

Hardware Requirements – Briefly

- PC Requirements
 - CPU
 - the faster the better, but most modern machines will cope
 - Memory
 - Photoshop uses lots of memory so if possible add memory to your machine
 - Disks
 - Store photos on external (USB) disks – they are cheap
 - I have over 2Tb of pictures – and a backup copy !
 - Monitor
 - Get a good quality high resolution monitor
 - It makes a lot of difference to have a screen at least 1600 pixels wide
 - Consider colour calibration devices

Photo-Editing Software

- Adobe
 - Creative Cloud Photography c. £9 per month
 - Photoshop Elements 14.0 – £60
 - Lightroom 6.0 – £108
- Corel
 - Paintshop Pro Photo X8 – £50
- Freeware (varying levels of capability) e.g. Picasa
- I use Lightroom 4.0 and Photoshop Elements 12.0
 - Review all images in Lightroom
 - Select c. 40% of my images for basic processing in Lightroom
 - < 5% get edited in Elements (difficult edits and competition images)
 - BUT most of what you can do in Lightroom can be done in Elements

Organising Photos

- You can organise your photos by
 - naming them sensibly (keep unique id in name)
 - place them in folders according to session
 - group folders by year or topic
- You can use photo cataloguing software
 - Lightroom, Aperture, ACDSee, PhotoSupreme
 - Edit and search metadata
 - Edit and search keywords for image
 - Add quality ratings etc and search on these

Storing Photos

- I keep
 - Original image from camera (RAW or JPG)
 - **NEVER modify this**
 - If any significant edits made, a version containing details of changes which can be sharpened for print (PSD or TIFF)
 - Final sharpened copy for viewing (JPG)
- I keep two copies of everything
 - two separate external disks
 - One copy held away from the house and updated regularly

Picture Formats

- RAW formats
 - Variety of proprietary formats (CRW, CR2, NEF, RAW, RW2 etc)
 - Potential standard not widely adopted (DNG)
- PSD / PSP
 - Adobe / Corel proprietary formats
 - Store details of all layers etc
- TIFF
 - Saves multiple layers with lossless or no compression
- JPG
 - Compressed image format (much smaller than others)
 - Lossy – each time you edit and save, picture quality falls
- BMP, GIF
 - Don't use these for photos
- XMP
 - 'sidecar' file – stores information about the photo

Digital Workflow

- I didn't invent this
 - Borrowed a lot from books
 - Learnt a lot from websites and other workshops
- Few hard and fast rules
 - Many ways to do each adjustment
 - Most steps can be reordered
- Important to
 - Develop a routine workflow
 - Get familiar with some tools for each step
- With most tools, **subtlety is the key**

Producing a Digital Print

- Steps
 - Image Capture
 - Rotation (Straightening) and Cropping
 - White Balance / Colour Balance
 - Adjusting Image Exposure
 - Colour Correction
 - Remove Dirt and Noise
 - Sharpening
 - Printing

Image Capture – Scanning

- Scanners
 - Good flatbed scanners with film adapters
 - Designed to copy paper e.g. prints
 - Produce very reasonable scans of slides and negatives
 - Some issues with dirt on glass
 - Slide scanners
 - Disappearing from the market
 - Best option, if you need to scan a lot of transparencies
 - Nikon are best
 - Plustek scanners much cheaper
 - Have been recommended to me
 - No personal experience

Scanning Images – Problems

- Some films are dense and hard to scan
 - Many scanners struggle with Kodachrome
- Film negatives have an orange background
 - Scanner can struggle to produce accurate colour
- Dirt
 - Dust, hairs, scratches, fingerprints
 - Present even on newly processed material
 - Hard to clean effectively; have to remove digitally
 - Scanner software can help remove dirt
 - Dead / dirty scanner sensors can produce lines
- Sharpness
 - Monitor sharpness of scans
 - Autofocus mechanisms don't always produce optimum focus

Image Capture – in Camera

- Use highest available resolution
- RAW images retain most dynamic range so most highlight detail, but need more processing
- JPGS – If you are able to and planning to do digital processing
 - Reduce in-camera sharpening
 - Choose normal or natural for JPG processing mode
 - Don't use Vivid !

Camera Settings – RAW or JPG

- RAW formats record all the basic image data captured by the camera
 - 12 or 14 bits per channel (RGB) per pixel
 - 4096 different intensity levels
- JPG images are produced by cameras from this basic data
 - 8 bits per channel per pixel
 - 256 intensity levels
 - Camera makes decisions about image in order to perform this conversion
- Some cameras have large JPG + RAW option

RAW Images vs JPG Images

- RAW Advantages
 - Higher image quality
 - User has control over white balance, colour space, exposure settings and other image conversion parameters
 - Possible to preserve highlight and shadow detail
 - Many different JPGs can be produced without destroying original ‘negative’
- RAW Disadvantages
 - Larger (fewer images fit on card / disk)
 - No standard format
 - Slower and more complicated to process (JPGs can be printed / distributed direct from camera)

Digital Images from Camera

- Use a card reader rather than connecting camera to PC (no battery issues)
- Copy files off card using Windows Explorer rather than any other software
- Eject the card before removing
 - Right-click on disk in Window Explorer and choose eject
 - Simple removal can corrupt images on card
- Make a backup on the PC before re-using the card
- When the pictures are safe
 - Replace card in camera bag
 - Re-format before use (when you need it)

Photoshop Elements Layout

- Menu
- Toolbar
 - Stacked Tools
 - Toolbar Controls
- Windows Menu
 - Tools which can be docked in Palette bin
- Palette Bin
- Photo Bin

Photoshop Elements Raw Editor

- Similar tools to Lightroom Develop
 - Simpler
 - Some tools missing
 - Can do everything by Open Image and editing
 - Only edits in LR / Raw Editor are remembered
...undoable in the future

Importing / Opening Images

- I always Add existing folders to Lightroom
 - Then view in Library
- Photoshop Elements has Organiser
 - Provides similar tools to Lightroom Library
- I just Open files I want to edit
 - RAW images open automatically in Raw Editor
 - File / Open in Camera Raw to edit other formats in Raw Editor

Rotating and Cropping

- Reasons for rotating
 - Horizons / shore-lines don't look horizontal
 - Background items don't look level
 - Flower pots don't look level
 - Walls or Posts don't look vertical
- Correcting
 - Use crop tool or straighten tool
 - Don't be afraid to add picture area at corners
 - Better than a crop which is too tight
 - Often easy to clone picture into corners / edges



White Balance

- Fixing the colour balance
 - Camera's auto white balance isn't always accurate
 - Especially in mix of natural and artificial light
- Best before adjusting exposure
 - Before I started working with RAW images I did it later
- If working with JPG
 - use Adjust Colour / Remove Colour Cast
 - Finer adjustment possible using Levels

Adjusting Exposure

- Understanding a Histogram
 - Good histograms and bad histograms
- Adjusting the exposure to optimise tonal range
 - Not every picture should have full tonal range
 - Set exposure so image looks right (often bright is good)
- Fixing the white point – highlights and specular highlights
- Fixing the black point
- Using curves
 - More power, more control

Adjusting Exposure – Examples

- Correcting under-exposure
- Correcting over-exposure
 - More is possible with RAW images
- Localised exposure corrections
- Correcting contrast
 - Contrast – spreads tones of whole image
 - Shadows / Highlights
 - White and black points (Levels in PSE)
 - Clarity (mid-tone contrast)
- Adjusting mid-tone contrast using curves
 - Very sensitive
 - subtle S-shape usually helps

Colour Correction

- Can adjust colour balance further using
 - Remove colour cast
 - Colour Variations
 - Levels
- Adjusting colour saturation
 - Small adjustment makes invisible improvement
 - Large adjustment obtrusive
- Selective colour correction
 - Pipette tool
- Growers select plants for striking / unusual colour
 - People assume photo has been manipulated
- Printing – pinks and blues

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Removal of Dirt

- Techniques which work on
 - Dirt and scratches on slides
 - Digital noise
 - Sensor dirt
- Clone tool

Removal of Noise

- Causes
 - Very little light recorded for pixel (dark area, high ISO)
 - Variations in RGB levels recorded for pixel
- Luminance noise and colour noise
- Removing noise
 - Results in loss of detail
 - Don't use on the whole picture
 - Use selectively with large feathering
 - Localised darkening can help
 - Noise filters or blur filters in PSE

Using the Clone Tool



- Removing dirt etc
 - ‘Spotting’ using clone tool or healing brush
 - Copy and paste parts of image – then can rotate
- Removing distracting picture elements
- Alt-click to select source
- Aligned / non-aligned
- Vary size and softness of brush
- Can select region where changes are allowed
- Can vary opacity
- Can vary mode – try colour, luminosity

Before Sharpening (PSE)

- Make all other adjustments
 - Other adjustments have a tendency to exaggerate sharpening
- Save image
 - Do not want to make future adjustments on top of sharpening
- Resize image to intended output size (pixels)
 - Resizing after sharpening can produce artefacts
- Think about which parts of the image need sharpening
 - Sharpening doesn't improve blurred backgrounds
 - Can emphasize noise in background
- Know why you are sharpening
 - For viewing on the screen, keep sharpening to minimum
 - For printing
 - Depends on print size and paper – gloss paper needs more
 - Crisp prints may require sharpening beyond comfortable viewing

Unsharp Mask Tool (PSE)

- What does it do ?
 - Finds edges with tonal contrast and emphasizes them
 - Darkens pixels to dark side of edge
 - Lightens pixels to light side of edge
 - Can be used to increase local contrast
 - set low amount and high radius
- After Sharpening
 - Print
 - If you want a sharpened version to display
 - **save it as a separate version !**

Unsharp Mask Parameters

- Three Parameters:
 - Radius (pixels)
 - How wide the effect should spread from the edge
 - Larger values mean wider halos
 - Vary depending on image (fine detail => use lower radius)
 - Threshold
 - How large the tonal contrast needs to be before applying effect
 - Normally, leave small (0, 1) (brings up texture)
 - If noise or film grain is being sharpened badly, increase (5, 10) (focus on edges only) OR sharpen selected areas only
 - Amount
 - How much contrast to add at edges
 - Vary this to find the appropriate value
 - Depends on image (more for scans than digital camera images)
 - Depends on objective – printer media etc

Sharpening – LR

- Radius as Unsharp Mask
- Amount as Unsharp Mask
- Detail
 - Lower values sharpen edges
 - Higher values make textures more pronounced
- Masking
 - Low – sharpen everything
 - High – only sharpen near strongest edges

