

A BASIC INTRODUCTION TO CAMERA SET UP AND DIGITAL WORKFLOW

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TO START WITH

- There is no right or wrong way to manage your images
 - Some ways are probably better than others
 - But photography is a creative process
 - Experiment and find out what suits you and your approach
- Learn by making mistakes
 - Even the best photographers learn this way
- Get image as right as possible at point of capture
- You do not necessarily need expensive DSLR cameras to obtain good images
- but you do need to understand how to maximise image quality with what you have

MAKING GOOD IMAGES

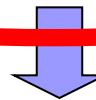
Right place and time



Right composition



Right camera settings



Right processing and output



FORMAT FOR THIS EVENING

- Presentation covering basics of camera set up and digital workflow
 - How to assess and improve your workflow
 - Camera set up
 - File size and type
 - Depth of field
 - Exposure
 - White balance
 - File storage and back up
 - Post production and image output
- Exploring and setting up your own camera

Plenty of time for discussion and debate

Workflow

WHAT IS WORKFLOW

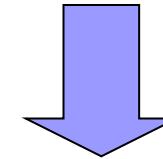
- Any activity involves a series of processes with inputs and outputs- workflow
- Workflow and process analysis used a lot in business to improve quality and efficiency
- Analyse workflow to see where delays or quality can be impacted
- Photography is no different
- Improved photographic processes can
 - Reduce wasted effort
 - Improve image quality
 - Allow more time for creating images

BE CLEAR WHAT YOU WANT FROM YOUR WORKFLOW

- Speed?
- Quality?
- Low cost?
- Simplicity?



Analyse your existing workflow and equipment to obtain the process that is right for you

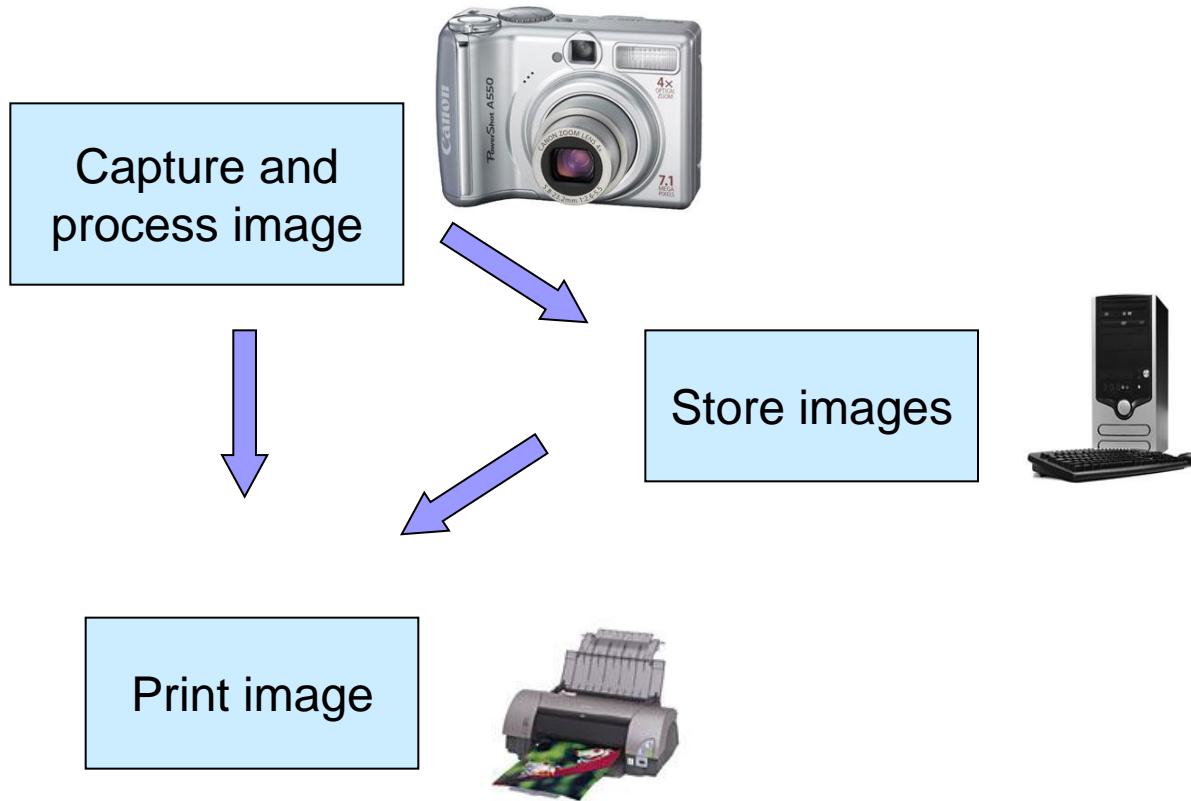


e.g. a high quality sensor needs high quality lens

e.g. why use low quality jpegs with good quality camera

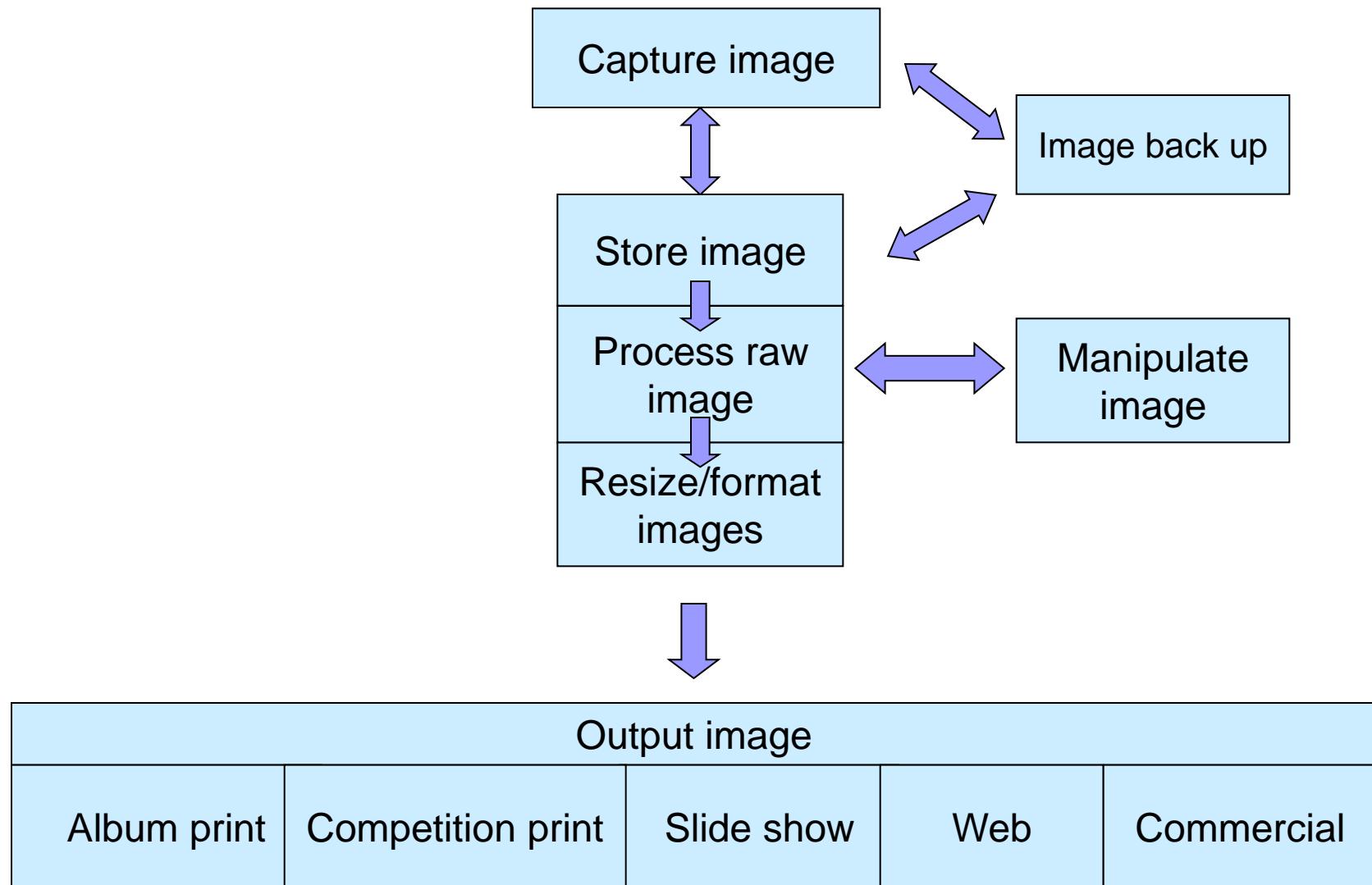
Work out the rate limiting step to see where improvements to process or equipment give you the best return

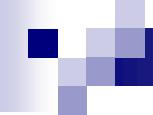
SIMPLE DIGITAL WORKFLOW



Low cost, speed, simplicity and, with modern cameras, some good images

COMPLEX WORKFLOW





Camera set up and use

File size and type

FILE SIZE/TYPE

- File size
 - For the best image set file size to maximum possible
 - Storage is relatively cheap- information cannot be recaptured once taken
- Cards
 - Use the best you can afford- not much more expensive than others and more reliable
 - Only use fast write cards if you really need them (large files and fast shooting rate)



- File type
 - Ideally use raw and convert later
 - Alternatively can often shoot raw with simultaneous jpeg (but uses more card space)

ALL DIGITAL PICTURES START LIFE AS RAW

- A raw file contains
 - The basic information about the image captured by each pixel
 - EXIF data- camera settings
- Raw files need to be converted to other formats (jpeg, TIFF, PSD, DNG) for most subsequent output and image manipulation
- In most compact cameras there is no option to output raw files
 - conversion to jpeg takes place within the camera
 - depending on type there is some ability to adjust raw image conversion
- In SLR and other higher quality cameras the image can be output as raw files allowing much more control over conversion in separate software

WHY RAW- a digital negative

■ Benefits

- Better quality with no image degradation
- Better control over image e.g. shadow and highlight detail
- Easier image enhancements
- Flexibility to adjust image settings post capture

■ Disbenefits

- Write time to card
- File size
- Extra processing step

Most professional digital photographers use raw unless fast processing and transmission needed for press or similar

IN- CAMERA JPEG ADJUSTMENT

For those that want to shoot jpegs:

- Many cameras allow you to define the way that the raw image is processed
 - E.g. Colour/saturation/sharpness etc
- Sometimes called “styles” or equivalent
- Effectively you provide instructions to camera for internal processing of all jpegs
- Better cameras allow you to set different styles
 - i.e. raw processing instructions for different types of image



Camera set up and use

*Focussing and depth
of field*

AUTOFOCUS

- Standard autofocus is usually very accurate on most modern cameras
- More sophisticated cameras provide other focus options dependant on the make and model
 - Zonal focus to allow specific focus on part of image
 - Spot focus for very accurate focusing on single object
 - Tracking focus for moving objects
- For accurate work may need manual focus
 - Macro where depth of field very small
 - Accurate landscape images using hyperfocussing

LENS AND DEPTH OF FIELD (DOF)

- Depth of field
 - The distance within the image which is in focus
- Varies with:
 - Lens
 - Aperture
 - Image distance
- Small DOF obtained when:
 - Close to subject
 - Large aperture (e.g. F2.8)
 - Long focal length (e.g. >300mm)
- Large DOF obtained when:
 - Far away from subject
 - Small aperture (e.g. F16)
 - Short focal length (e.g. 24mm)
- Can use DOF creatively



In low light large DOF can require long exposures (shake)

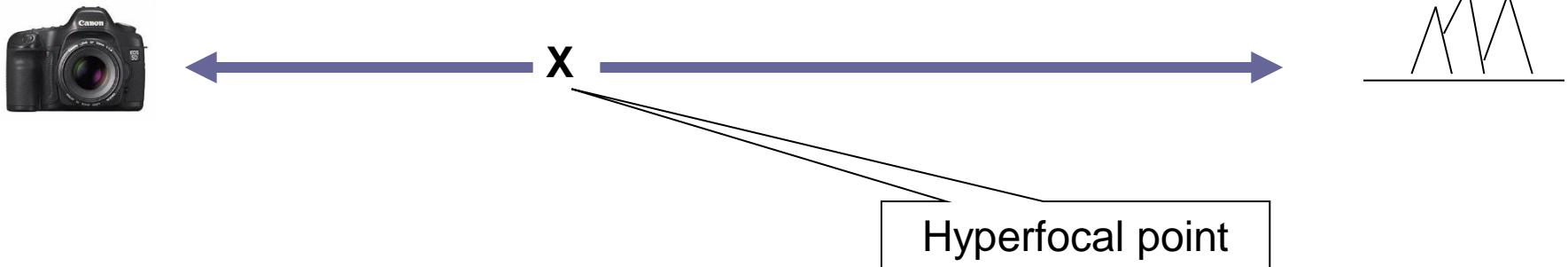
ASSESSING DEPTH OF FIELD

- Older lens often had DOF scale but not usually available on modern zoom lens



- Alternatively:
 - DOF calculator
 - DOF preview (but often dark)
 - Use hyperfocal point

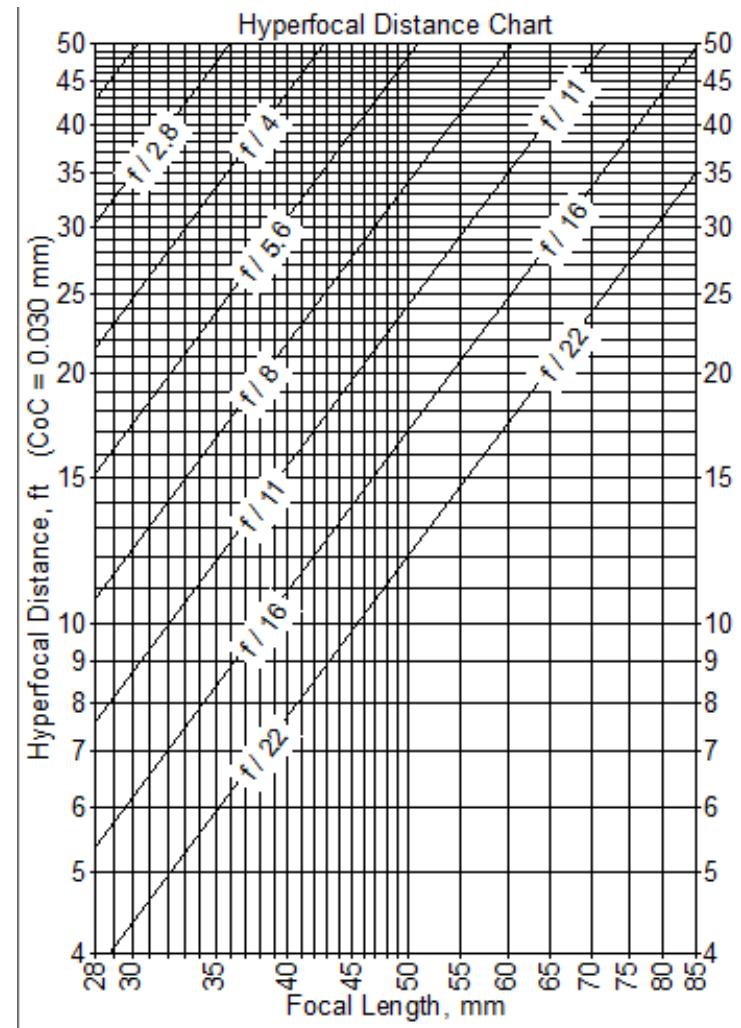
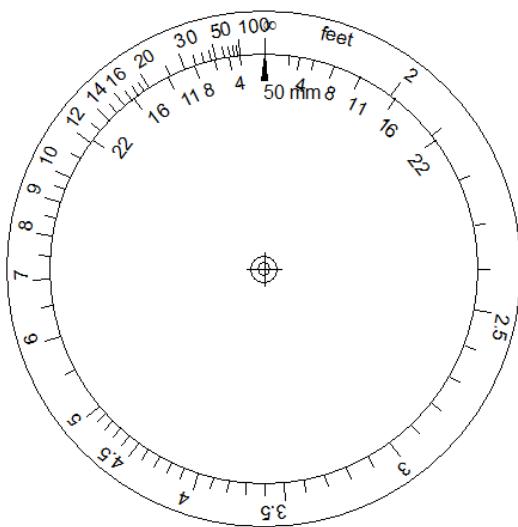
HYPERFOCAL POINT



- Hyperfocal point is “the focal point within the picture where everything from half that distance to infinity is in focus”
- Approx 2x more DOF behind hyperfocal point than in front
- Focussing at infinity “wastes” DOF
- Thus focussing at the hyperfocal point maximises DOF

MORE DOF INFORMATION

- Useful free information
- <http://www.dofmaster.com>





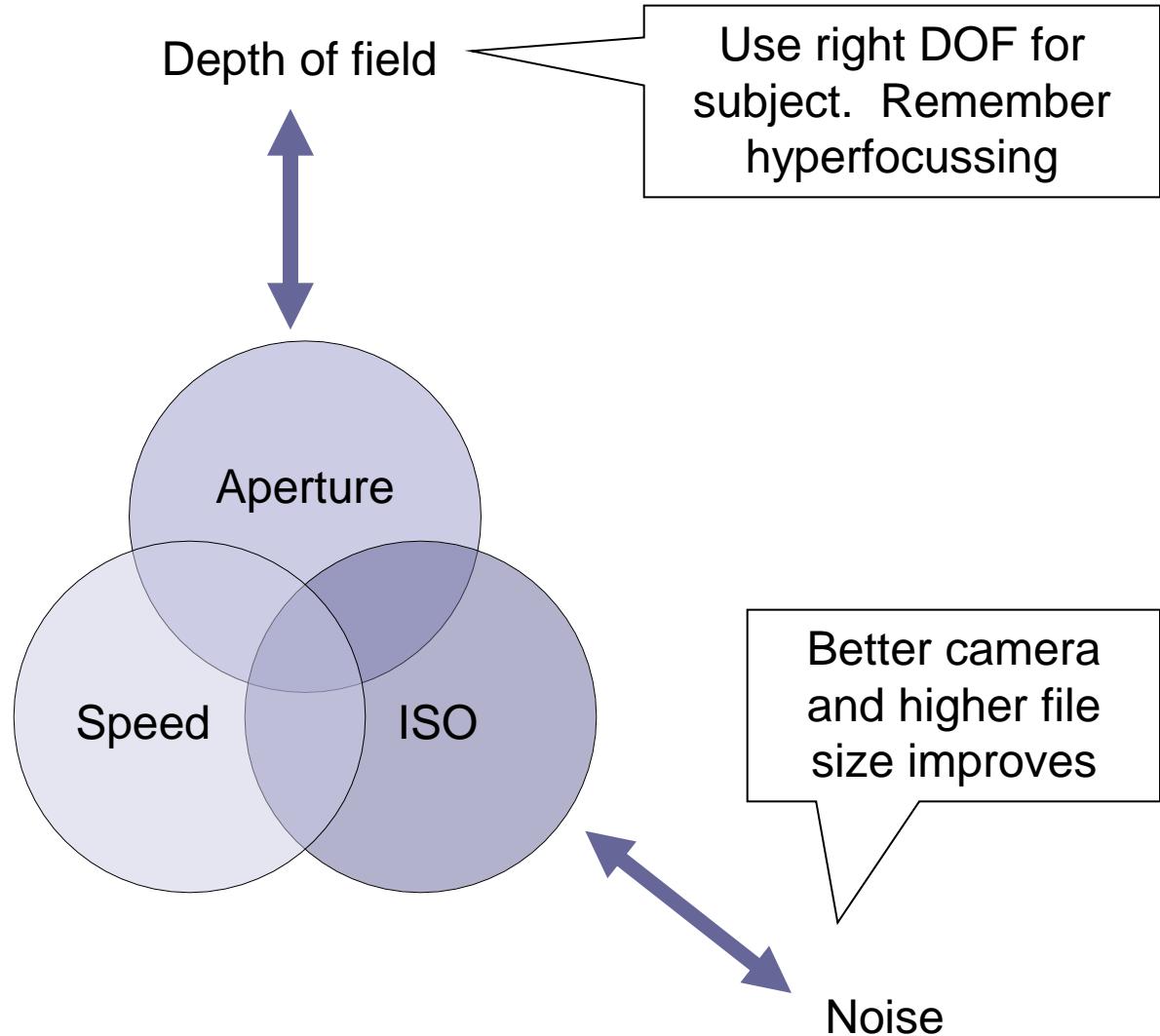
Camera set up and use

Exposure

EXPOSURE

- Need to balance three different settings to control exposure
 - ISO setting
 - Aperture
 - Speed
- “Auto” does this for you but you lose control
- Use Aperture, Speed or ISO settings to improve control depending on image subject and available light
- Can autobracket exposure manually and some cameras have “autobracketing” (but uses up card space faster)

EXPOSURE

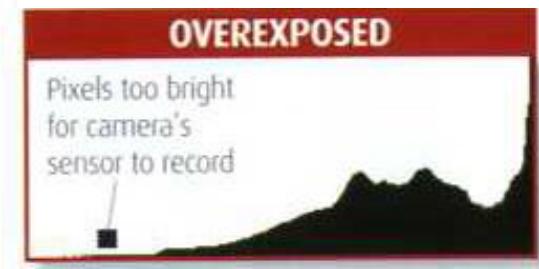
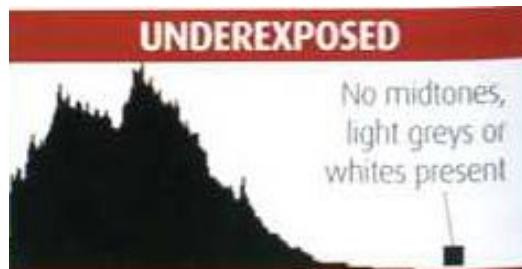


EXPOSURE METERING

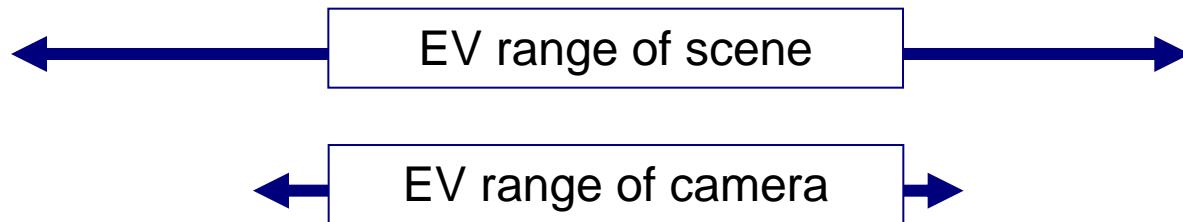
- Exposure metering is usually very accurate on modern cameras
- If take in raw can easily correct in post production by up to ± 2 stops
- Better cameras often give exposure options
 - Average
 - Evaluative
 - Spot
- But metering can be fooled in difficult conditions
 - E.g. Snow scenes are underexposed by auto
- If in doubt consider using bracketing or spot metering on image main subject

CHECKING THE HISTOGRAM

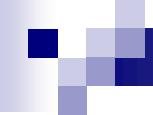
- The histogram is your friend
- Shows distribution of light and dark pixels
- Learn to read in the field
- Aim to get initial image as balanced as possible by checking histogram
- If a problem consider exposure bracketing



MANAGING HIGH CONTRAST PICTURE



- All cameras including digital have finite exposure range
- In high contrast situations can either blow highlights or lose shadow detail
- Options
 - Compose picture to minimise EV range (e.g. avoid bright sky)
 - Bracket exposure and correct later (e.g. HDR)
 - Use fill in flash
 - Use graduated filters



Camera set up and use

Camera shake

MINIMISING CAMERA SHAKE

- Slower the speed more likely to have camera shake
 - Rule of thumb: Speed > focal length
 - E.g. 200mm: Speed > 1/200 sec
- Ways to minimise problem
 - Use tripod or other stable surface
 - Use image stabilised lens
 - Increase the ISO
- Care: at lowish speeds mirror movement causes vibration
 - Avoid speeds around 1/15 to 1/4
 - Use mirror lock up



Camera set up and use

White balance

COLOUR TEMPERATURE & WHITE BALANCE

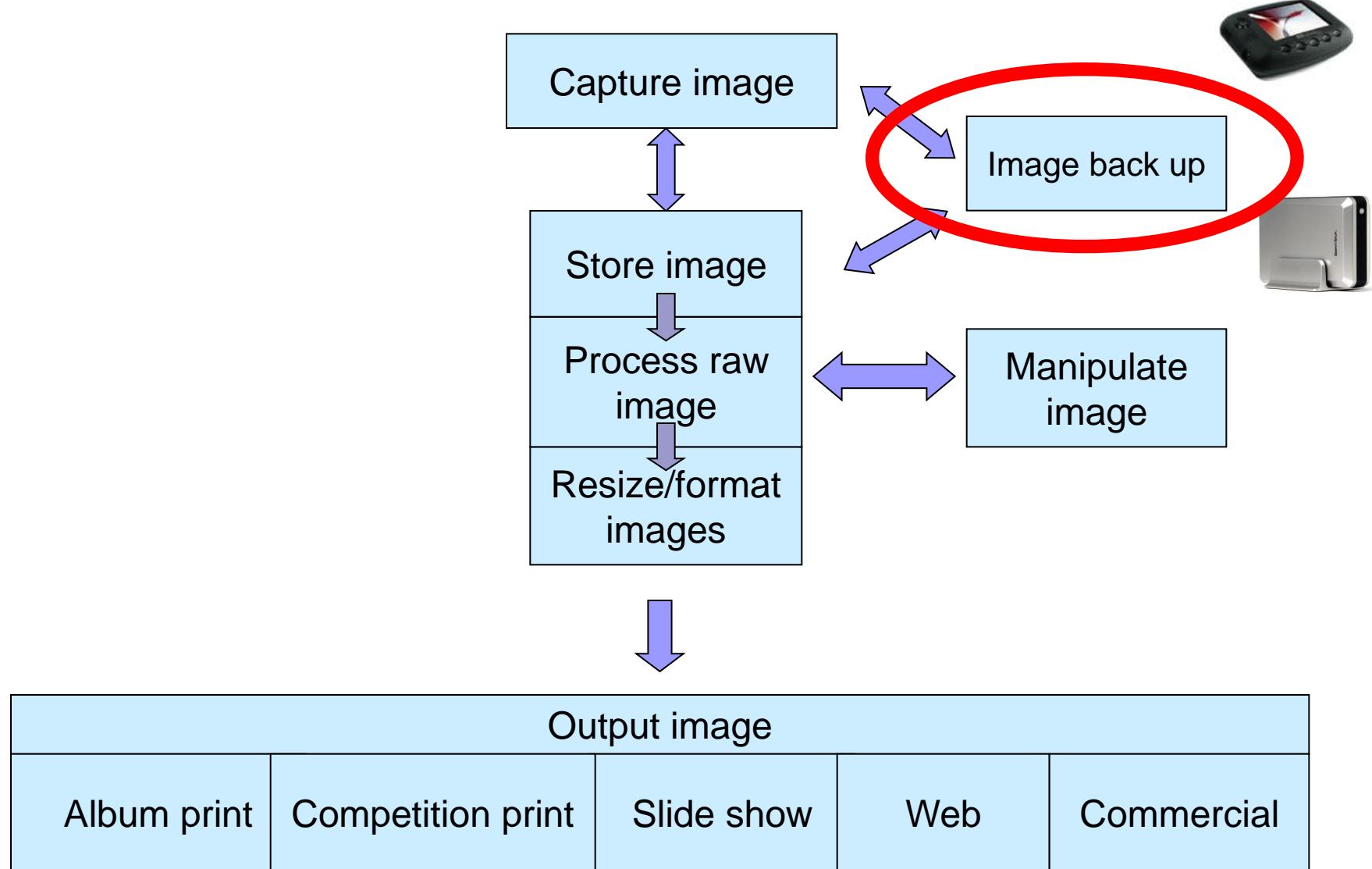
- Various options
 - Auto white balance (but can “neutralise” sunsets)
 - Fixed temperature e.g. 5200 (standard daylight)
 - Adjust balance depending on situation (camera options)
 - Shoot grey card and adjust precisely later
- If take raw you can alter subsequently in raw converter
- Avoids needs for colour filters (e.g. warm-up)





Back up and storage

IMAGE BACKUP AND STORAGE



BACK UP

■ In the field

- Buy enough memory cards
- Back up on to portable hard drive (s)
- Download on to DVD using service from local shops
- Take a laptop

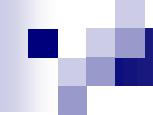
■ Back up at home

- At least once
 - to external hard drive
 - To DVD (but capacity limited)
- Ideally in two places (e.g. two external hard drives)

Ignore back up at your peril

AUTOMATIC BACK UP SOFTWARE

- Storage is cheap
- Remembering to back up is difficult
- There are various software packages that provide automatic backup
- Ideally do this to a separate hard drive
- For belt and braces occasionally back up to high quality DVD (cheap ones can degrade)



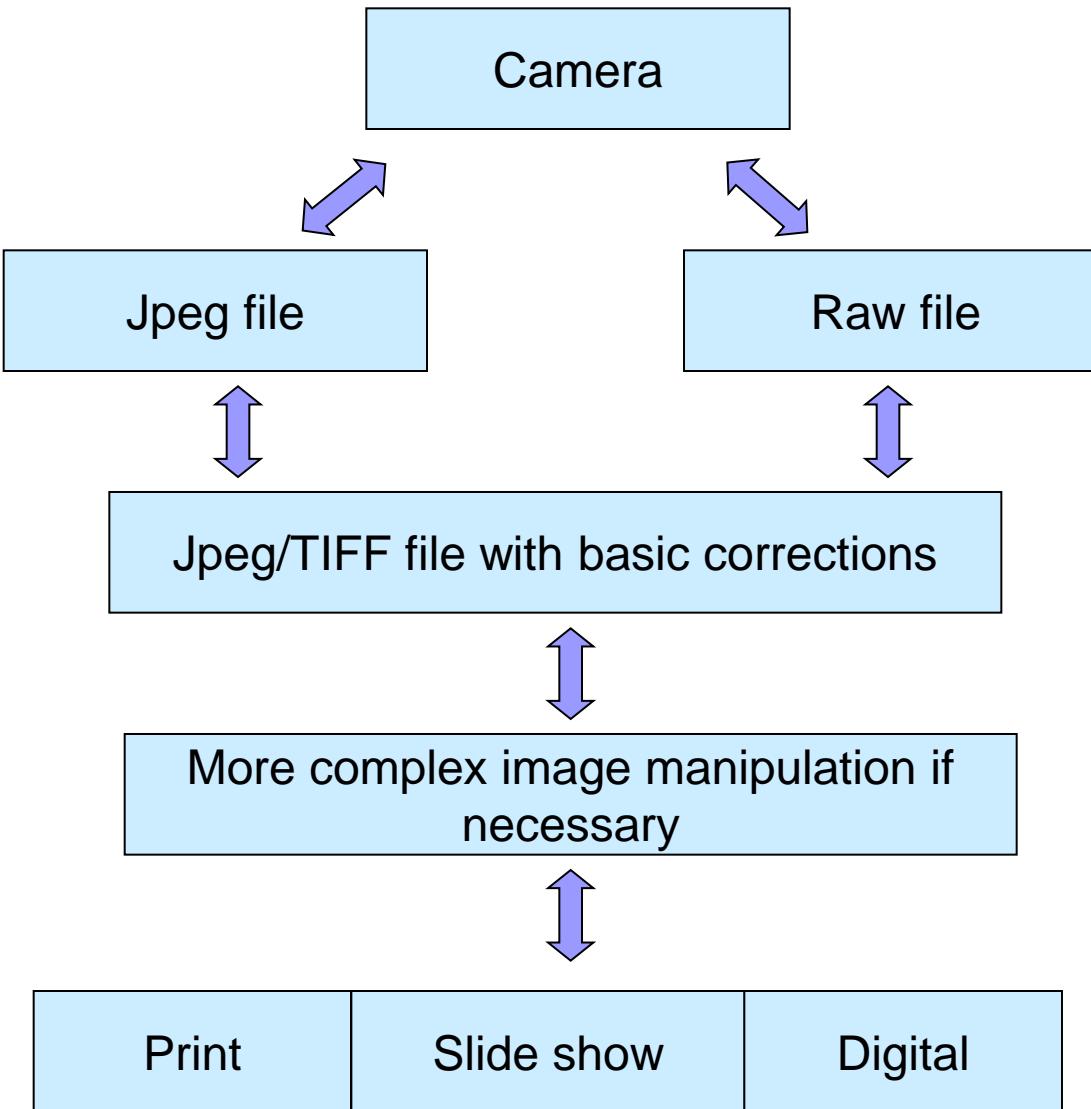
Post production and image output

Not really the subject of this workshop but a
few reminders

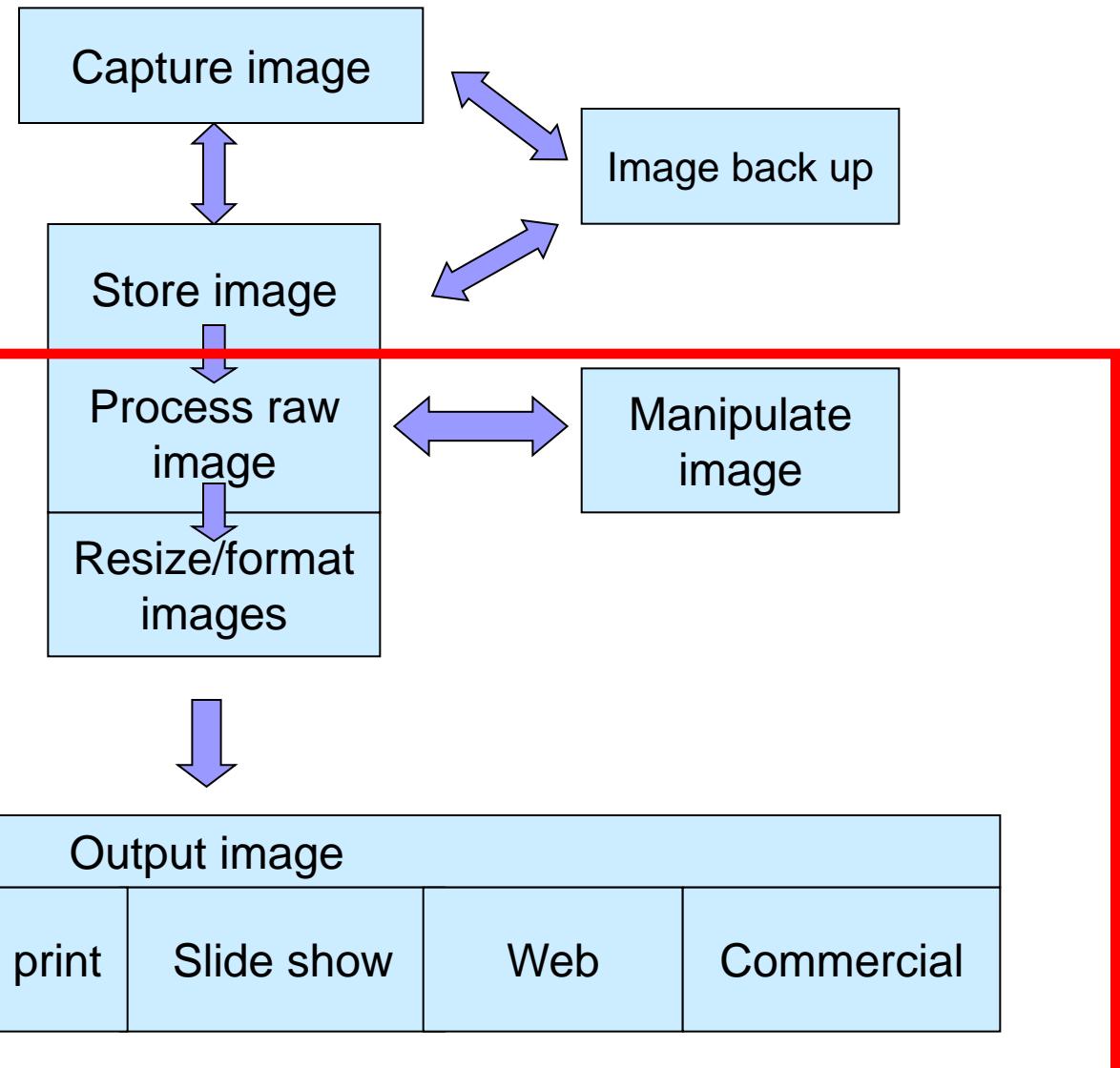
IMAGE MANIPULATION

- For many pictures “out of camera” is fine for many basic uses- especially if camera set up right
- However image will usually need further post production manipulation
- If taken in raw will need as a minimum
 - Convert to jpeg/TIFF
- Will probably need other adjustments
 - Most can be done in raw converter
 - Can also use Photoshop or equivalent
 - Elements has most features at affordable price
 - CS3/4/5 has lots of features but at a high price and complexity
 - Or many other separate software packages

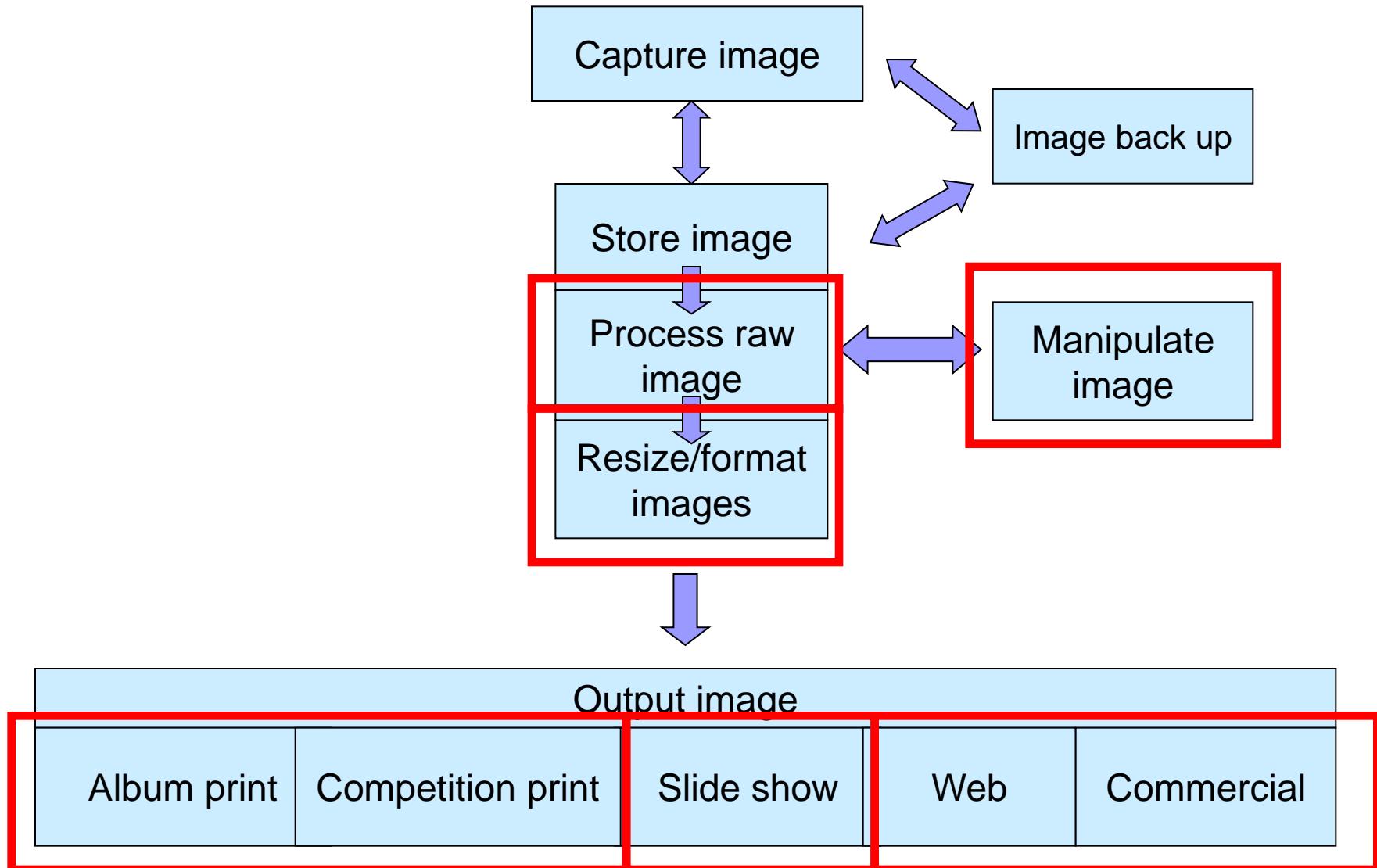
IMAGE PROCESSING AND MANIPULATION



INTEGRATED IMAGE SOFTWARE



SEPARATE IMAGE SOFTWARE



TIFF v JPEG

■ TIFF

- Better quality with no image degradation
- Larger files
- Choice of 8bit or 16 bit
 - 16 bit much better (65000 grey tones compared to 256)
 - Not all Photoshop filters work with full 16bit TIFF
- Ideal for
 - larger quality prints
 - competitions or commercial purposes
 - Where lots of adjustment planned

■ JPEG

- Smaller file size which can be varied
- Quality degrades the more manipulation takes place
- Ideal for
 - Smaller prints
 - Web
 - Slide shows

WHAT CAN RAW CONVERSION DO?

- Basically can change virtually any aspect related to the pixels and related histogram
- But not moving the pixels around or selectively adjusting pixels in part of the image (but newer programmes getting better at this)
- Includes
 - Colour temperature/tint/colour balance
 - Saturation
 - Contrast
 - Brightness
 - Levels, exposure, curves
 - Cropping and rotation
 - Sharpness and noise reduction
 - Format and size of converted image
- Importantly any adjustment does not impact the original pixels

WHAT RAW CONVERSION CANNOT DO?

- Layers and layer masks
- Cloning
- Special filter effects
- Decent monochrome conversion

But watch this space

IMAGE OUTPUT

- Can take a variety of forms e.g.
 - Snapshot prints
 - Large prints
 - Slide shows for use on TV, computer, projector
 - Web
- Each output format has different requirements
 - Lower quality fine for slides, web or 6x4 prints
 - Higher quality for bigger prints
- Printing
 - Getting high quality print can take time
 - Need to optimise file size to print size – interpolation
 - Need to consider colour profiles for best colour reproduction
- Slides for projection or TV
 - Adjust image size ratio and pixels to output medium
 - Most LCD HDTVs now 16/9 (1366x768 pixels)
 - Society projector 4/3 (1400x 1050 pixels)



THANKS FOR LISTENING
Hope it was useful

How can you improve your
camera set up and workflow?