

HDR HOW TO

Introduction

An HDR image is created by blending together a number of identical images, shot at different exposures, so that detail within shadow areas is recorded whilst at the same time recording detail in the brightest areas. This normally can't be achieved using conventional film and digital cameras.

This tutorial is a simple introduction to producing HDR images. Whilst this is a new area of photography, it is growing fast and there is already a lot of information (and also misinformation) available. To cover all aspects of HDR would take me an entire book, so here is an introduction to get you started.

Software you Need

Before going any further I need to warn you that HDR requires specialist software. In addition to the usual (Photoshop), you will also need an HDR blending and tone mapping application. Photoshop CS2 did introduce an HDR option however I find a dedicated package preferable (for reasons beyond this tutorial). The software used here is Photomatix, a trial version of which can be downloaded from the Internet. There is a link on the "Resources" page of my web site (www.lenscraft.co.uk).

In addition to Photomatix there are a number of other HDR tools available such as EasyHDR, FDR Tools and Artizen. All of these have free downloads that you can try out prior to purchasing.

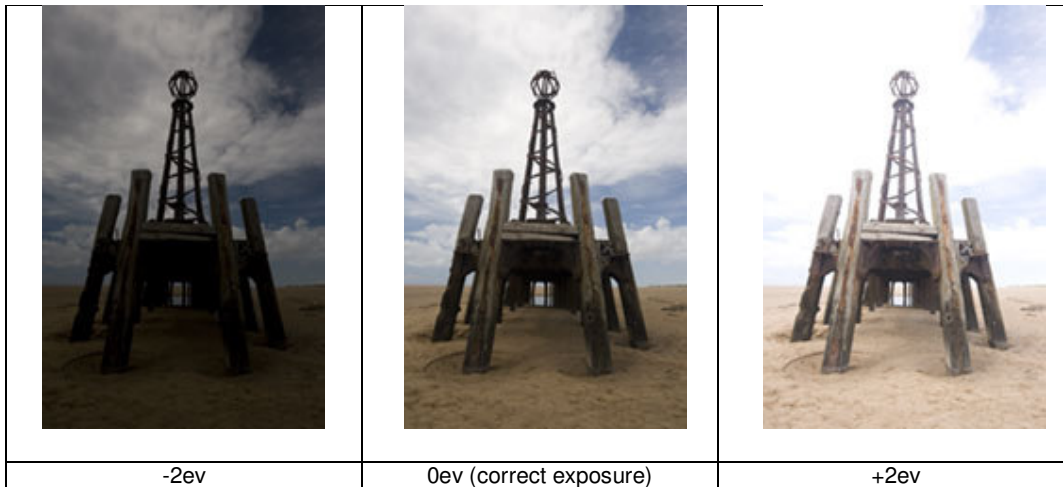
Shooting the Image

To achieve good results in HDR you need to plan your shots. As stated above, HDR images are created by blending together a number of identical images, with different exposures. The easiest way to create a set of identical images is by using the Auto Exposure Bracketing (AEB) feature found on most digital SLR's. You can also do HDR with images from compact digital cameras so long as you can control the exposure.

I will assume you have checked your camera manual and worked out how to use AEB. Set your camera to produce three images at 2 stop (2ev) intervals. A typical set of exposures that will give good results are -2ev, 0ev and +2ev. I believe it will be possible to set the AEB of all digital SLR's to achieve this range.

When shooting, it's vital that you keep the camera as still as possible between each of the shots, so as to produce identical images. This makes the blending process much easier. Whilst you can hand hold the camera, it's tricky trying to align the images later. Mounting your camera on a tripod and using a cable release is therefore a good idea and definitely avoid zooming between shots.

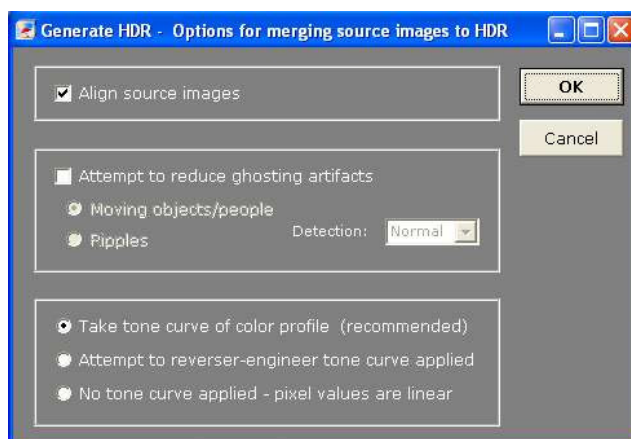
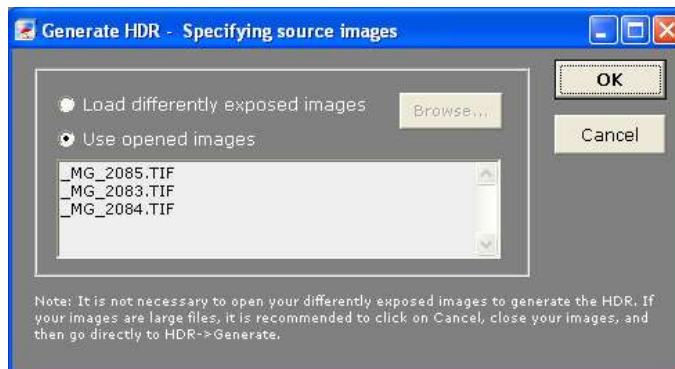
Here is a set of 3 images that will be used to create an HDR image.



Merging to HDR

Having shot a set of images over an exposure range, these need to be merged into a single HDR image; this is where Photomatix comes in. Open Photomatix and then open the three images you have shot.

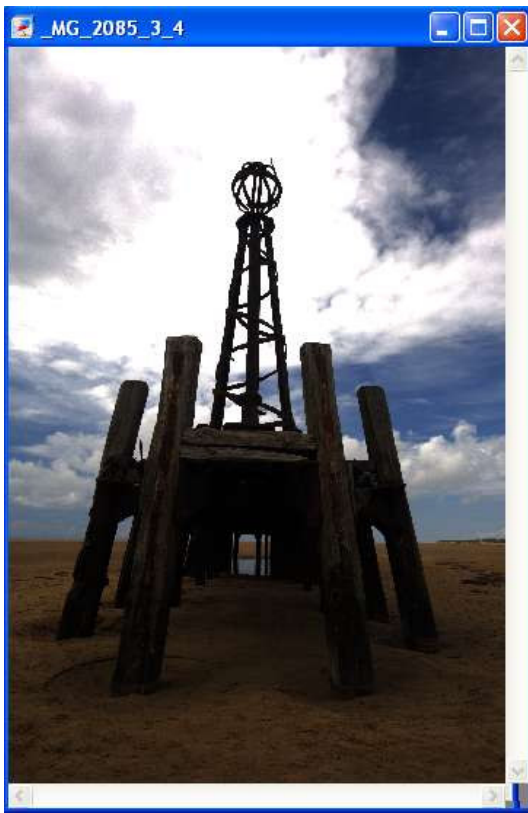
Press **Ctrl-G** on the keyboard or select “Generate” from the “HDR” menu. You will then be prompted to select the source images to which the “Use open images” option should be selected.



Next you will be prompted with “Options for merging source images to HDR”. In this dialog you should check the “Align source images” option so that the software will automatically align each of the images in the set against the others. The other option that should be set is the “Take tone curve of colour profile” which is the default.

Photomatix also has the capability to deal with moving objects that appear in the images. Movement in your shots will cause strange effects such as ghosting or the object to appear multiple times. Photomatix makes a reasonable job of this but it's best to avoid moving subjects where possible. Click OK

once you are ready to merge the images. When the software has completed the merge process the finished HDR image will be displayed.



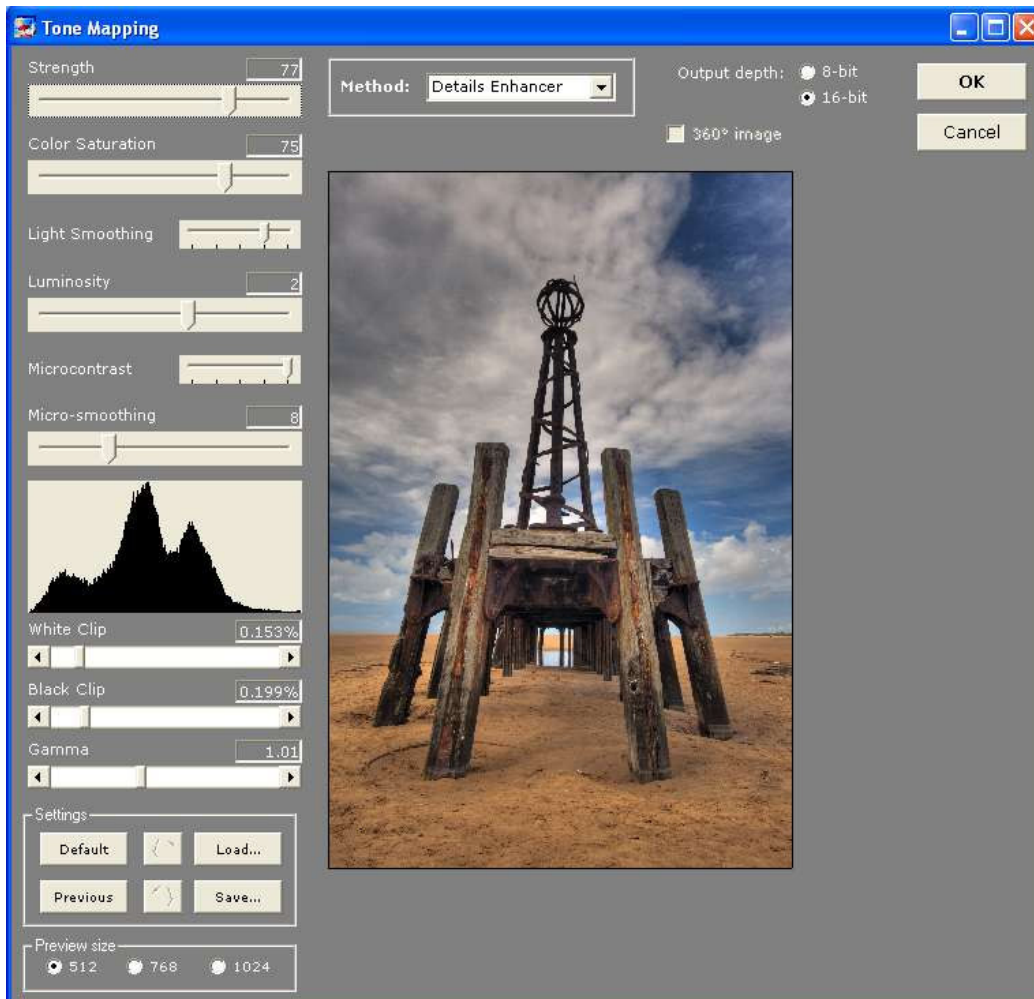
The drawback with HDR images is that current display technology isn't capable of rendering these for viewing without further processing. The image to the left is the software's best guess at how the image looks. To render it "pleasing" to the eye it needs to first be tone mapped.

At this point it's also a good idea to save the HDR image for further use. This allows you to experiment with different tone mapping options without the need to repeat the merging step. A number of file formats are available, however I tend to use HDR Radiance.

Tone Mapping

Tone mapping is the process of taking the large dynamic range of an HDR file and compressing it down into a range that can be viewed on a monitor or printed. There are a number of ways to do this however Photomatix offers only two: Details Enhancer and Tone Compressor. For the purpose of this tutorial we will use Details Enhancer.

To start the tone mapping press Ctrl-T on the keyboard or select "Tone mapping" from the "HDR" menu. The dialog below will then be displayed.



There are a number of options available through slider controls. The impact of changing these can be seen real time on the image in the dialog. The key options to adjust when first getting to grips with the software are as follows.

Strength – Tone mapping works by adjusting contrast levels. Strength adjusts the levels of contrast applied to the image.

Color Saturation – Can be used to increase or reduce the saturation of colours in the image. I would suggest not applying too much saturation at this stage as detail within heavily saturated areas can be lost.

Light Smoothing – Changes how light is controlled in the image. Low values can result in “halos” appearing around objects. For some images this can add impact however it’s also a sign of poor HDR technique. I tend to apply this at full strength most of the time but sometimes it’s worth experimenting.

Luminosity – Control how light the image is. Higher values brighten up and reveal detail in shadow areas.

Micro Smoothing – This helps control noise in the image. High values reduce noise whilst low values lend an artistic feel to the image.

When first starting to use the software it’s a good idea to try out a number of different settings for the same HDR file and then open the results in Photoshop for comparison.

Once you have created your tone mapped image save this as a TIFF file ready for final adjustment in an image editing package.

Lifting the Image

As with most images, it's what you do in Photoshop that will really create impact. Here is my final image which has been adjusted to have the contrast boosted still further and the colour removed using the saturation slider.



Another of my favourite techniques at present is to add and a “Hue/Saturation” adjustment layer. I then remove all saturation from the image with the saturation slider before adjusting the opacity of the layer to re-introduce very limited colour. If you don't know how to use layers look up my “Layers” tutorial.

Good luck with your HDR processing