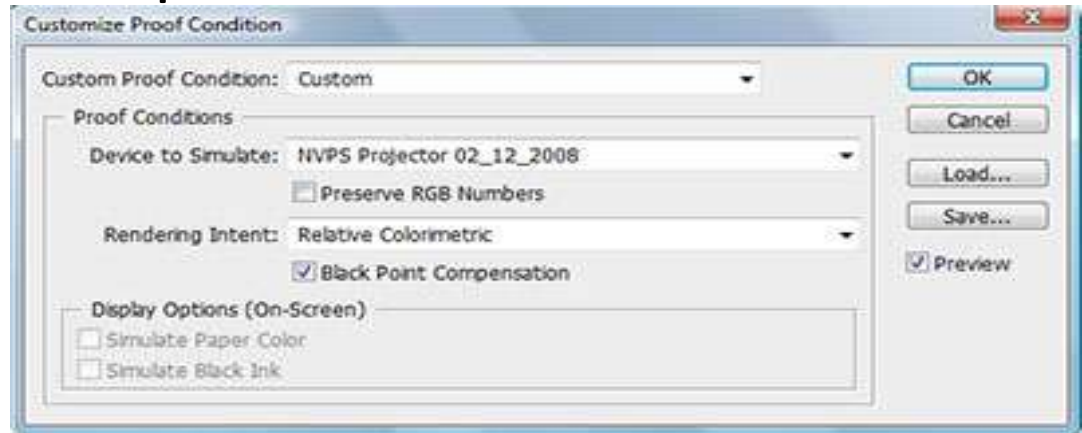
Printing

- Red River Paper: <http://www.redrivercatalog.com/>
- Ilford
- <http://www.ilmord.com/en/products/consumer/index.asp>
- Pictorico
- <http://diamond-jet.com/pictoricotop.aspx>
- There are many more...
- You can have your own profiles made!
- Do it yourself
 - recommend for only technically savvy
- Buy them online
 - Cathy's Profiles: <http://www.cathysprofiles.com/>
 - You can Google others...

SOFT PROOFING YOUR IMAGES

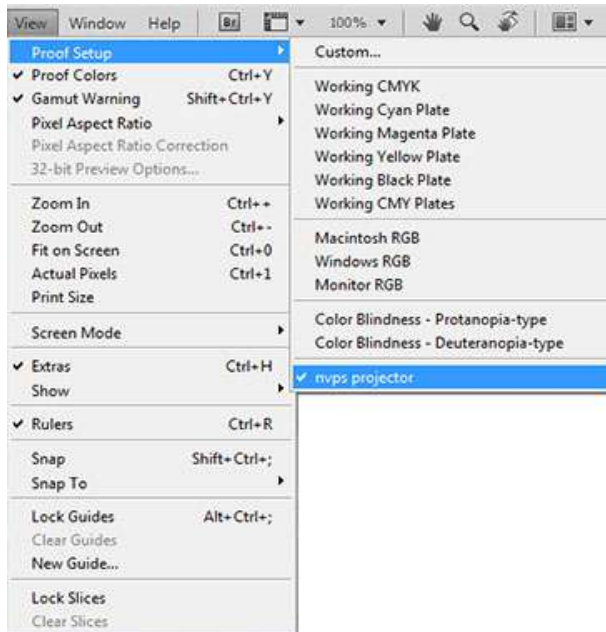
Soft-proofing

- From the menu choose View > Proof Setup > Custom
 - Choose the printer as the device to simulate
 - Uncheck preserve RGB numbers
 - Use the Relative Colormetric rendering intent
 - Check Blackpoint Compensation
 - Check Preview



Soft-proofing

- Turn proof on and off with the Proof Colors Menu Selection
- Check for out of Gamut Colors with the Gamut Warning menu selection



Questions?

