



## What is HDR?

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HDR (High Dynamic Range) is a set of techniques that allows the opportunity for a greater dynamic range of exposures through digital imaging techniques. It captures the full range of luminosity between light and dark in a single scene. What this means in terms of photography is that the processing of HDR captures everything from dark shadows to bright highlights and combines it into a single image.

### **Why use HDR?**

There are many benefits to processing an HDR over a single image. Digital cameras today are becoming more advanced everyday but the present-day digital camera can only capture latitude of four to six stops. Therefore in a scene with strong contrast the in-camera meter will only be able to expose for either the highlights or the shadows and not both. Processing through HDR allows you capture the full magnitude of the scene without sacrificing either of the extreme tonalities.

### **When should you use HDR?**

HDR is a real advantage when it comes to scenes that are hard for the camera to photograph in terms of contrast. Images that benefit the most from HDR have very dark tonalities and bright highlights in the same scene. Some examples might be found when shooting indoors with minimal lighting. In terms of shooting outdoors, during the early morning or late afternoon or evening, the sun's light on the scene can cause harsh contrast. Extreme variances between the unlit areas in deep shadows and the areas illuminated by the sun provide an opportunity to shoot in HDR. Imaging this type of scene in a single exposure would be impossible without the aid of graduated neutral density filters. But by shooting in HDR you can capture the full spectrum of luminance and provide detail throughout the image.



## Do I need to do anything differently when shooting for HDR ?

When shooting in HDR, you do need to do things differently than if you were going to shoot for a single exposure. Begin by changing your camera's shooting mode to continuous, as multiple exposures at one time are essential to HDR. Depending on the brand of digital camera you have, you can set auto bracketing to shoot from three to nine exposures ranging from the darkest regions of an image to the lightest. If you have an advanced Nikon DSLR you can set this auto bracketing so that it will fire off nine exposures in a row from darkest to lightest. If you own a Canon, then things are a little different, as most Canons only auto bracket three exposures in a row.

To get the most of your bracketing it is important to make sure that you capture detail in the brightest parts of the image and the detail in the shadows. Typically you should capture a -2EV, 0EV, and +2EV images. Review your histogram and make sure if you have the option to turn on a highlight warning in your camera, you have this turned on. In situations where the range of contrast is significant, it is important to capture more exposures to provide enough information for processing in HDR. When it comes to different ranges of exposures it never hurts to have more than you need. Each scene is different and exposure needs to be considered for each scene independently. If your camera only allows a three-exposure series, then you will need to set the camera on 'M' (manual operation) and set the bracketing series manually.

Any noise in your image becomes more apparent in HDR so it is important to keep the ISO at 200 or less. Shoot in Aperture priority or if Manual Mode, change the shutter speed only, to keep the depth of field stable through the whole bracketed series. Lastly, it is difficult to do this without the aid of a tripod as the different exposures need to line up exactly. Hand holding HDRs are much more difficult but possible with today's sophisticated alignment algorithms. If you have a cable or remote release for the camera this really helps to ensure the camera does not move. You can also use your camera's delayed timer to reduce camera shake.

## What do I need to start HDR ?

To get started in HDR you will need to look at a third party software. We prefer Photomatix Pro 3.1. You might be tempted to use the Merge to HDR in the Photoshop CS3 or CS4 but we encourage you not to use this, as the results are often very poor.

Figure 1. Five bracketed images.

## How Does Photomatix Pro work ?

Using Photomatix Pro may seem a bit intimidating at first but is actually quite simple and user friendly. Making an HDR image is a two-step process. The first is selecting your bracketed set and combining them into a 32-bit HDR file. Then the magic happens with a process called tone-mapping. This is where the 32 bit file is converted to a 8 or 16 bit image for viewing or continued processing in Photoshop.

## Are there advanced HDR methods?

Like all new advances in digital photography, people can get carried away with HDR and its abilities. Options are available in HDR that can give the image a highly-unnatural look by over-processing. For those who like the benefits of HDR but want to avoid the look of surreal imagery, HDR can be applied in a modest amount. Under the Details Enhancer tab, apply a low-strength amount in combination with high smoothing to achieve a very natural look to the image.

Lastly, for those looking to achieve the most natural look in HDR, blend the HDR image with one of the component images processed normally. This blending can be done throughout the image by changing the opacity of the top layer to perhaps 50%. It can also be done selectively with layer masks to use the HDR image in only selected and specific areas of the image. These methods really help in avoiding the look of over-processed HDR.



Figure 2. Final HDR image after Tone-mapping.

## **How to get more information on HDR ?**

A search on the Internet for "HDR" will provide lots of information on everything you need to know about it. As well, there are many tutorials on the subject as well as videos. Start by looking at example of others and the process they use to achieve their look. Try to recognize the type of scene where HDR really works for you and the degree of exposures needed for each scene. Like anything, HDR takes time and practice to master but in the end the results are worth it.

So how do you get better at post-processing and HDR?

Practice! Practice! Practice!

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Our next workshop will be in Arches and Canyonlands where we will take you to Delicate Arch (pictured above) as well as other great photographic spots. We will be teaching processing techniques as described in this newsletter as well as many other methods. Please check our website for details.