

## Workflow - from card to competition

These notes describe the way image files should be handled from capture in camera to output on paper or on the web or projector. The emphasis is on minimising loss of information - in terms of the entire file due to disk crash or the information within a file due to compression steps.

### Workflow steps

Philosophy - sos

Simple - do things once

Organised - use keywords or descriptors in metadata so you can later find images

Safe - backup, backup, backup

### Before the shoot

1. Run a checklist on your kit, and on the settings for your camera, strobes and lenses.
2. Format the cards in the camera you intend using.
3. Set camera file settings to RAW, adobe RGB. If you can't use RAW, check that the white balance setting is appropriate or use a grey card shot.

### Workflow after the shoot

Requirements -

- Computer with sufficient HD space containing camera file processing software (Capture NX2 for nikon, DPP for Canon) and/or universal RAW processing software such as Lightroom, Photoshop, Capture One, Picasa
- Cable or card reader (faster) to load camera files to the computer,
- Portable HD (Western Digital 1TB \$(99). Optional but advisable - NAS drive (e.g. Synology), or DVD for off site storage,

### Basic Steps

1. Download files from camera card to two devices:
  - Attach a portable backup HD - formatted for windows and/or Mac. Replace and store off site when full.
  - Insert card into card reader or use a camera cable (ensure full battery). Your card reader should preferably have slots for SD and CF cards, should be good quality (e.g. Hoodman), and connect via USB 2.0 or faster.
  - Open your camera software or third party software (it should open automatically if set as default)
  - Set preferences, add metadata, and then download the image files to the main computer plus backup device. Setting preferences involves - setting file and directory names, adding basic metadata (name, copyright, keywords), and setting backup location.
  - *Do not delete card images until you have checked the files on your computer and backup device.*

*If you accidentally delete files from your camera card or computer using "delete" or "format", you can recover them using software that is available online. The important thing is to not use the card or disk again until you have recovered the files.*

At this stage you should have duplicate sets of RAW files with the same filename and metadata, one on your main drive and another on a backup device, plus the original files on your camera card. The backup files remain untouched until disaster strikes. The files on your card should only be deleted in camera after you have confirmed the transfer and backup are complete.

Software choice: There are a number of personal choices to be made during this download process, depending on how much HD space you have and how you prefer to work. My preference is to download my image RAW files using the manufacturer's software (e.g. Nikon View NX2). An alternative is to download and process the RAW files directly using Lightroom, Capture One or Photoshop. The advantage of using the manufacturer's software is that any metadata you add remains with the RAW file. If you add metadata (e.g. keywords) while downloading with other software, it is saved as a separate exif file (sidecar file) because the RAW file remains untouched. If you use non-camera software to add metadata or rankings, it is not read by other software in the RAW format. Adobe created DNG files as a universal RAW file to solve this problem. However, camera manufacturers continue to write their own software for newer models, so DNG files may not include all RAW information.

File naming system:

One common system is to assign a date and sequence number as a filename and then store files in directories defined by year and then subject. Professionals might use a client name rather than a date system.

e.g. Hard Disk:

Images directory:

2014

NEPG

20140612\_10378.nef

20140612\_10379.nef

Bremer Bay

20140911\_11345.nef

2015

Kalgoorlie

20150123\_14789.nef

Smith portrait

20150411\_17894.nef

**RAW processing steps**

The aim of this step is to convert the RAW image into an appropriately exposed file. At the end of the process you will have a modified RAW file. I use Capture One to process RAW files. Alternatives include camera software (NIKON VIEW NX2, Canon DPP), Picasa and Adobe Camera Raw processor (ACR) used in Photoshop and Lightroom. For professionals and very organised people, Lightroom is the method of choice. For the rest of us, we use what we can afford and what suits our style of operation. My only complaint about Lightroom is that it is a database and this requires a lot more discipline than I possess about where files go and how they are named.

Multi-file adjustment in the RAW converter

Using Capture One, Lightroom or ACR in Photoshop as an example, the sequence I use is to import all the raw files from a shoot, mark the rejects, then on the keepers:

1. select Lens correction first, tick 'enable lens correction', then tick 'correct for lens distortion', in the same box select 'colour' and tick 'remove chromatic aberration'.
2. if required, straighten the horizon using the ruler or crop tool,
3. adjust white balance if required,
4. remove dust spots and make any further basic adjustments, and

5. save as a (modified) RAW file (click 'done'). The RAW files are not changed but a sidecar file is created that filters what we see on the screen and so the file appears different. To write the information without any loss into a 16 bit image file you need to save it as TIF or PSD.

### **Further processing steps**

Images may be ready for output to the web or print at this stage, and you can print or upload directly to the web from RAW files after resizing and sharpening. However, further steps are often required to get the most out of your images. These are most commonly done in Photoshop, and files must be saved as TIF or PSD to retain all information.

When you are finally ready to output the final file for print or web, open the TIF or PSD file, resize, crop, sharpen, set the new colour space if required and save under a new name (e.g. <filename>\_adj.TIF). If you want smaller files for emailing or sharing, run a batch process converting the 16 bit files into JPG (level 8 or higher) and store in a subdirectory. My preference is to automate this process using 'actions' in photoshop. By selected files in Bridge and running an action (select tools, photoshop, image processor. Select which action from the drop down list and save as JPG) to resize and sharpen you can save a lot of time and effort.

### **Other notes on workflow**

#### **File naming protocol**

The camera assigns names to raw files and permits some personal choice - e.g. ABC1034.nef. You can retain these names or rename them on transfer to your HD. I rename them with date and sequence - \_20150428\_11199.nef and use keywords and description within the metadata to identify subjects. I save them in separate folders identified by year and then subject - e.g. 2015/ nepg workshop/. Others use a keyword with a sequence. Use a technique that eliminates the risk of overwriting files with the same name. Batch renaming can easily be done in Photoshop Bridge. If using Lightroom, changes to filenames and locations should be done within Lightroom otherwise it loses track of the files.

#### **Metadata**

Add copyright data, keywords, description, location etc - anything that helps locate the file at a later date because all these can be search terms for collections. Make sure the colour space is Adobe RGB for everything except output to the web.

#### **File ranking and labelling**

In Bridge or camera software, mark files for rejection or ranking

#### **Raw processing**

For keepers, load into ACR (cmd or ctrl-R) or equivalent (Capture One) and batch process - apply camera adjustments, straighten, contrast, etc. Do not sharpen, resize or crop at this stage. Save as RAW files or output as 16 bit PSD or 16 bit TIF files for further editing. Software other than camera software will create RAW sidecar files that contain the adjustment information. This must be kept in the same folder as the RAW files.

For some photographers this is all that is required prior to outputting for print or web display. The next step is to resize and sharpen for output as jpg directly from RAW (ACR or Lightroom or Capture One)

For most club photographers, further processing of RAW files requires layers, and this means they must be converted and saved as PSD or TIF format.

## Output

When satisfied with the 16 bit RAW or PSD or Tif file, save this 16 bit file, then crop, resize, change colour space if required, and sharpen for the required end format and save under a different filename, e.g. xxxcroppedweb.TIF.

## Cropping

This is done before sharpening.

Crop as desired using the crop tool but keep the resolution constant. Ideally, work with 16 bit format until the very last output.

## Resizing

According to some photographers, a reduction in image size needs to be done in steps of 50% reduction at a time. An increase in size needs to be done in steps of 10% at a time. Repeat until the desired size is reached

### *Resizing for prints*

In photoshop, for reduction - select Image, image size, tick resample, select bicubic

Don't fear!! Aaron Dowling has produced a fantastic step by step **VIDEO** Tutorial on how to resize in Photoshop. Have a watch here: <https://youtu.be/mSR115yQm0s>

We have also updated the instructions for Lightroom - <http://nepg.com.au/wp-content/uploads/2015/03/Resizing-in-Lightroom-for-Projected-Images-ver2.pdf> ... thanks Dean

And examples are given on how to resize images using Photoshop (Elements and CS), Canon and Nikon software, Picasa and Microsoft Office Picture Manager [http://nepg.com.au/wp-content/uploads/2015/03/Tutorial\\_resizing\\_images\\_v5.pdf](http://nepg.com.au/wp-content/uploads/2015/03/Tutorial_resizing_images_v5.pdf) ... thanks Paul.

PLUS we have a document that will help you prepare your images for Printing at Arts Edge - [http://nepg.com.au/wp-content/uploads/2014/06/Tutorial\\_ArtsEdge\\_Printing\\_v1.pdf](http://nepg.com.au/wp-content/uploads/2014/06/Tutorial_ArtsEdge_Printing_v1.pdf)

smoother (reduction) and then reduce width or height dimensions. For enlarging, follow the same steps but select bicubic smoother (enlargement). Note that another way to enlarge without noticeable loss of detail is to untick Resample and simply decrease the print resolution. Going from 300 ppi to 240 increases the print size by 25% without degrading appearance.

### *Resizing for the web and projection*

This has been reviewed recently by Aaron Dowling and Paul Sauter, and an email informing members was sent last month. Details can be found on the NEPG web site.

sRGB is the preferred colour space for web display.

For files that need to be reduced in size for web display (e.g. NEPG projections): in photoshop, select image, image size, untick resample, change resolution to 90, tick resample, select bicubic (smooth gradients), change the width of the longest side to

2000px, click ok. Save the file as a renamed 16 bit tif file **then sharpen** (see below) and save as a level 8 jpg file for uploading to the web. This should be small enough for emailing and most web based requirements. Tick the box marked change colour space to sRGB. Note that JPEG files are (usually) 8 bit and have no layers, so saving as JPEG reduces the bit size to 8 and flattens any layers.

Files can also be resized in Photoshop by using the sequence File, export to web. This allows a finer degree of control over ultimate file size if desired. The method is described by Aaron Dowling in his video.

## Sharpening

### **On screen and Web sharpening. View sharpening at 50% of screen size.**

Galleries and judges hate sharpening artifacts (halos) and layering. Check your image at 50 or 100% on screen for these effects. The appearance of images sharpened for print can look oversharpened on screen compared with those sharpened for the web or projection, but look ok when printed. It is therefore recommended to check the final hard copy print for any oversharpening effects and redo if necessary.

There are various ways to sharpen for web and print. Peter Eastway in better photography 2012 issue 29 describes 3:

**option 1. Double sharpen at 200%.** Christian Fletcher method *for web and projections* - good for landscapes on the web. In this process you reduce the image size to twice that of the final required, then apply the basic sharpen tool - Filter, sharpen, ok. Repeat this sharpen step (ie twice sharpen). Then take the image to its final required size using image, image size.

**Option 2. Smart sharpen plus special sauce.** Sometimes the special sauce is too much, so compare outcomes. i) Reduce the image to its final pixel size. ii) create copy layer - apply sharpening to this layer and adjust opacity as required. iii) filter, sharpen, smart sharpen, advanced. The 'more accurate' check box will apply the sharpening twice, so check results. If in doubt leave unchecked. Use filter, sharpen, smart sharpen, choose advanced settings:

for landscapes - shadows - settings are 100, 40, 1 (fade amountt, tonal width, radius). For portraits use 100, 80, 1.

for landscapes - highlights - settings are fade 100, tone 80, radius 1. For portraits - use 100, 40, 1. Les Walkling suggests that tonal width settings are set at ratios of 2:1 or 1:2 for highlights vs shadows.

In sharpen, tick more accurate, tick remove lens blur. Adjust reduce noise as required. For web - use a radius between 0.2 and 0.8 (Peter Eastway uses 3), amount between 200 and 500 depending on how it looks at 100%

Special sauce - after steps above, For mid tone sharpening, select unsharp mask, amount 25% (move slider to check effect), radius 25 pixels, threshold 0 to 5. Christian Fletcher uses 6-10%, 50 px and threshold 0. This step can create halos, so you may need to adjust opacity down.

Advanced control. Use blend modes to control halos. Create 2 copies of the background, set blend mode to lighten and darken respectively. Label one lighten, the other darken.

**Option 3. Nik output sharpener.** Choose display from the drop down menu. Leave adaptive sharpening at 50%. Peter Eastway uses settings output sharpening 50% (default 100), increase local contrast to 10% (from 0) and leaves structure and focus at 0%. This produces a result similar to that for option 2. The advantage of sharpening with Nik is that it creates a layer that can be turned on and off.

## **Printing**

### **Commercial labs**

Most labs ask for a file resolution of 300 ppi, but even 180 ppi is sufficient for most prints if you are desperate to increase size without doing any resampling. You can work out the final image size by dividing px size by print resolution. So a file that is 4000 px wide printed at 300 dpi gives a print that is about 13 inches wide. At 180 dpi it will print a 22 inch picture.

The default colour space of your files should be adobe RGB (1998) all the way through to the final print. Set the camera colour space and photoshop default to adobe RGB. Only for web based display should you use sRGB, and only at the final stage. Once you set sRGB you remove available colours and they cannot be retrieved. Some professionals use larger colour spaces than Adobe RGB, but these methods require another workshop.

### **Home printing**

Understanding print settings in PS is a workshop on its own. You must have a profile for each printer model and paper type. If you get these wrong the colours won't match what is on your screen - assuming your screen is calibrated correctly.

Good luck

Colin White

NEPG workflow workshop

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