#### Digital exposure-based workflow Digital Imaging II classes Columbia College Chicago Photography Department Revised 20100522

#### 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

Use Camera Raw format.

- In a digital exposure, one half of all image data is contained in the single highest stop. 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 1 stop.
- 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:

Photoshop preferences	(see document entitled
	bridge_photoshop_prefs_settings.pdf)
Photoshop color settings	(see document entitled
	bridge_photoshop_prefs_settings.pdf)
Adobe bridge preferences	(see document entitled
	bridge_photoshop_prefs_settings.pdf)

Adobe Camera Raw Preferences	Camera Raw Preferences (Version 5.5.0.97)
General: select Save image settings in Sidecar "xmp" files, and Apply sharpening to All	Ceneral Save image settings in: Sidecar ".xmp" files Apply sharpening to: All images Default Image Settings
Images.	Apply auto tone adjustments
Default Image Settings: check "Apply auto	<ul> <li>Apply auto grayscale mix when converting to grayscale</li> <li>Make defaults specific to camera serial number</li> </ul>
grayscale mix" when converting to grayscale,	Make defaults specific to camera ISO setting
Make defaults specific to camera serial	Camera Raw Cache
number, Make defaults specific to camera ISO setting.	Maximum Size:         1.0         CB         Purge Cache           Select Location         /Users/marydougherty/Library/Caches/Adobe Camera Raw/
Camera Raw Cache: Max. Size 1.0 GB	DNG File Handling Ignore sidecar ".xmp" files
Camera Naw Cache, Max. Size 1.0 GD	Update embedded JPEC previews: Medium Size
DNG File Handling: check Ignore sidecar "xmp"	JPEG and TIFF Handling
files	JPEC: Automatically open JPEGs with settings
	TIFF: Automatically open TIFFs with settings
JPEG and TIFF Handling: select Automatically open with settings.	

#### 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.
- Examples:

DCIM\_a (for first card) DCIM\_b (for second card), etc.

- (yearmonthday)\_(projectdescription)\_(a)
- (a = first card of shoot, b = second card, etc.)

#### 5. On external hard drive make folder for image backup

 Create folder and name it according to (yearmonthday)\_(projectdescription) Example: 20100117\_Chicago

## 6. Convert proprietary camera raw files on desktop to non-proprietary, open source digital negative (DNG) files

Use dng converter	O O O DNG Converter
(Free download of DNG Converter application at <u>www.adobe.com</u> )	Adobe Digital Negative Converter     Select the images to convert
On desktop, select folder containing original Camera Raw files to convert. Example: DCIM_a	Select Folder //Jsers/marydougherty/Desktop/20100117_workflow/     Include images contained within subfolders     Select location to save converted images     Save in Same Location     Select Folder //Jsers/marydougherty/Desktop/20100117_workflow/
On external harddrive, select destination folder to save converted images. Example: 20100117_chicago_dng	Preserve subfolders  Select name for converted images Name example: MyDocument.dng Document Name + + + + + + + + + + + + + + + + + + +
Do not change the original camera file names.	Begin numbering: File extension: dng
Click «Convert»	O Preferences         Compatibility: Camera Raw 5.4 and later         IPEC Preview. Medium Size         Don't embed original         Change Preferences         Quit         Convert

7. Open files on external hard drive in bridge (keep original DCIM\_a folder on desktop as backup of original files)

#### 8. Delete, rank, order and group images

#### 9. Batch rename:

• Name limit: 32 characters, maximum, in order to avoid problems when uploading files to servers. Recommended: drop first two numbers of the year to free up two additional spaces. See File Naming Convention Appendix.

Accient voormonthdov plue project descriptor	Batch Rename	
Assign yearmonthday plus project descriptor	Destination Folder	Rename
plus sequential image number:	Rename in same folder	Load
pido ocquertitar intage narriber.	O Move to other folder	Save
	Copy to other folder	Cancel
Dédeux Tables Database au	Browse	Cancer
Bridge>Tools>Batch rename	New Filenames	
-	Date Time Date Created Date Time 🗘 🗇 🕀	
	Text (descriptor) +	
Naming convention:	Sequence Number 🛟 1 Three Digits 🗘 🕀 🕀	
yymmdd_keywor_##_###.ext	Options	
	Preserve current filename in XMP Metadata	
	Compatibility: Windows Mac OS Unix	
	Preview	
	Current filename: P1010259.dng	
	New filename: 20100117_(descriptor)_001.dng	
	3 files will be renamed	

#### 10. Add metadata template to images

• Bridge>Tools>Replace Metadata

#### 11. Add keywords to images using keyword panel

12. Using bridge select all images you wish to adjust and open in Adobe Camera Raw Converter

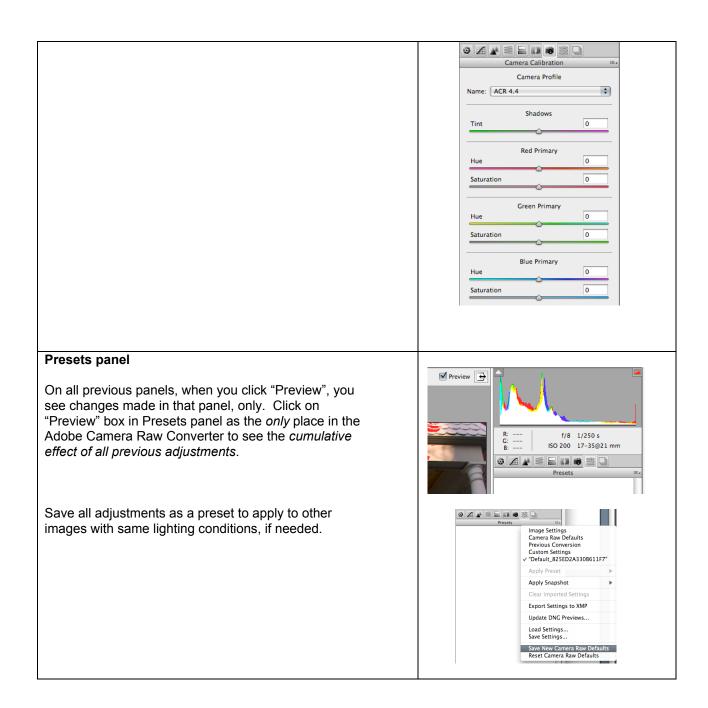
## Develop in ADOBE CAMERA RAW (ACR) Converter

1. Select camera raw workflow options	20060616_lowlands_schwartz_214_day1-16.CR2
	Adobe RG8 (1998); 16 bit; 2731 by 4096 (11.2MP); 240 ppi Open O
(click link at bottom of Adobe Camera Raw interface)	
Select the following entions:	Workflow Options
Select the following options:	
Color space: Adobe RGB 1998     Display the Adobe to bit	Space: Adobe RGB (1998) CK Depth: 16 Bits/Channel Cancel
Bit Depth: 8-bit or 16-bit	Size: 3413 by 5120 (17.5 MP) +
Size: (see note, below)	Resolution: 240 pixels/inch 🗘
<ul> <li>Resolution: (leave at 240ppi default)</li> </ul>	Sharpen For: None Amount: Standard
Sharpen: none	Open in Photoshop as Smart Objects
<ul> <li>Open in Photoshop as Smart Objects (optional)</li> </ul>	
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).	
Use your camera's native resolution (option without + or -), if	1365 by 1024 (1.4 MP) -
possible. If you need to upres or downres, do it here.	2048 by 1536 (3.1 MP) -
	3072 by 2304 (7.1 MP) – ✓ 3648 by 2736 (10.0 MP)
Convert the megabytes you need into the megapixels	4096 by 3072 (12.6 MP) +
(example: say the Photoshop dialog box indicates you need a	5120 by 3840 (19.7 MP) + 6144 by 4608 (28.3 MP) +
100MB file. Click on the Camera Raw Size drop-down menu.	0144 by 4008 (28.5 MP) +
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 X 3 = 60 X 2 = 120MB—you are safely	
above your desired 100 MB file size).	
above your desired too wib life size).	
2. Crop, straighten, remove spots, remove red	
eye, as necessary	
	7E
3. Global color and tonal corrections	
Basic panel	
Basic panel	
	Basic III
<b>Basic panel</b> Pick white balance from drop down menu options.	White Balance: As Shot
Basic panel	
Basic panel Pick white balance from drop down menu options.	White Balance: As Shot
Basic panel Pick white balance from drop down menu options.	White Balance: As Shot
<b>Basic panel</b> Pick white balance from drop down menu options. Tweak with Temperature and Tint sliders.	White Balance: As Shot Temperature 5100 Tint +19 Auto Default
<b>Basic panel</b> Pick white balance from drop down menu options.	White Balance: As Shot Temperature 5100 Tint +19 Auto Default Exposure 0.00
Basic panel         Pick white balance from drop down menu options.         Tweak with Temperature and Tint sliders.         Click Auto to set midtone values (brightness and contrast), Select Exposure (white point), Recovery (white point adjustment),	White Balance: As Shot Temperature 5100 Tint +19 Auto Default Exposure 0.00 Recovery 0
Basic panel         Pick white balance from drop down menu options.         Tweak with Temperature and Tint sliders.         Click Auto to set midtone values (brightness and contrast),         Select Exposure (white point),         Recovery (white point adjustment),         Blacks (black point),	White Balance:     As Shot       Temperature     5100       Tint     +19       Auto     Default       Exposure     0.00       Recovery     0       Fill Light     0
Basic panel         Pick white balance from drop down menu options.         Tweak with Temperature and Tint sliders.         Click Auto to set midtone values (brightness and contrast),         Select Exposure (white point),         Recovery (white point adjustment),         Blacks (black point),         Fill Light (shadow adjustment, as necessary),	White Balance:     As Shot       Temperature     \$100       Tint     +19       Auto     Default       Exposure     0.00       Recovery     0       Fill Light     0       Blacks     5
Basic panel         Pick white balance from drop down menu options.         Tweak with Temperature and Tint sliders.         Click Auto to set midtone values (brightness and contrast),         Select Exposure (white point),         Recovery (white point adjustment),         Blacks (black point),	White Balance:       As Shot         Temperature       5100         Tint       +19         Auto       Default         Exposure       0.00         Recovery       0         Fill Light       0         Blacks       5         Brightness       +50
Basic panel         Pick white balance from drop down menu options.         Tweak with Temperature and Tint sliders.         Click Auto to set midtone values (brightness and contrast),         Select Exposure (white point),         Recovery (white point adjustment),         Blacks (black point),         Fill Light (shadow adjustment, as necessary),         Brightness (overall),	White Balance:     As Shot       Temperature     \$100       Tint     +19       Auto     Default       Exposure     0.00       Recovery     0       Fill Light     0       Blacks     5

Clarity—midtone/local contrast adjustment. Vibrance—increases saturation on all unsaturated colors. Does not affect Caucasian skin tones but will affect darker skin tones. Saturation—increases overall saturation.	Clarity 0 Vibrance 0 Saturation 0
Tone Curve panel Refine midtone contrast using Parametric, or Point tabs.	Tone Curve       Parametric       Point       Highlights       0       Darks       0       Shadows       0       Darks       0       Shadows       0       Exametric       Point       Curve:       Medium Contrast       0
Detail panel         Apply input sharpening (use conservatively).         CR sharpening sliders       Photoshop USM equivalent         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.         After applying noise reduction,         recheck input sharpening.         Reduce noise resulting from using a high ISO or from         underexposing, as needed.	Detail   Sharpening   Amount   25   Radius   1.0   Detail   25   Masking   0

HSL/Grayscale panel	
Note: Targeted Adjustment tool works with Hue, Saturation and Luminance adjustments.	
Convert to grayscale in Photoshop, not in the ACR Converter because Photoshop keeps color underneath the adjustment layer and allows for multiple b/w filtering.	Image: Second secon
	HSL / Grayscale III / Grayscale
Otherwise, adjust <u>hue</u> of any listed color, as needed.	Hue Saturation Luminance
	Default
	Reds
	Oranges 0
	Yellows 0
	Greens 0 Aquas 0
	Aquas 0
	Purples 0
	Magentas 0
	HSL / Grayscale ≔▲
Adjust saturation of any listed color, as needed.	Convert to Grayscale
	Hue Saturation Luminance Default
	Reds
	Oranges 0
	Yellows
	Greens
	Aquas 0
	Blues
	Purples
	Magentas 0
	HSL / Grayscale ≔×
	Convert to Grayscale
Adjust <u>luminance</u> of any listed color, as needed.	Hue Saturation Luminance
Adjust <u>idminiance</u> of any listed color, as needed.	Default
	Reds
	Oranges 0
	Greens 0
	Aquas 0
	Blues 0
	Purples 0
	Magentas 0

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.	Split Toning III Highlights Hue Saturation 42
Shadows: press option key and select hue. Release. Then select appropriate saturation for that hue.	Shadows Hue 228 Saturation 9
Balance: use slider to create appropriate balance between the highlight and shadow tones and saturation.	Balance -35
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 away from image center to area of edge contrast, usually in the highlights.	Image: Second secon
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".	Lens Vignetting Amount Midpoint
Camera Calibration panel Leave at default setting.	



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.	Snapshots
Adjustment brush	
Use for local adjustments.	
Select icon.	
Adjust diameter and other aspects of brush.	Size 18 Feather 35 Flow 17 Density 31 Auto Mask Show Mask Show Pins Clear All
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. Can also use graduated filter.	Adjustment Brush       III.            • New Add Erase        Erase             • Exposure        +4.00         •             • Brightness        +200         •             • Contrast        +53         •             • Saturation        -29         •             • Clarity        +90         •             • Sharpness           •             • Color           •
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".	

	Workflow Options
	Space: Adobe RGB (1998)
	Depth: 16 Bits/Channel \$
	Size: 3072 by 2048 (6.3 MP) 🗘
	Resolution: 240 pixels/inch 🗘
	Sharpen For: None Amount: Standard 🗘
	🗹 Open in Photoshop as Smart Objects
Then click on "Open Object" and it will open the file as a Smart Object within Photoshop.	Open Object Cancel Done
Otherwise, click on "Open Image" and the file will open within Photoshop.	Open Image Cancel Done

# Fine-tune in Photoshop, as necessary Most global and tonal corrections were done in the ACR Converter

For color	For black and white
1. Adjust perspective, correct lens distortion, as necessary	(same)
2. FINE TUNE global color and tonal corrections	(same)
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	
B) Check your eyedropper values to ensure that they are set correctly (generally: RGB 10,10,10, 250,250,250). 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	
	<b>Convert to black and white</b> Work with an RGB file and a Black & White adjustment layer, only.

<ul> <li>FINE TUNE midtone contrast For changes: Curves adjustment layer. Blending mode: luminosity </li> <li>FINE TUNE color balance For changes: Curves adjustment layer. Blending mode: color FUNE TUNE hue and saturation For changes: Hue &amp; Saturation adjustment layer. Blending mode: saturation 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.</li></ul>	FINE TUNE midtone contrast Use Curves adjustment layer. Color blending mode: luminosity
<b>3. Local color and tonal corrections as necessary</b> Above the GLOBAL CORRECTIONS folder, make corrections to specific areas of your image, as necessary, using a 50% auto dodge/burn layer with soft light blending mode, selections with adjustment layers, etc. For efficient and logical layer management, place these corrections inside a layer set folder titled "local corrections."	(same)
<i>(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. This will reduce file size for ease of operation in Photoshop and save hard drive space. You may also choose to save the layered version of this file separately.	(same)
	For black and white printing If printing in grayscale using RGB inks, remain in RGB color space and use Epson Advanced Black & White if printer supports it.
<b>4. Spotting and retouching as necessary</b> 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. Use the Patch tool on a duplicate of the background layer. Make retouching and creative alterations and manipulations as necessary.	(same)
<i>(Optional) creative sharpening</i> If there is a need to sharpen specific areas, make a copy of all the previous layers (Option + Merge Visible) or merge all but color layers to allow color tweaking after sharpening, and apply the Schewe creative sharpening technique #2).	(same)
<ul><li>5. Output sharpen</li><li>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.</li></ul>	(same)

Then click on top of layer stack and choose Option + Merge Visible to make a copy of all previous adjustments.	
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.	
OR	
<ul> <li>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.</li> <li>Output sharpening can increase the appearance of dust and other artifacts, and can also alter colors, so recheck image prior to printing.</li> </ul>	
<b>6. Save layered version</b> Save a copy of layered version of your image (to preserve ability to make future changes, as necessary).	(same)
<b>(Optional) soft proofing</b> Duplicate the image to compare to when adding adjustment layers to the original to correct for soft proofing.	(same)
7. Output to other file formate	Image Processor
7. Output to other file formats Convert to other file formats as needed: Photoshop>File>Scripts>Image Processor	Image Processor         Select the images to process         Use Open Images         Include All sub-folders         Select Folder         Open first image to apply settings         Select location to save processed images         Select folder         Save in Same Location         Keep folder structure         Select Folder         No folder has been selected         File Type         Save as JPEG         Resize to Fit         Quality:         10       W:         Px         Convert Profile to sRCB         H:       px         Maximize Compatibility       W:         Maximize Compatibility       W:         Px       Save as TIFF         Resize to Fit       Px         LZW Compression       W:         Px       H:         Px       Preferences         Run Action:       Default Actions \$ Vignette (selec \$         Opyright Info:       Include ICC Profile

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) placed at the top of the layer stackmost often, Curves for contrast and/or Hue and Saturation for saturation boost.	

### Archive

• Save 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.