

# An introduction to HDR (High Dynamic Range) Imaging

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Compared to the human eye, which can see detail within a range of 15 stops\* of light, film and digital cameras have a range of about 5 stops. Most of the time this is not a bad thing and can actually result in the image looking better than what you remember. Sunsets are a prime example of how the camera's limited range makes the image often more dynamic than what your eye saw, by basically increasing contrast compared to what your eye sees. On the other hand outdoor portraits taken on a bright sunny day often result in shadows that are much darker than what we remember seeing. Landscape photographs taken under similar conditions will most likely yield shadow or highlight areas with little to no detail. This is called subject failure. An extreme example of subject failure would be an indoor scene with sunlight beaming in through a window lighting only part of the scene where the range of light may be even more than 15 stops, as shown in the below image. So the whole idea behind HDR imaging is to make your images look more like what you saw with your eyes, or perhaps even more than that.



The methodology behind all this HDR imaging is to combine a series of bracketed images into a single image by extracting only the best highlight, shadow and mid tone detail from the bracketed series. An example of a bracketed series is shown below. Below that is an example of a realistic HDR processed image.





Many new cameras have HDR processing built into the camera. The Nikon D5200 for example uses two images (one two stops underexposed and one two stops overexposed) to create one HDR JPEG image. There are even different processing options available and the results from what I've seen are quite impressive. There are also quite a few P&S cameras that have a similar feature from Sony, Nikon and Fuji to name a few. The downside here is that you have to get it right when you shoot the image because the images used to create the HDR image are not always saved. Nevertheless this is a wonderful option for those folks that are not into post processing.

\* A one stop difference in light is a doubling or halving of the exposure value. For example an exposure of 1/250 sec. @ f5.6 delivers half the light as an exposure of 1/125 sec. @ f5.6 for a one stop difference.