Digital Workflow

Mike Farley LRPS

Digital Workflow Updated

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Digital Considerations

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Aesthetics and Technology

Does a creator of stylistic photography need to understand the underlying technology to improve their images?

Overview

Pre Shoot

- Photoshop Elements 6/7
- RAW vs JPEG
- Colour Management
- Colour Temperature
- Viewing Prints

Shooting

- Levels

Post Shoot

- Library Management
- Downloading from the Camera
- Configuring Photoshop
- RAW Conversion
- Levels
- Curves
- Sharpening
- Printing

Pre-Shoot

Photoshop Elements

Photoshop Elements 6/7

- More user friendly than full Photoshop
- Most commonly used Photoshop functions included
- Albeit often a subset of features, e.g. RAW Conversion or Curves
- Some functions 8 bit only, e.g. Clone Tool
- Layer Masks, Pen Tool, LAB Mode, Soft Proofing and Channel Mixer omitted
- Organiser provides library management
- 90% of the most often used functionality for 10% of the cost

RAW or JPEG?

RAW Compared to JPEG

RAW

- Data captured directly from the sensor
- Camera does no other processing
- Computer software required to create final image
- File format unique to manufacturer (except DNG)

JPEG

- Image created in the camera
- Camera functions provide basic controls to modify the output
- Universal file format

RAW vs JPEG

RAW – Pro

- Post capture adjustments
- Quality, especially large prints
- "16 bit" option (really 12 or 14 bit)

JPEG – Pro

- Print Ready
- Smaller file size

RAW – Con

- Larger file size
- Slower write
- Post capture processing

JPEG – Con

- Lossy compression loses detail
- Post capture adjustments less easy
- 8 bit "only"

Whatever works for you is OK

RAW vs JPEG – Continued

But …………

RAW vs JPEG – Continued

But ....

Do you really want the compromises involved in letting the camera make its own decisions?

RAW Conversion – Applications

- Adobe Lightroom and Photoshop CS
- Adobe Photoshop Elements
- Apple Aperture
- Canon Digital Professional Photo (Canon only)
- Capture One
- DxO Optics (also correction of lens aberrations)
- Nikon Capture NX (Nikon only)

Colour Management

Colour Management

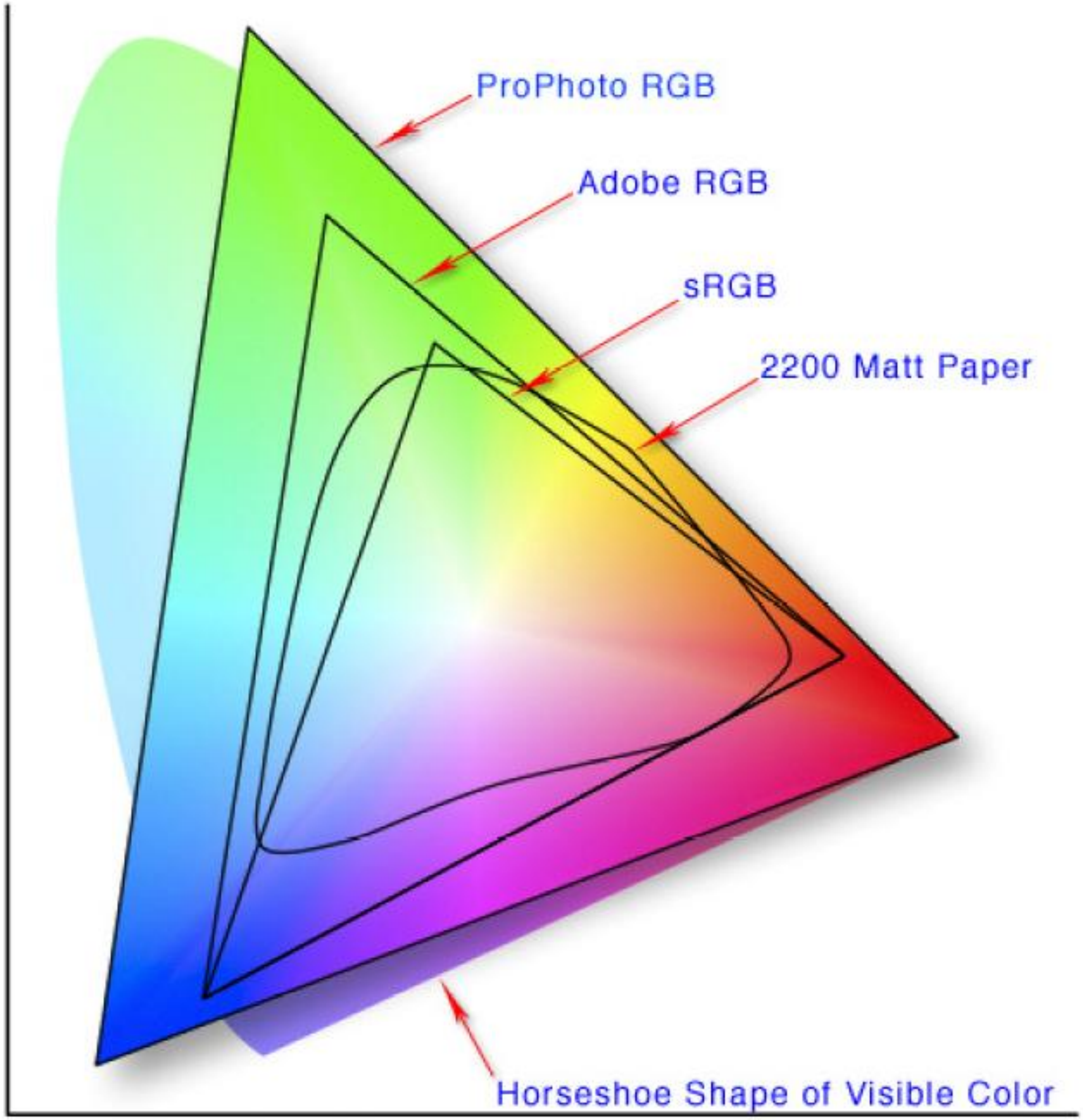
A Black Art?

Bit Depth

- Colour recorded as combinations of red, green and blue pixels – RGB
- Each colour has 8 or 16 bits to denote hue, i.e. 24 or 48 bits in total
- 8 bit colour provides a maximum 16 million colours (2^{24})
- 16 bit colour provides a maximum of 281 trillion colours (2^{48})
- The human eye can determine 1 – 2 million colours (probably)

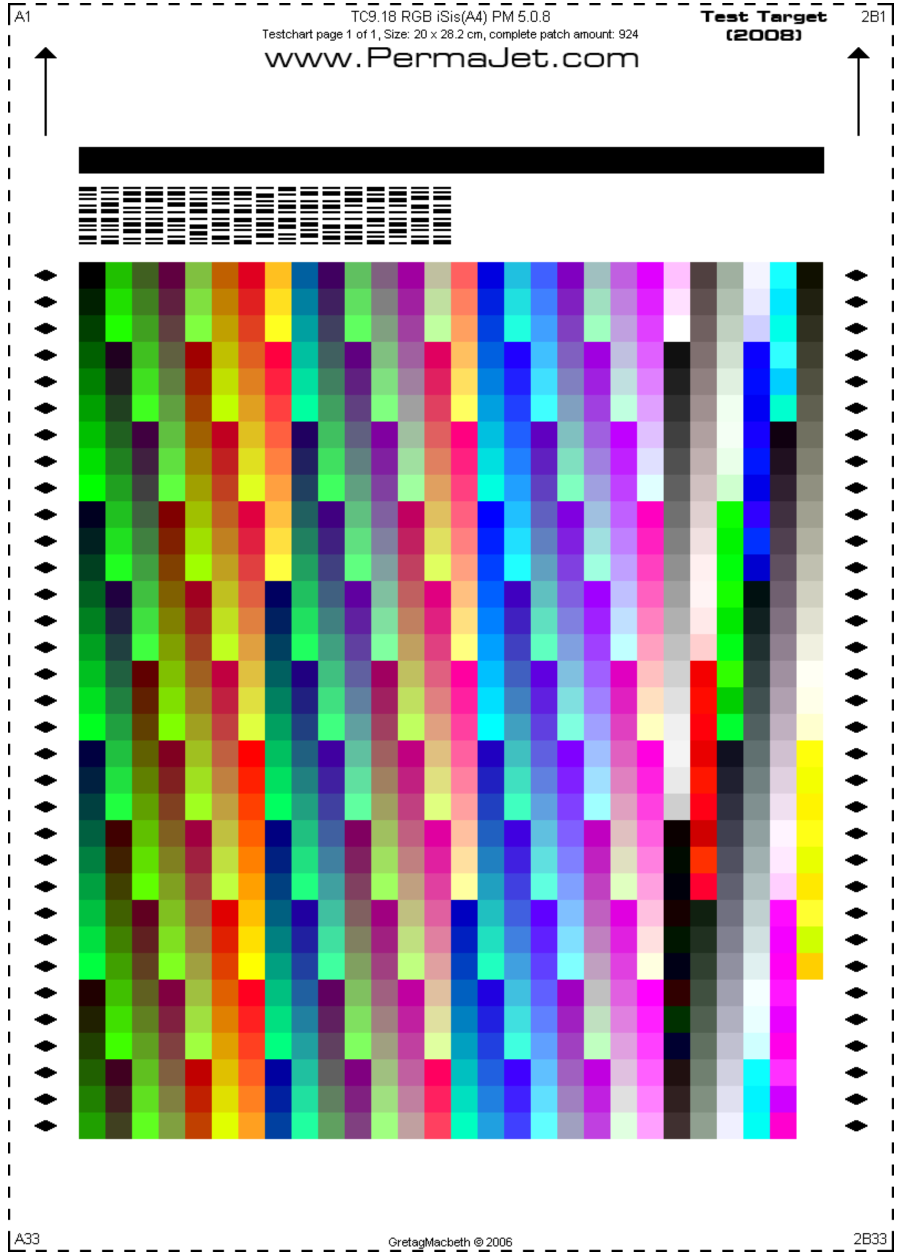
Colour Space

- Gamut, or range, of colour that a device can display or record
- Working space in Photoshop CS terminology
- Colour settings in Photoshop Elements
- Adobe RGB and sRGB are the most common
- Others exist, such as ECI RGB and ProPhoto RGB
- Majority of DSLRs can work in either sRGB or Adobe RGB mode
- Digital compacts are more likely to be sRGB only
- Computer monitors are sRGB devices


ProPhoto RGB
Adobe RGB
sRGB
2200 Matt Paper
Horseshoe Shape of Visible Color

Calibration and Profiling

- Monitors and printers only display an approximation of colour values
- Worse, devices are not consistent with each other
- Monitor calibration and printer calibration ensure harmonisation
- Outputs are adjusted to compensate for discrepancies
- Monitors need to be calibrated regularly
- Printers need to be profiled once for each paper
- Monitor calibration without printer profiling is insufficient
- Generic printer profiles can be obtained from paper manufacturers
- Bespoke profiles are available commercially
- Permajet and Fotospeed offer free profiling for their papers


A1
TC9.18 RGB iSis(A4) PM 5.0.8
Testchart page 1 of 1, Size: 20 x 28.2 cm, complete patch amount: 924
www.PermaJet.com
Test Target (2008)
2B1
A33
GretagMacbeth © 2006
2B33

Colour Temperature

Colour Temperature

- The hue of light changes according to its source
- Tungsten lighting contains a lot of orange, giving a warm tone
- Shade or early morning has more blue, seeming cooler
- Sunny evenings have more orange, appearing warmer
- The most neutral conditions occur in the middle of a sunny day
- Our eyes compensate for the differences
- Camera sensors do not!
- White Balance allows the camera to make adjustments

Tip: For landscape shots, leave the WB setting on Daylight

Colour Temperature – Kelvin Scale

- Why should colour have a *temperature*?
- Based on the work of Scottish scientist William Thomson, Baron Kelvin
- Hues equated to the temperature of a flame
- Where orange is the coolest and blue is the hottest
- So warm tones are cool and cool tones are warm!
- Other scales exist, e.g. Mired

Colour Temperatures in the Kelvin Scale

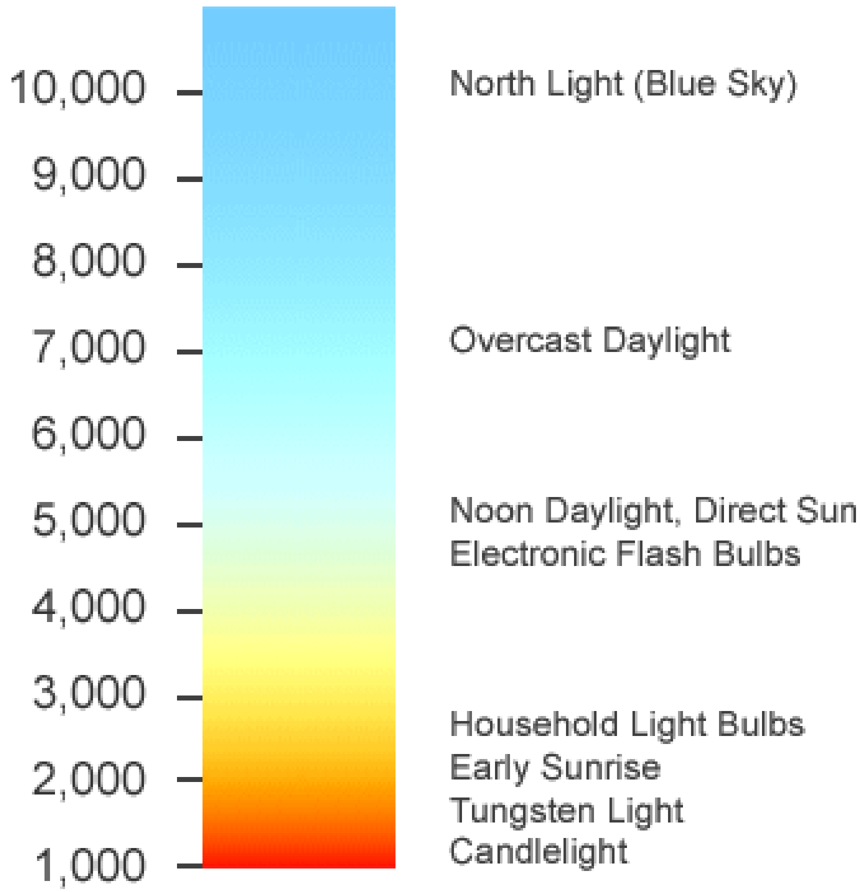


Image courtesy of www.mediacollege.com

Viewing Prints

Metamerism

- Camera records colours using Red, Green, Blue values (RGB)
- Computer monitor displays colours using RGB
- Printer outputs colour using Cyan, Magenta, Yellow, Black (CMYK)
- Computer monitor is backlit
- Prints are viewed via reflected light
- Colours affected by the colour temperature of incident viewing light
- The effect is called metamerism
- Print in daylight (preferable) or use a daylight balanced bulb

Shooting

Levels

Levels

- Levels shows the tonal range from black through to white
- 256 gradations
- Provides an indication of exposure
- Check levels during the shoot
- Watch for blinking highlights which indicate over exposed areas
- A few small “blinkies” will not usually affect the final image
- Blown highlights cannot be recovered
- Detail is retained in under exposed areas
- Images with large dynamic range require ND grad or multiple exposure


342-9606
Adobe RGB
22/05/'09 10:38
0 0
1/50
8.0
+2
Av
85/108
RAW
11.6MB
ISO100


342-9607
Adobe RGB
22/05/'09 10:38
0 0
1/200 8.0 ±0
Av
86/108
RAW
9.85MB
ISO100

Post Shoot

Library Management

- Use the PSEn Organiser – Categorise by Album, Date and Keyword
- Lightroom and Aperture also provide library management
- Alternatively save into folders named by date
- Use separate folders at each stage, e.g. Download, Select, Edit, Print
- Save unsharpened versions of images
- BACKUP REGULARLY!! (External hard drive)
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- Work out what suits you best

Downloading From The Camera

- USB 2.0 essential
- Plug the camera directly into the computer
- Might need software supplied by the manufacturer
- Alternatively, use a card reader
- Lightroom and Aperture have download capability
- Dedicated downloaders also available, e.g. Breezesys

Configuring the Photoshop Editor Workspace

- Full EDIT workspace most flexible and powerful option
- Toolbox
- Some toolbox options grouped together
- Photo Bin (PSE only)
- Menu Bar
- Options Bar
- Window – Undo History and Histogram
- Image Window
- Keyboard shortcuts

Configuring Photoshop For Performance

- Specify amount of memory for Photoshop to use
- Edit – Preferences – Performance
- Photoshop Elements indicates recommendations

RAW Conversion – Tools

- **Zoom tool** – Sets size of the preview image
- **Hand tool** – Moves image in the preview window (also spacebar)
- **White Balance** – Sets midtone to adjust colour casts
- **Crop tool** – Removes part of an image
- **Straighten tool** – Realign image
- **Red Eye Removal** – Removal of red eye effect from flash
- **Open Preferences** – Specify preferences for RAW conversion
- **Rotate buttons** – Rotate the image 90 degrees
- **Save Image** – Save as universal DNG format for archival

Note – converts to sRGB profile only

RAW Conversion – Basic Tab

- **White Balance** – Colour temperature (preset or custom)
- **Temperature** – Manual adjustment of colour temperature
- **Tint** – Fine tunes white balance by adding green or magenta
- **Exposure** – Makes imager lighter or darker (alt key reveals highlights)
- **Recovery** – Darkens light areas to retrieve detail
- **Fill Light** – Lightens dark areas
- **Blacks** – Lowest tonal value below which everything is rendered black
- **Brightness** – Adjusts highlight and shadow to lighten or darken image
- **Contrast** – Varies ratio between light and dark tones
- **Clarity** – Enhance edges to restore detail and sharpness
- **Vibrance** – Increases intensity of less saturated areas
- **Saturation –** Increase intensity of all colours

Tip – use buttons in descending order for ease of adjustment

RAW Conversion – Detail Tab

• **Sharpening** – Set amount to zero unless pre capture sharpening required

– Other Sharpening should always be the final adjustment –

• **Noise Reduction** – Removes artefacts introduced by use of high ISO

• **Luminance** – Reduces monochrome noise – maximum 15% recommended

• **Color** – Reduces colour noise – can safely be set up to 100%

• Use Noise Filter in Photoshop for excessively noisy images

– Alternatively use a dedicated noise removal tool, e.g. Noise Ninja –

Noise removal is always at the expense of losing detail

Levels – Histogram

(Enhance – Adjust Lighting – Levels)

Histogram shows range of tonal values in the image

Input Levels

- **Channel** – Red, Green, Blue or all (RGB)
- **Input Levels** – Adjust low, high and mid points
- **Eyedropper Icons** – Set low, high and mid points by clicking within image
- Colour adjustment by Channel (PS only) or Eyedroppers (less control)

- **Output Levels** – Reduces contrast – Not normally used

Curves

(Enhance – Adjust Color – Adjust Color Curves)

• Similar to levels, but allows finer control of selected tonal values
• Adjusts shadows, highlights, mid-tones and contrast.

PSE6 has:

• Preset styles or sliders to manipulate the curve at fixed points
• Before and After preview

Full PS has full control at any point over the Curve

Sharpening

- Sharpening works by increasing contrast at edges
- Do last – sharpening emphasises unwanted artefacts
- Do moderately
- Amount of sharpening varies according to type of output
- Printing requires more sharpening than web
- Save unsharpened version as well as print/web version
- Unsharp Mask normally works best
- Also Smart Sharpen (PS), Adjust Sharpness (PSE) and High Pass
- The other sharpening tools have no adjustments – avoid
- Sharpening cannot rescue an out of focus image

Sharpening Controls

- Amount – sets intensity of sharpening
- Radius – sets the width of the sharpening effect
- Threshold – compares tonal brightness of neighbouring pixels

Sharpening Continued

- Some suggested settings:
    - Amount – 150%, Radius 1, Threshold 0
    - Amount – 150%, Radius 1, Threshold 10 (Flowers, pets, people)
    - Amount – 50%, Radius 3, Threshold 0
    - Amount – 225%, Radius 0.5, Threshold 0 (Products, landscapes)
    - Amount – 65%, Radius 4, Threshold 1 (General purpose)
    - Amount – 65%, Radius 4, Threshold 3 (Maximum)
    - Amount – 20%, Radius 50, Threshold 0 (Pops a B&W image)
    - Amount – 400%, Radius 0.3, Threshold 0 (Web)

Printing

- Colour Profile – Default to sRGB (Depends on printer's capabilities)
- File – Print
- Page Setup to ensure correct paper size and orientation
- Centre Image
- Scale to Fit Media
- Color Management
  - Photoshop Elements Manages Colors
  - Printer Profile – use paper manufacturer's or custom profile
  - Printer Profile is important to ensure correct rending of colours
- Rendering Intent determines treatment of out of gamut colours
  - Relative Colorimetric – most usual for photography
  - Perceptual – can also be used in some instances
  - Set "Use Black Point Compensation" (PS)
- Turn off colour management in Printer Driver
- Can leave colour management on if using printer manufacturer's paper
  – "Printer Manages Colors" in Photoshop

Summary

- Photoshop Elements 6/7
- RAW vs JPEG
- Colour Management
- Colour Temperature
- Viewing Prints
- Levels (both at taking stage and post processing)
- Library Management
- Downloading from the Camera
- Configuring Photoshop
- RAW Conversion
- Curves
- Sharpening
- Printing

Putting it Into Practice

www.mikefarley.net