

**DIGITAL EXPOSURE-BASED WORKFLOW
FOR DIGITAL IMAGING II CLASSES
COLUMBIA COLLEGE CHICAGO PHOTOGRAPHY DEPARTMENT
Revised 20100119**

What this is

This workflow is for working with *digital exposure-based* photographic images.

Goal

The goal of this workflow is to allow you to create MASTER IMAGE FILES of the highest quality from which you can create any type of derivative image for any type of output you might desire.

This workflow is one of several possible ones: what's important is that the Columbia College Chicago Photography Department has created this one tailored to the needs of our students. Some steps may not be necessary for the particular image you are working on. In that case, skip a step and move to the next. Following these steps should, in most circumstances, provide you with optimum Master Files, and do so in an efficient, logical and repeatable manner.

Overview

The following steps are divided into five main sections: Expose, Import, Develop, Finalize, Archive. The specific steps of this workflow ensure that your digital exposures are exposed correctly; then imported, backed up, ranked, renamed for retrieval, tagged with your contact information and copyright, converted to an archival digital negative format; developed using the Adobe Camera Raw Converter for global adjustments; imported into Photoshop for local adjustments and output sharpening, converting to other file formats, printing; then archived.

EXPOSE

EXPOSE CAMERA RAW FILES

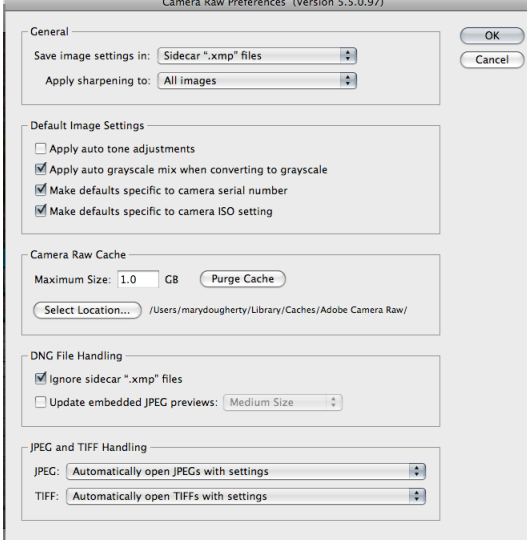
Use Camera Raw format.

- In a digital exposure, one half of all image data is contained in the single highest zone. During image “development” in the Adobe Camera Raw Converter, this data gets “pushed” down into the lower zones. If you have underexposed, there are not enough data to “push” down. For enough data, *overexpose* by 1/2 to 2 stops.
- Do not fill card completely. Doing so invites card corruption and/or file corruption.

IMPORT

1. SET PREFERENCES AND COLOR SETTINGS

Set Preferences in Bridge, Camera Raw and Photoshop, and Color Settings in Photoshop:

ADOBE BRIDGE PREFERENCES	(see document entitled bridge_photoshop_prefs_settings.pdf)
<p>ADOBE CAMERA RAW PREFERENCES</p> <p>General: select Save image settings in Sidecar “xmp” files, and Apply sharpening to All Images.</p> <p>Default Image Settings: check Apply auto grayscale mix when converting to grayscale, Make defaults specific to camera serial number, Make defaults specific to camera ISO setting.</p> <p>Camera Raw Cache: Max. Size 1.0 GB</p> <p>DNG File Handling: check Ignore sidecar “xmp” files</p> <p>JPEG and TIFF Handling: select Automatically open.</p>	
PHOTOSHOP PREFERENCES	(see document entitled bridge_photoshop_prefs_settings.pdf)
PHOTOSHOP COLOR SETTINGS	(see document entitled bridge_photoshop_prefs_settings.pdf)

2. CREATE METADATA TEMPLATE

Create Metadata template in Bridge using Bridge>Tools>Create Metadata template.

- Include your name, address, telephone number, copyright, and usage rights information.

3. PLACE IMAGE CARD INTO CARD READER AND COPY DCIM FOLDER TO DESKTOP

- Note: if iPhoto dialog box opens, do not choose it as the application to open digital files. To avoid this dialog box: APPLE>SYSTEM PREFERENCES>CDS and DVDS>When you insert a picture CD>(choose «Ignore»)

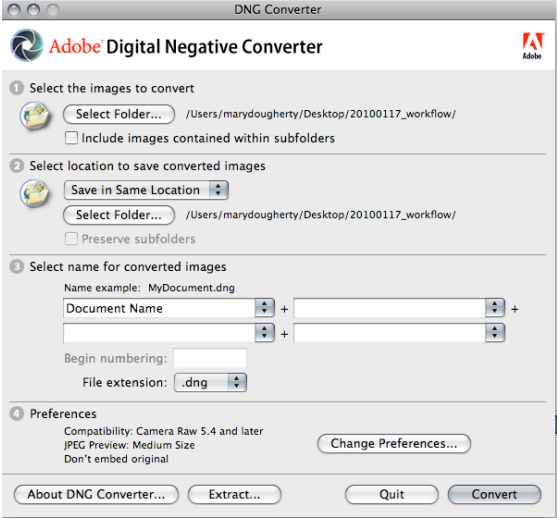
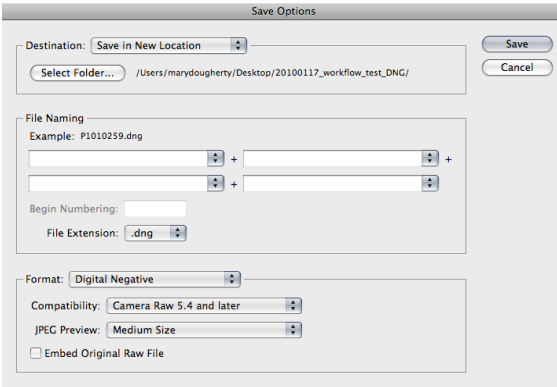
4. RENAME DCIM FOLDER

- Renaming the DCIM folder protects it from being overwritten when importing additional cards.
- Example: 20100117_chicago_a
 - (yearmonthday)_(projectdescription)_(a)
 - (a = first card of shoot, b = second card, etc.)

5. ON EXTERNAL HARD DRIVE MAKE FOLDER FOR IMAGE BACKUP

- Give folder the same name as the renamed DCIM folder *plus* add the extension .dng
Example: 20100117_chicago_a.dng

6. CONVERT PROPRIETARY CAMERA RAW FILES TO NON-PROPRIETARY, OPEN SOURCE DIGITAL NEGATIVE (DNG) FILES

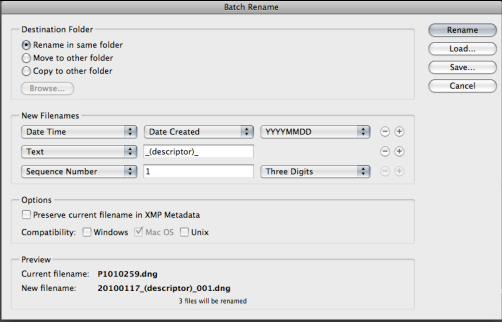
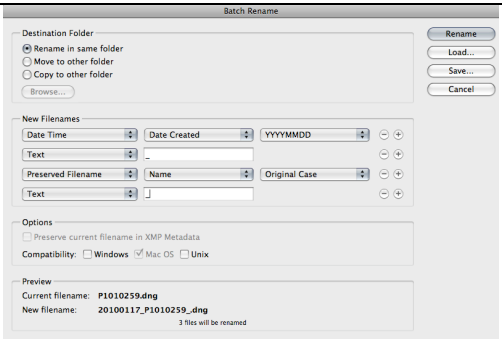
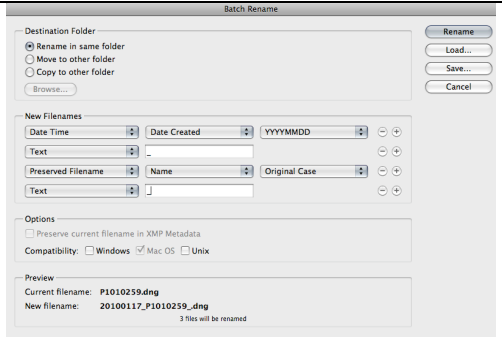
<p>OPTION A: USE DNG CONVERTER</p> <p>(Free download of DNG Converter application at www.adobe.com)</p> <p>Select folder containing original Camera Raw files to convert. Example: 20100117_chicago_a</p> <p>Select destination folder to save converted images. Example: 20100117_chicago_a_dng</p> <p>Do <i>not</i> change name.</p> <p>Click «Convert»</p>	
<p>OPTION B: USE ACR CONVERTER</p> <p>In Bridge: select folder containing original Camera Raw files. Example: 20100117_chicago_a</p> <p>Select All>double click to open Camera Raw files in the ACR Converter.</p> <p>In ACR Converter: Select All>Save Images</p> <p>In Save Options:</p> <p>Destination: Select Folder (select folder on external HD)</p> <p>File Naming (leave blank)</p> <p>Format: Digital Negative Compatibility: Camera Raw 5.4 and later JPEG Preview: Medium Size Unclick Embed Original Raw File</p>	

7. OPEN FILES ON EXTERNAL HARD DRIVE IN BRIDGE (KEEP ORIGINAL DCIM FOLDER ON DESKTOP AS BACKUP OF ORIGINAL FILES)

8. DELETE, RANK, ORDER AND GROUP IMAGES

9. BATCH RENAME:

- Name limit: 31 characters
- Personal choice between the following three options:

<p>OPTION A Assigns yearmonthday plus project descriptor plus sequential image number:</p> <p>Bridge>Tools>Batch rename</p> <p>Naming convention: (yearmonthday)_(descriptor)_(sequence number).dng</p>	
<p>OPTION B Assigns yearmonthday plus original camera raw sequential image number:</p> <p>Bridge>Tools>Batch rename</p> <p>Naming convention: (yearmonthday)_(original file number).dng</p>	
<p>OPTION C Assigns original file camera raw sequential image number, only:</p> <p>Bridge>Tools>Batch rename</p> <p>Naming convention: (original file number).dng</p>	

10. ADD METADATA TEMPLATE TO IMAGES

- Bridge>Tools>Replace Metadata

11. ADD KEYWORDS TO IMAGES USING KEYWORD PANEL

12. USING BRIDGE SELECT ALL IMAGES AND OPEN IN ADOBE CAMERA RAW CONVERTER

DEVELOP IN ACR CONVERTER

DEVELOP IMAGES, AS FOLLOWS:

1. SELECT CAMERA RAW WORKFLOW OPTIONS

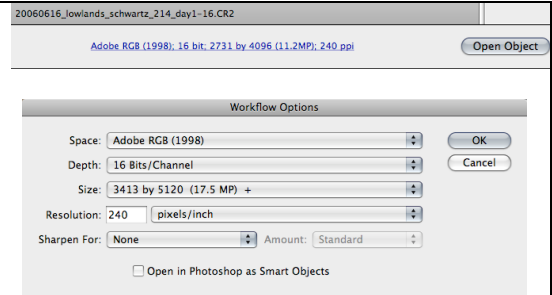
(click link at bottom of Adobe Camera Raw interface)

Select the following options:

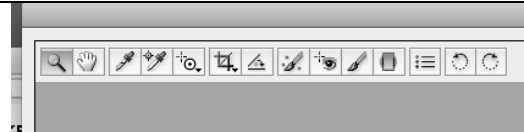
- Color space: Adobe RGB 1998
- Bit Depth: 16-bit
- Size: (see note, below)
- Resolution: (leave at 240ppi default)
- Sharpen: none
- Open in Photoshop as Smart Objects (optional)

Size: in Photoshop>New File dialog box determine file size in megabytes as indicated by your desired output size (physical dimensions + optimum resolution + 16 bit RGB).

Now, in this Camera Raw dialog box use your camera's native resolution (option without + or -), if possible. If you need to upres or downres, do it here. Convert the megabytes you need into the megapixels (example: say the Photoshop dialog box indicates you need a 100MB file. Click on the Camera Raw Size drop-down menu. Choose the MP option number that when multiplied by 3, and then again by 2 (to reflect that 16-bit files are twice the size of 8-bit files), will give you a number equal to or higher than your desired MB file size. In this case, choosing 19.7 and using round numbers: $20 \times 3 = 60 \times 2 = 120\text{MB}$ —you are safely above your desired 100 MB file size).



2. CROP, STRAIGHTEN, REMOVE SPOTS, REMOVE RED EYE, AS NECESSARY



3. GLOBAL COLOR AND TONAL CORRECTIONS

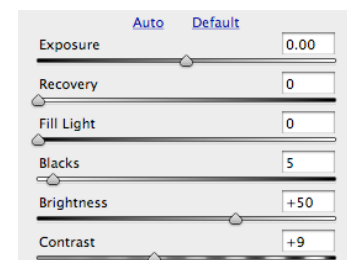
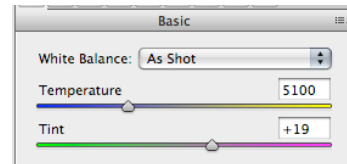
Basic panel

Pick white balance from drop down menu options.

Tweak with Temperature and Tint sliders.

Select Exposure (white point), Recovery (white point adjustment), Blacks (black point), Fill Light (shadow adjustment, as necessary), Brightness (overall), and Contrast (midtones)

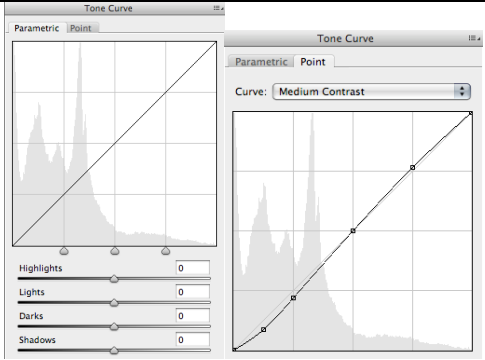
Additional adaptive controls, as necessary:



Clarity—midtone/local contrast adjustment.
Vibrance—increases saturation on all unsaturated colors and does not affect skin tones.
Saturation—increases overall saturation.



Tone Curve panel
 Refine midtone contrast using Parametric, or Point tabs.



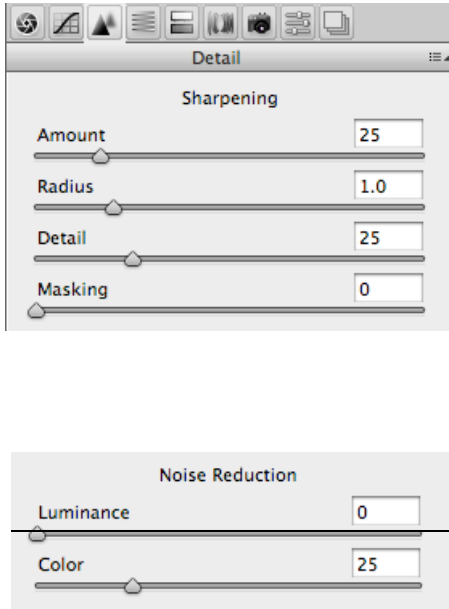
Detail panel
 Apply sharpening.

<u>CR sharpening sliders</u>	<u>Photoshop USM equivalent</u>
Amount	Amount
Radius	Radius
Detail	Threshold
Masking	(No equivalent)

Note: use at 100% view, hold Option key when moving Amount, Radius, Detail and Masking sliders to judge the sharpening process. Detail slider is the reverse of Threshold in USM (Detail 100 = Threshold 0). Masking slider acts like a green channel edge mask when input-sharpening in Photoshop.

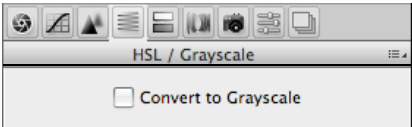
Apply noise reduction.

Reduce noise resulting from using a high ISO or from underexposing, as needed.



HSL/Grayscale panel

To convert to Grayscale, click on box, then use the sliders to adjust tones.



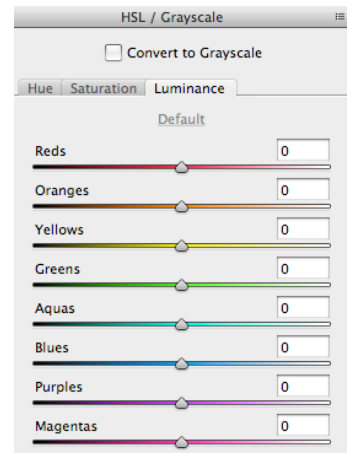
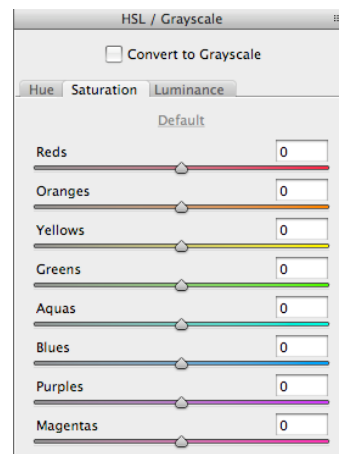
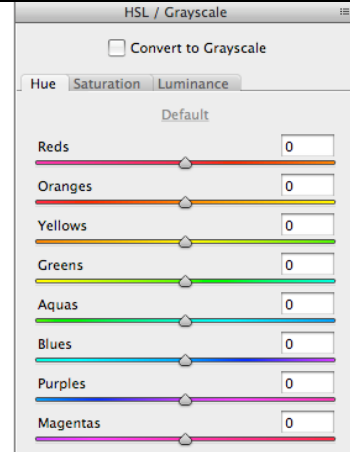
Otherwise, adjust hue of any listed color, as needed.

Adjust saturation of any listed color, as needed.

Adjust luminance of any listed color, as needed.

Split toning panel

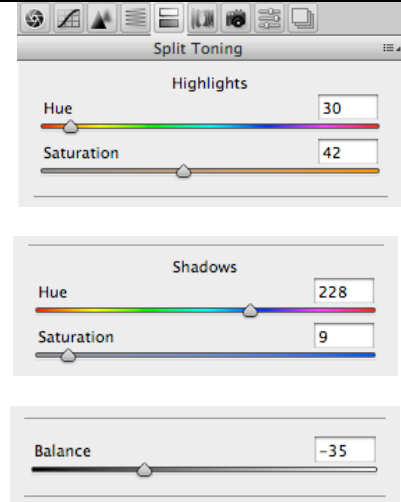
Adjust highlight and shadow tones separately, as needed, and balance those tones, as appropriate.



Highlights: press Option key and select hue. Release. Then select appropriate saturation for that hue.

Shadows: press option key and select hue. Release. Then select appropriate saturation for that hue.

Balance: use slider to create appropriate balance between the highlight and shadow tones and saturation.

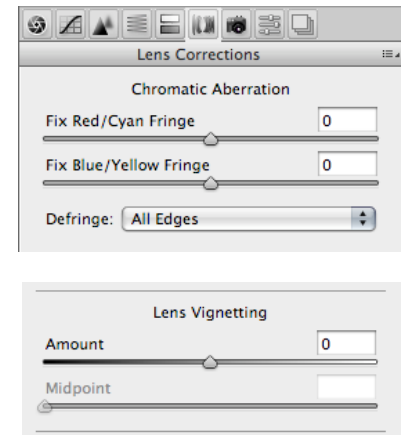


Lens Correction panel

Chromatic Aberration: use to correct for color halos resulting from wide angle lenses sometimes being unable to focus all colors onto the same focal plane.

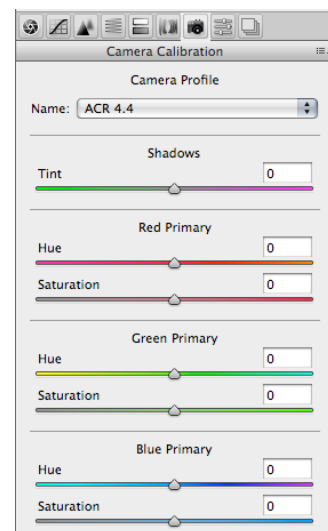
Change view to 400% and move to area of contrast, usually in the highlights. To judge results, press Option key to remove other channel when adjusting each slider.

Lens Vignetting: use to correct for light or dark frame edges. Use at "Fit in View".



Camera Calibration panel

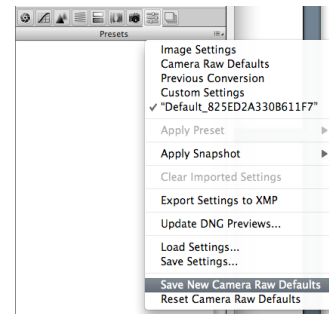
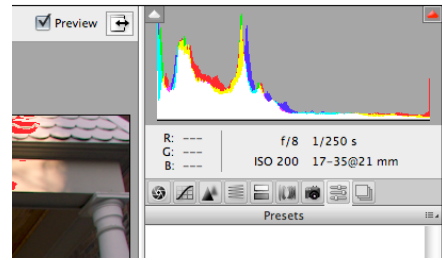
Leave at default setting.



Presets panel

On all previous panels, when you click “Preview”, you see changes made in that panel, only. Click on “Preview” box in Presets panel as the *only* place in the Adobe Camera Raw Converter to see the *cumulative effect of all previous adjustments*.

Save all adjustments as a preset to apply to other images with same lighting conditions, if needed.



Snapshot panel

Equivalent to Snapshot in the History panel in Photoshop. Use to safeguard present adjustments before making experimental changes that you might not wish to keep.

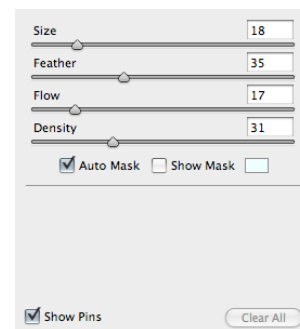
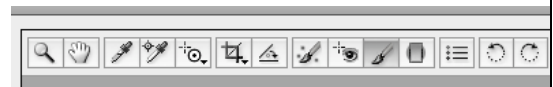


Adjustment brush

Use for local contrast adjustments.

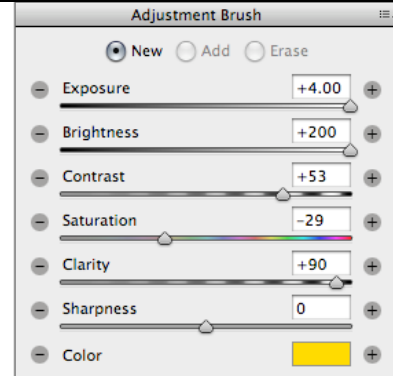
Select icon.

Adjust diameter and other aspects of brush.



Click on an area within the image needing local adjustment and correct using the adjustment sliders.

For each additional area, select “New”, and adjust as needed.

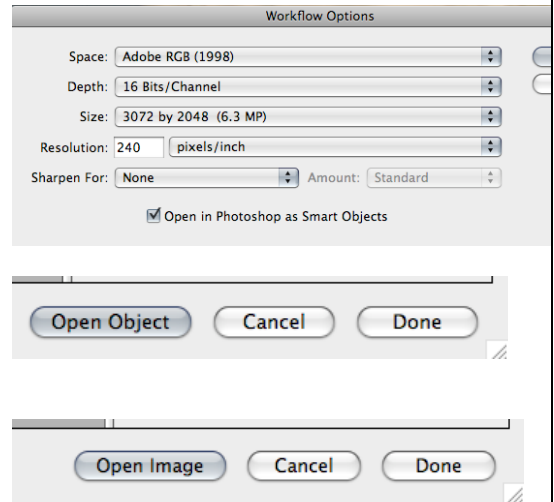


Camera Raw workflow link

To import your file into Photoshop but still use the Adobe Camera Raw Converter interface for parametric editing within Photoshop, click on the Camera Raw workflow link (at bottom of interface) and select “Open in Photoshop as Smart Objects”.

Then click on “Open Object” and it will open the file as a Smart Object within Photoshop.

Otherwise, click on “Open Image” and the file will open within Photoshop.



FINALIZE IN PHOTOSHOP

Finalize in Photoshop, as follows:

FOR COLOR	FOR BLACK AND WHITE
1. ADJUST PERSPECTIVE, CORRECT LENS DISTORTION, AS NECESSARY	(same)
2. GLOBAL COLOR AND TONAL CORRECTIONS Set black and white points and overall brightness using one of the following two methods: A) Toe in black and white point sliders on the red, green and blue channels on a Levels adjustment layer. Then adjust midtone slider on the Levels composite RGB channel to set overall brightness. Color blending mode: normal. OR	(same)

<p>B) Determine location of white and black points using Threshold adjustment layer and mark each point with a color sample. On Levels adjustment layer link white and black point eye droppers to the appropriate color sample, then adjust midtone slider on the Levels composite RGB channel to set overall brightness. Blending mode: normal</p>	
	<p>CONVERT TO BLACK AND WHITE If converting from color to black and white, do it now using your preferred method (i.e., Black & White or Channel mixer or Hue & Saturation adjustment layers).</p>
<p>Check midtone contrast For changes: Curves adjustment layer. Blending mode: luminosity</p> <p>Check color balance For changes: Curves adjustment layer. Blending mode: color</p> <p>Set hue and saturation For changes: Hue & Saturation adjustment layer. Blending mode: saturation</p> <p>Make sure your global corrections are set before you begin working on any local corrections. For efficient, logical layer management, we recommend that these global color and tonal corrections be placed inside a layer set folder entitled GLOBAL CORRECTIONS.</p>	<p>Set midtone contrast Use Curves adjustment layer. Color blending mode: luminosity</p>
<p>3. LOCAL COLOR AND TONAL CORRECTIONS Above the GLOBAL CORRECTIONS folder, make corrections to specific areas of your image, as necessary, using a 50% auto dodge layer, selections with adjustment layers, etc. For efficient and logical layer management, place these corrections inside a layer set folder entitled LOCAL CORRECTIONS.</p>	<p>(same)</p>
<p>(OPTIONAL) CONVERT TO EIGHT BIT <i>If you are working with large megabyte file sizes that make corrections time intensive, consider converting your 16-bit image to an 8-bit image at this point. Flatten image and convert to 8 bits per channel. This will reduce file size for ease of operation in Photoshop and save space on your hard drive. You may also choose to save the layered version of this file separately.</i></p>	<p>(same)</p>
	<p>FOR BLACK AND WHITE PRINTING <i>If printing in grayscale using RGB inks, remain in RGB color space. To print as a multitone or gradient mapped image (using a spectrum of primarily black and grey inks), you must convert your image to the Grayscale color space prior to printing.</i></p>

<p>4. SPOTTING AND RETOUCHING On a blank layer placed immediately above the Background layer, remove dust, scratches and other imperfections, as necessary, using Spot Healing Brush, Healing Brush, or Clone stamp tools. To use the Patch tool use the Background layer. Make retouching and creative alterations and manipulations as necessary.</p>	(same)
<p>(OPTIONAL) CREATIVE SHARPENING <i>If there is a need to sharpen specific areas, make a copy of all the previous layers (Option + Merge Visible) and apply the Schewe creative sharpening technique #2).</i></p>	(same)
<p>(OPTIONAL) SOFT PROOFING</p>	(same)
<p>5. OUTPUT SHARPEN</p> <p>A) For images of “normal” megabyte size, keep layers intact and sharpen using the Unsharp Mask filter in Photoshop. Size the file to final physical size and final resolution for that size as well as for type of output and media used.</p> <p>Then click on top of layer stack and choose Option + Merge Visible to make a copy of all previous adjustments.</p> <p>Use as a Smart Filter in order to make sharpening changes. Use Schewe method #3 (see sharpening_schewe.pdf), or Matt Siber’s (advanced_sharpening_screen.pdf), or your preferred method. View monitor image at 50% screen zoom, or 25% for high resolution inkjet, to evaluate how it will appear on paper.</p> <p>OR</p> <p>B) For images of excessively large megabyte size or for those images using many retouching layers, flatten the layered image. Size the file to final physical size and final resolution for that size as well as for type of output and media used. Then use Schewe method #3 (see sharpening_schewe.pdf), Matt Siber’s (advanced_sharpening_screen.pdf) or your preferred method. View monitor image at 50% screen zoom, or 25% for high resolution inkjet, to evaluate how it will appear on paper.</p> <p>Output sharpening can increase the appearance of dust and other artifacts, so recheck image prior to printing.</p>	(same)
<p>6. SAVE LAYERED VERSION Save a copy of layered version of your image (to preserve ability to make future changes, as necessary).</p>	(same)

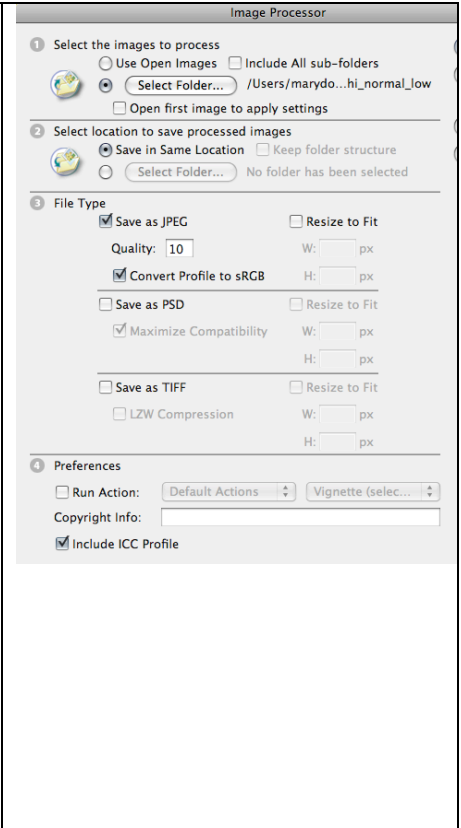
7. OUTPUTS

To other file formats

Convert to other file formats as needed:
Photoshop>File>Scripts>Image Processor

To hardcopy

View the print under the lighting circumstances in which it will be shown (3660° K, or halogen or tungsten lights, etc.). If adjustments need to be made, make them using the appropriate adjustment layer(s)--most often, Curves for contrast and/or Hue and Saturation for saturation boost--placed at the top of the layer stack.



ARCHIVE

Save your master files on *at least one external hard drive*.

- Do *not* save on CD's or DVD's because of data instability and the eventual loss of your images.