

Photo retouching with Free Software

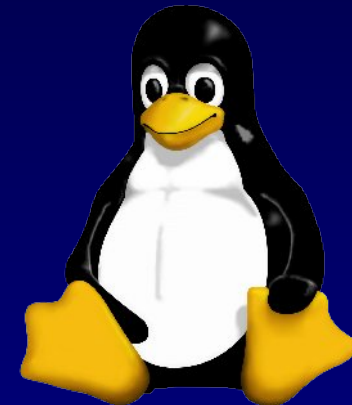


What is Free Software?

- It's more than just “free” (i.e. it's not just about the money)
- It's about giving you a hand in the process
- You are free to help guide the software
 - File bugs
 - Write code
 - Write documentation
 - *Help others*



ubuntu



The GIMP GNU Image Manipulation Package



GNU's Not Unix

(Yes, it is a silly name.)

(No, they won't change it.)

- What the GIMP is
 - A capable modern digital image editing application
 - What the GIMP is not
 - A “Photoshop Killer”
 - Suitable (by itself) for commercial print separation production
 - Suitable for use in a fully colour managed workflow (Yet!)
 - Capable of editing deep colour images
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Getting the GIMP

- From the Internet
 - Windows
 - <http://GIMP-win.sourceforge.net/>
 - Stable
 - GTK+GIMP(+GIMP Help+GIMP Animation)
 - OSX
 - <http://www.GIMP.org/macintosh/>
 - Linux(/FreeBSD)
 - Probably already installed (otherwise depends on distro)
- From the CDs I've brought with me
 - Pop it in when you're in Windows and follow the prompts
 - Pop it in when your computer starts try Ubuntu Linux

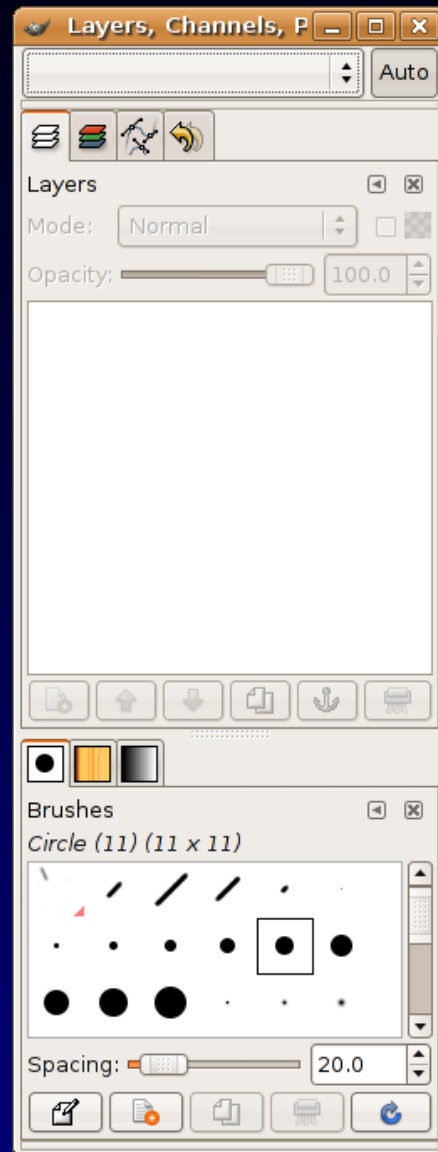
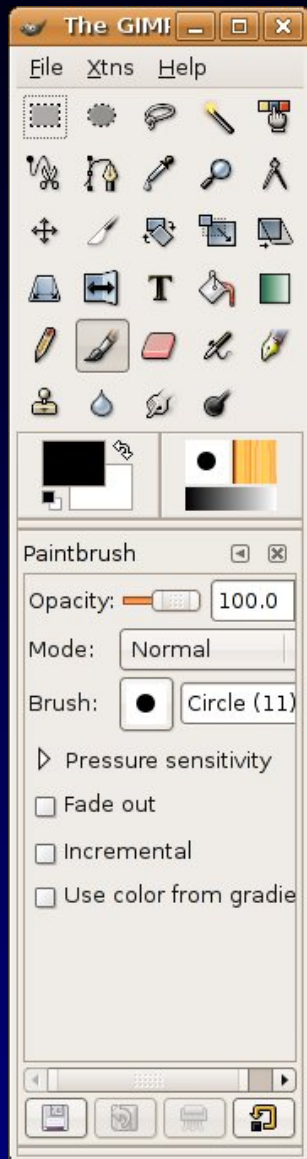
Installing the GIMP on Windows

- Two set-up files minimum
 - First: gtk-setup
 - Double click then Next-Next-Next...
 - Second: GIMP
 - Double click then Next-Next-Next...
- Optional
 - On-line Help files
 - Double click then Next-Next-Next...
 - Animation
 - Double click then Next-Next-Next...

First run of the GIMP

- Next
- Next
- Next
- Wait

Welcome to the GIMP



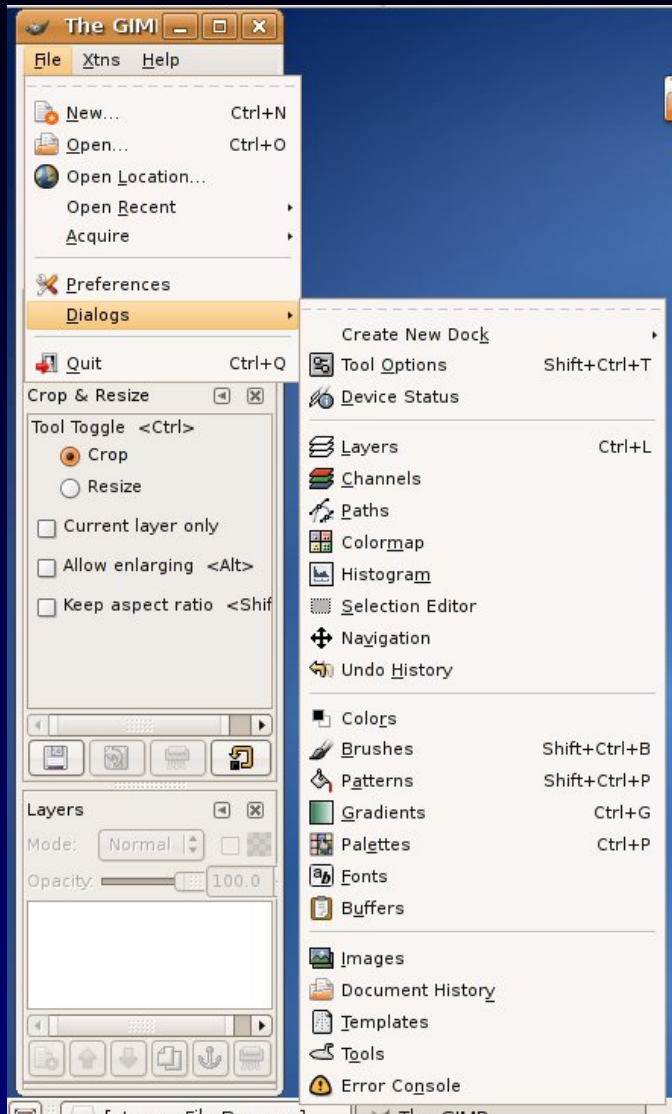
- 2 windows
 - Each window made up of panes
 - which can be detached...
 - ...re-attached...
 - ...shuffled...
 - ...turned into tabs...
 - ...as you see fit.
 - it's your workspace and work flow You decide.
- The image loads in a separate window

The Toolbox



- Similar tools to any other photo editing application
 - Selection Tools
 - Measure and move
 - Crop, Rotate, Skew
 - Text
 - Fill/Paint
 - Retouching tools
 - Colour Well
 - Brush Status

More Dialogues and Help



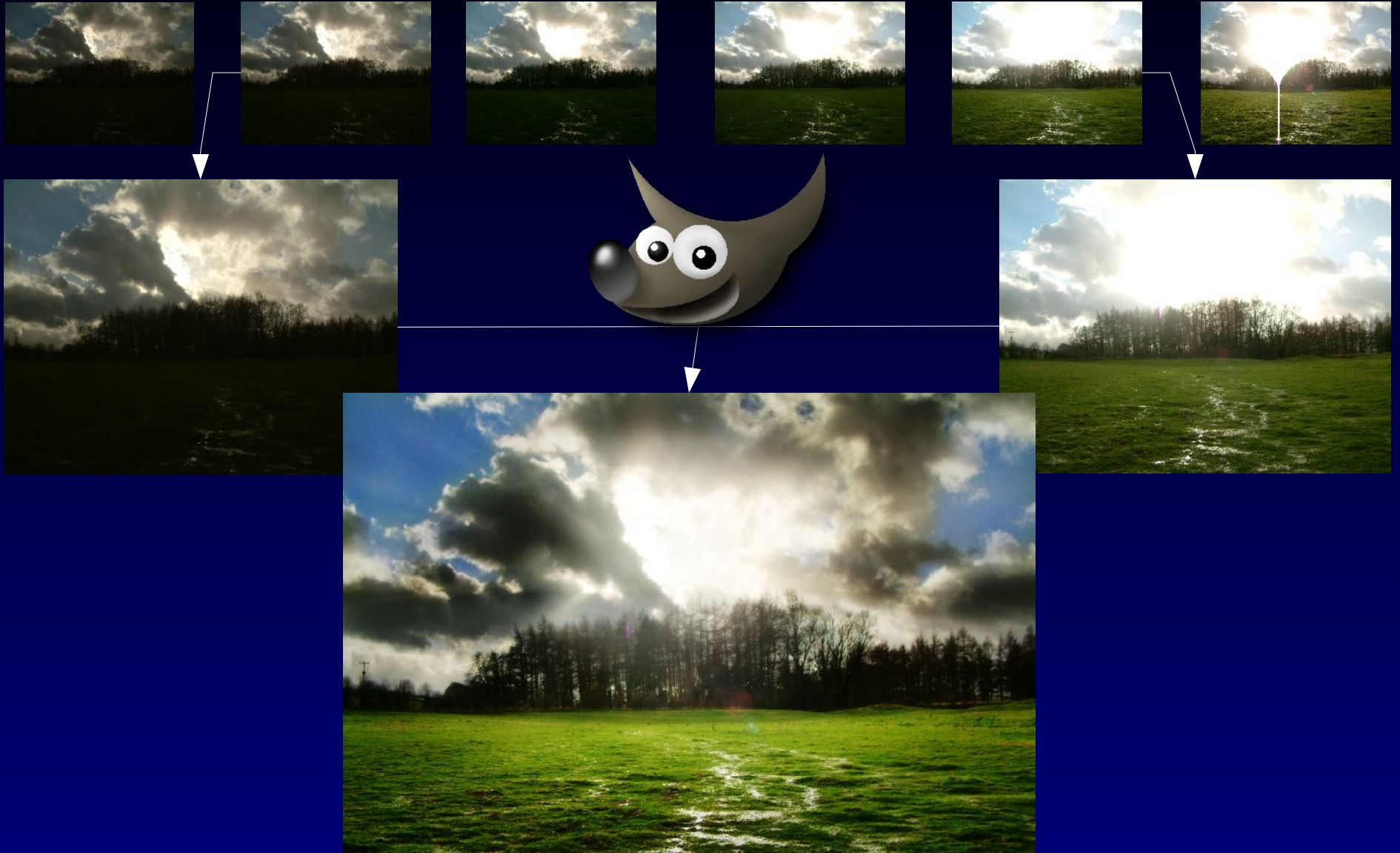
- File>Dialogues
 - Dock or not as you see fit
- Help>Help
 - Only works if you installed the optional Help package
- Right Click gets you (almost) anywhere quickly
- Alt, Ctrl and Shift keys often have special functions

...and so ends the tour of the GIMP

- Because everything else I'm about to talk about should be possible in almost any basic image editing program with a little modification
- Many Photoshop web tutorials can be adapted for the GIMP with a little imagination



Landscape



The starting images

- Each image taken on a tripod
 - Minimum movement makes blending easier
- ISO160
 - Lowest ISO speed I have to reduce CCD noise
- Exposed for 1/1300sec
- Average metering
- F (aperture) varied for each shot



More data in the EXIF if you want it

Selecting the base images



- Image 1
 - Well exposed sky
 - Plenty of cloud detail
 - Ground poorly exposed
- Image 2
 - Sky blown out
 - Ground well exposed
 - Camera was not completely overwhelmed by the sun



Destructive vs Non-Destructive editing

- Wherever possible, don't touch the original image!
 - Why?
 - Because you may change your mind about some of your edits
 - How?
 - Use “Layers” and “Masks” wherever possible.
 - If you absolutely need to work on the original pixels, make a layer copy of your image and work on that
 - What's a Layer?
 - Imagine painting on cellophane sheets laid over top of your image
 - What's a Mask?
 - Imagine cutting holes in the sheets to allow lower sheets to show through
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Lets begin

- Step one
 - Copy the second (ground exposed) image on to a layer over the first (sky exposed) image
 - Add a mask
 - Use a black-white gradient fill on the mask to let the lower layer show through
 - You could carefully paint the mask around the trees
 - I'm lazy
 - Black areas of the mask show the layer(s) underneath
 - White areas keep the associated layers image

Landscape cont...

- Step 2
 - Duplicate the 2nd layer
 - Change the Blend Mode to Screen
 - This is a quick'n'dirty way to lighten an image
- Step 3
 - Dodge and Burn the clouds for dramatic effect
 - 2 ways to do this
 - Dodge+Burn Tool
 - But you would have to merge the lower layers (destructive)
 - Make a new layer, fill with 50% gray, set blend mode to “Soft Light”. Paint with black or white to dodge or burn.
 - But this method lacks the ability to touch just highlights mid tones or shadows
 - Use a feathered brush. Hard edges are obvious and distracting.

Landscape cont...

- Step 4
 - New Layer. Blend mode set to Colour
 - Get a nice blue
 - Paint the sky
 - Dial back the layers opacity to the point where the effect no longer looks awful
- Step 5 (Optional, I decided I liked it)
 - New Layer
 - Radial fill, white to transparent, from centre of clouds to blow out the middle

Landscape cont...

- Step 6
 - Fake vignetting
 - Focuses the eye towards the centre
 - New layer
 - Oval selection tool
 - Invert selection
 - Feather
 - Fill with black
 - Dial back layers opacity

Landscape cont...

- Step 7
 - Add a “Dreamy” blur
 - Copy Visible image
 - New layer
 - Paste
 - Gaussian blur
 - Change layer blend mode to something that works
 - Soft light seems nice
 - Dial back the layers opacity

Nearly there

- Composition isn't quite right
- Step 8
 - Copy visible
 - Create new image
 - Paste
 - Rectangular select flat grass
 - Feather
 - Copy
 - Scale
 - Anchor
 - Crop
- Step 9
 - Duplicate layer add Retinex filter and dial back opacity







Portrait work



Common Tasks - Lightness

- Lightening an image
 - Duplicate layer, set to screen (Quick, Dirty, Imprecise)
 - Levels (Quick)
 - Curves (Relatively Quick, more flexible)
 - Convert (Decompose) to LAB
 - Adjust Lightness Layer/Channel
 - Advantage – doesn't alter colour saturation
 - Also a good time to sharpen
 - Won't amplify colour noise
 - LAB colour space is larger than RGB, so no loss of information
 - Work with HSL (Hue Saturation Lightness)
 - Tools>Colour>Hue-Saturation
 - Advantage – Again, shouldn't affect hue or saturation
 - Disadvantage – Can shift histogram around, but probably won't be able to get a good spread
 - Decompose to HSL/HSV
 - Similar to LAB decompose – just work on the L/V layer

Common tasks – Selecting areas

- Selecting areas
 - Lasso (Imprecise)
 - Colour selector
 - Good for areas of uniform colour, e.g. skys
 - Select Shapes from image (Photoshop Magnet)
 - Quick and Reasonably Good when there is a strong contrast between desired area and background
 - Paths to selection
 - Good for smooth objects with few jagged edges
 - The more edges you have to deal with, the longer it will take
 - To close the path, hold Ctrl and select the last node
 - Quick mask
 - Paint the area you want
 - Channels
 - Look for a channel with high contrast between area you want and don't want
 - Copy it, alter it and use it as a selection mask
 - Can be great for selecting hair outline

Common tasks – Removing objects

- Clone
 - Use ctrl to select area to clone from
 - Remember to switch to the right layer first
 - Then switch to the layer you want to work on
 - Clone away
- Fill the area
 - Looks very fake
 - What's missing?
 - Noise! We expect noise.
 - Add some, then blur it to match the noise in the real image
 - Probably need to clone at the edges to blend areas

Common tasks – Skin work

- Smoothing skin
 - Removes wrinkles and small skin blemishes
 - Duplicate layer
 - Blur it
 - Not too much, or the skin will look plastic
 - Add a (white) layer mask
 - Paint areas of interest back in
 - Eyes
 - Eyebrows
 - Ears
 - Mouth
 - Nose
 - Outline
 - Hair
 - Reduce shiny areas
 - New layer
 - Set blend mode to darken
 - Clone with a low opacity from a layer below
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Common Tasks – Eyes and teeth

- Lighten and Whiten
 - Duplicate layer and screen
 - Add a (black) mask
 - Paint areas that need to be lightened/whitened
 - Dial back layer opacity to avoid glowing eyes/teeth
 - Still too yellow
 - Change blend mode to normal
 - Tools>Colour>Hue-Saturation
 - Lighten
 - Lower saturation
 - Adjust opacity to suit
 - Iris
 - Copy the eyes to a new layer above whitening layer
 - Use a mask to just select the iris & pupil
 - Use levels (or HSL/Curves/Brightness+Contrast) to up colour saturation and contrast.
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Common Tasks – Eyes cont

- With female models it's quite common to enlarge the eyes slightly
 - The IWarp filter is ideal for this
 - Filters>Distorts>IWarp
 - (Edit>Liquefy in Photoshop)
 - IWarp can also be used to slim noses
 - Or distort things for fun

Common Tasks – Convert to B/W

- Many methods to generate a B/W version
- Each can give different results
 - Convert to grayscale
 - Layers>Colours>Desaturate
 - Decompose
 - To RGB Channels
 - Red Green and Blue Channels will all look different
 - To LAB
 - Take the Lightness Channel
 - To CMYK
 - Invert the black layer
 - To YCrB
 - Y carries Luminance
 - Channel Mixer

Common Tasks - Sepia

- Tools>Colour>Colourise
 - Adjust Hue Saturation and Lightness to suit
- Quick
- Make a B/W image
 - New Layer
 - Fill with a brown
 - Change blend mode to colour
- You can consistently apply the same tone to other pictures

Colour calibrate your monitor

- Why?
 - So What you see is (nearly) what you get
 - There will always be some difference
- Set your screen to 6500K
 - Closest temperature to white paper in sunlight
- If using a CRT
 - Set to 6500K (Whites are more yellow vs blue)
 - Make a “coarse” colour profile
 - Adobe Gamma Wizard
 - Coral Colour Profile
 - nVidia Display wizard
- If using an LCD
 - Most Cold cathode tubes = ~9300k
 - Try and coarse colour profile it
 - Beware your viewing angle
 - You'll probably have to lump it (in my limited experience)



A word on colour spaces

- sRGB
 - Smaller gamut
 - Smaller jumps between displayable colours
 - Smoother “jumps” = smoother tones (e.g. skin)
 - Most monitors work in sRGB colour space
 - Most consumer (read inkjet) printers too
 - and common commercial printers (TruPrint/Photobox)
- AdobeRGB(1998)
 - Wider gamut
 - Can display a wider “variety” of colours
 - But takes bigger “jumps” between colours to do so
 - Richer Greens and Cyans/Blues
 - Not viewable on most monitors
 - Better matches gamut of commercial CMYK separation printing

Choose your colour space by work flow and final “print” method

- I intend to print my pictures:
 - at home
 - via an on-line service
 - display my pictures on the web
 - display my pictures on a UK TV
 - Ideally capture, work on and save in sRGB
 - My editor/printer has requested AdobeRGB
 - As far as you can, capture work and save in AdobeRGB
 - Use PhotoshopCS2 to simulate AdobeRGB on your sRGB monitor
 - If you have a nice AdobeRGB capable monitor use it
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Final Colour space notes

- Actually, the ideal capture step is in RAW
 - You can then decide afterwards if you want to go sRGB or AdobeRGB
 - **Converting between AdobeRGB and sRGB considered harmful!**
 - You get all the disadvantages of AdobeRGB
 - Large jumps between colour values
 - You get all the disadvantages of sRGB
 - Smaller gamut
 - **And none of the advantages of either!**
 - Realistically, to work in a fully colour space managed work flow you'll need PhotoshopCS2
 - GIMP has only limited colour management at this time, but is due to improve
 - For most here though, I just don't expect that to matter
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High Dynamic Range

- Our eyes are most sensitive to changes in brightness (contrast)
 - Can discern changes over a massive scale
 - e.g. sitting in doors you can see everything lit by artificial light, and through a window, natural light outside. A photograph would likely over or under expose one or more aspects
 - Unfortunately our computer monitors can't display the same range
 - For the most part cameras can't capture it either
 - RAW does better, but traditional RAW processing forces you to toss information out
 - So we get images with blown out areas that our eyes could have coped with
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HDR and Tone Mapping

- HDR images can be created straight from RAW files
 - Or assembled from multiple exposures
 - But our monitors can't display this extra information, so we still can't see it
- Enter “Tone Mapping”
 - By using colour and local contrast tricks it is possible to fake HDR effect
 - Photomatix (~£99) and Photoshop CS2 (~£400) can do it
 - Qtpfsgui can do it for free
 - <http://qtpfsgui.sourceforge.net/>
 - Available for Windows, but without a friendly installer

Tone mapped examples



- Author: Dean S. Pemberton
- HDR image.
- Canon 350D
- f/8, ISO100
- 18mm
- 8 Exposures
- 30" 20" 12" 5" 3" 1" 1/4" 1/20"

Thank you for listening

- GIMP resources
 - Get it
 - <http://www.GIMP.org/>
 - <http://GIMP-win.sourceforge.net/>
 - GIMP Tutorials
 - <http://www.GIMP.org/tutorials/>
 - <http://gug.sunsite.dk/?page=tutorials>
 - <http://www.GIMPTalk.com/>
 - <http://www.pixel2life.com/tutorials/GIMP/All/>
 - <http://GIMPology.com/>
 - <http://GIMPguru.org/>
 - Photoshop Tutorials
 - <http://www.photoshoptv.com/>
 - <http://www.photoshopkillertips.com/>
 - <http://www.photoshopquicktips.com/>
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...resources continued

- Colour Calibration
 - http://en.wikipedia.org/wiki/Color_calibration
 - <http://www.normankoren.com/makingfineprints1A.html>
 - sRGB vs AdobeRGB
 - <http://www.cambridgeincolour.com/tutorials/sRGB-AdobeRGB1998.htm>
 - <http://www.smugmug.com/help/srgb-versus-adobe-rgb-1998>
 - <http://www.nulab.com.au/newsletter/november2004/sRGBViaAdobe.htm>
 - HDR
 - http://en.wikipedia.org/wiki/High_dynamic_range_imaging
 - <http://qtpfsgui.sourceforge.net/>
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