

# Recording detail in the lightest and darkest areas of an image's Dynamic Range.

Very often, we see a view that we want to photograph but we know that one big part of it is bright (usually the sky) and another big part is dark (usually the foreground). How do we deal with it, to get a reasonable exposure over the whole view? Essentially, there are three methods:

Anybody that keeps tabs on photographic trends will no doubt have noticed the term 'HDR' - High Dynamic Range.

It's become quite a contentious subject for many - for those pictures where there appears to be lots of detail in all parts of the image, when your brain is telling you that it's not quite right... many of them look more like cartoons, with lots of gritty areas and halos around 'edges' of contrasting tone. Many people have started using various HDR programs - notable 'Photomatix' - and now even (full) Photoshop has the ability to do something very similar. If you want to see lots of exaggerated examples, take a look at the [HDR Flickr Group](#) pictures. If you want to see something a lot more subtle, take a look at the [Realistic HDR Images Flickr Group](#).

**It *should* only be used on images that would otherwise have very dark shadows and/or 'blown' highlights.**

What these people have done, in most cases - both the bad ones and the more realistic ones - is to take bracketed shots - sometimes five or seven, depending on a camera's capabilities - and used software like Photomatix to blend them together. The bracketed shots can be maybe one stop apart, or whatever their camera allows, perhaps up to three stops between frames. This means that they have taken shots (usually from a static position, with tripod) that may be a range of five Exposure Values. It's best done using Aperture Priority, so the difference in each shot is from a different shutter speed. Bearing in mind the regular dynamic range from one exposure is about nine stops (or Zones), their five exposures have covered a vast range - overtaking what the human eye can normally discern. HDR programs can patch all those images together to find detail in shadow and highlights, thereby increasing the Dynamic Range of the combined shot. Further editing is required, called 'Tone Mapping', to put the combined image back to a 16-bit image, usable by normal editing software. More detail can be found on the [Learning Page](#).

Most images that go through this process, using Photomatix, Photoshop or other HDR programs, have problems with that Tone Mapping (which can give weird looks) and can be quite unwieldy in terms of computer memory (if using Raw images you'd very likely be working on five or more images of over 15Mb each, quite a drain on computer resources).

One other way to try to deal with large differences between the light and dark areas of a picture (often the difference between a dark foreground and a white sky) would be to use a **Graduated Neutral Density filter**. Your camera's meter will average out the light and dark and very often give you an unsatisfactory image because it hasn't been able to handle the light and dark simultaneously - and gives you an image which is the best it can do under the circumstances. If you corrected by exposing for the foreground you'll have a totally 'blown out' - overexposed - sky. If you corrected by exposing for the sky you'll get an almost black foreground. An 'ND Grad', of the right strength, can allow you to give a balanced exposure by darkening the lighter areas and leaving darker areas as they are. The drawback is that it depends to some extent on how 'flat' the horizon is - the area where the scene changes from light to dark. Very often, the horizon can be broken up by buildings, mountains etc and they will also be given the same longer exposure that the sky gets - leading to images where a mountain top, or top of a building, is half-dark, half-light. Otherwise, though, they're excellent and valuable items to have in your camera bag. See more on the [Learning Page](#).

There's another way, though, and that's what this tutorial is all about. This third method (some people will say it's the best) uses only two (sometimes three) images. Each image can be used as a '**layer**' in quality photo-editing software, like Photoshop, Photoshop Elements, PaintShop Pro, PhotoPlus and others, as long as they use layers. There are no drawbacks like those strange effects that you get in the more extreme examples of HDR and you don't need to buy extra software for them.

It starts, like 'standard' HDR, in the camera. With practice, you will only need two, possibly three exposures but, again, you need a steady camera support - a tripod.

OK, you're taking a seascape (and that's what I'm going to use for this example). You want a longer exposure, to get all that wave movement and seaspray to become blurred but you're facing the sun or at least a bright sky (preferably, as ever, a sky that has some detail). If you pointed your camera's meter at the sky you know you'll only get a short exposure, but you want that shot of several seconds for the sea movement. An ND Grad might work, but there's a big cliff above the horizon, so that would be darkened by the Dark part of the filter. Ideally, use the camera's Raw format for your images - you'll see the value later.

**Step One:** Set the lowest ISO your camera has. Switch to Manual exposure mode and take a meter reading of the sky. You'll need a small aperture for the whole picture, so set f/16, maybe f/22 as your aperture. Now adjust your shutter speed until the exposure is right (the LED indicator will be in the middle or however your camera works in manual). Double check that you're pointing at the sky and not the sea. Take a note of that shutter speed.

**Step Two:** Still in Manual mode and still at the same aperture, take a reading from the sea. Find the perfect shutter speed. Hopefully it will be a long enough shutter speed to give the sea a few seconds to give all the movement you want to record. Take a note of the shutter speed given for a 'good' exposure. If it's too short (and only you can decide what's enough) then you may need to consider using a full Neutral Density filter - not a graduated one, but one that is going to cut down light across the whole scene and give you an extra three or six (or more) shutter speeds stops to play with. More information about standard ND filters on the [Learning Page](#).

**Step Three:** Set your camera up and compose the shot you want. Secure the camera firmly to the tripod. You should *turn off Shake Reduction (or Vibration Reduction)*. Set to Aperture Priority (Av) and make sure you've got that set - as we want longer shutter times the aperture is going to be up with the f/16, f/22 area. By use of the Exposure Compensation button, set the first noted shutter speed on (this will be the shorter shutter speed that you recorded for the sky, so it will be a reduction (minus) on the Exposure Compensation control, until you get the shutter speed you made a note of. Using a delayed shutter action (because that will flip the mirror up well before taking the shot and therefore there will be no vibration) and, preferably a remote shutter release, take your first exposure.

**Step Four:** Being very careful not to move the camera at all, and keeping the aperture the same, set the shutter speed you noted for the foreground. This is going to be a few seconds (because we want to record some movement) and may be outside the range of Exposure Compensation..... so it may be necessary to change to Manual mode and set it that way. Alternatively, you could do some arithmetic..... and use the full ND filter. This is then going to be a combination of what you can set as the shutter speed plus what filtration factor the ND filter gives, e.g. 3 stops, 6 stops etc. Whichever way you choose, you need to end up with the same settings noted in Step Two. A potential problem is that you may require a shutter speed that's beyond the capabilities of the auto shutter speeds and then you need to set up for 'Bulb' exposure and make your own timings. When you're ready, and you're sure the camera hasn't moved, make your longer exposure.

The above steps sound very complicated but, in practice, are quite straightforward. Just read through the steps a couple of times until you're sure of what you're going to do. And we're digital, right? So you can make many tries at it. Even the requirement to keep the camera absolutely still is not going to be so vital (within reason) because slight discrepancies between the images can be rectified later.

OK - hopefully we've got at least two images to play with - one with a good exposure for the sky, getting any detail there, and one with a good exposure for the foreground.

Bring them into your photo-editing software.... I'm going to use Photoshop Elements. Some menu items are different in Photoshop and other programs but most of the work will be done with layers.

If the shots were in Raw, open them and you should see them appear in Adobe Camera Raw. (Incidentally, if you shot in Jpeg you can still open them in ACR - the controls don't work quite so well - it's like they become 'blunted' somehow - but you should be able to make any necessary corrections). If you use Raw regularly, you should know your way around ACR so, on your *shadows exposure*, make adjustments that enhance the shadow details. Then select your *highlights exposure* and make adjustments that enhance your highlight details. Once you are happy with these adjustments, select both images and use 'Open Files' to open both images in Photoshop Elements.

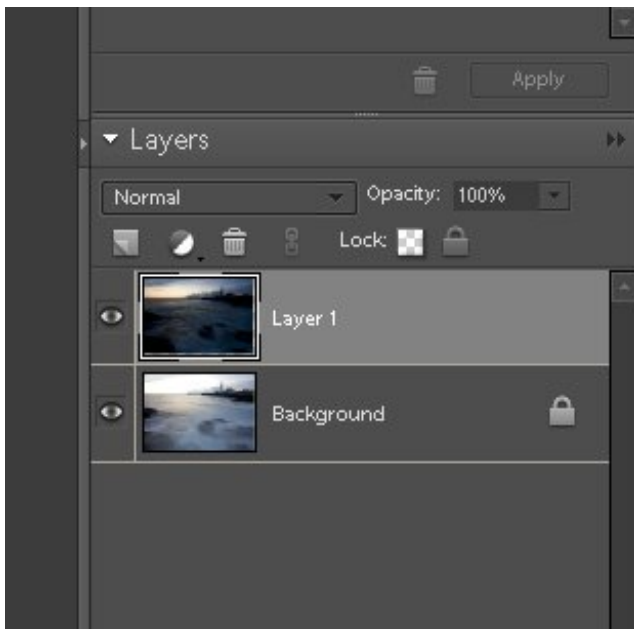


The (longer) *Shadows Exposure (the foreground)*



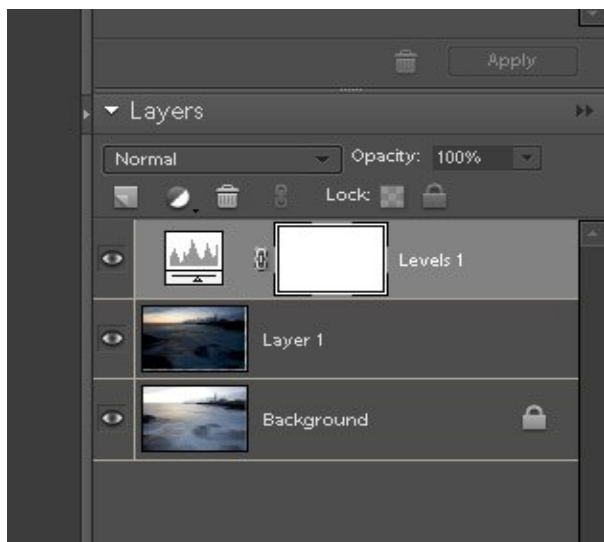
The (shorter) *Sky Exposure*

With both images open in Elements, click on the Shadows Exposure. No need to do anything with it. Now, with the Move tool, click and drag on the Sky Exposure to drag it on top of the Shadows exposure. It will then appear as 'Layer 1' in the layers palette, on top of the 'Background', thus...

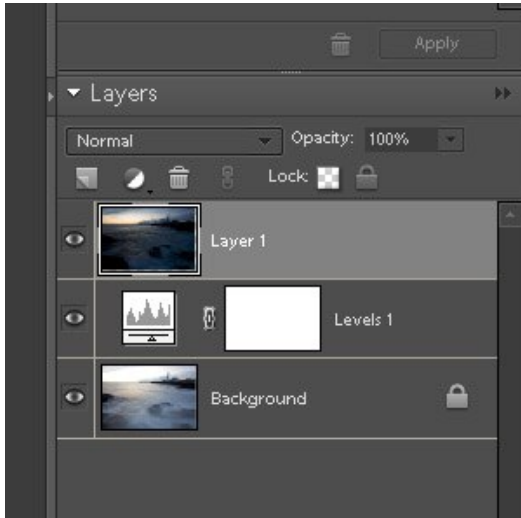


(What you actually see in the editing window is the top layer only). If we were to be able to 'see through' that top layer, we'd see the Background. So we really want to remove part of the upper layer so that we can 'see through' to the Sea area below it. This is accomplished with a 'Layer Mask'. Elements, for reasons known only to Adobe, didn't put layer masks in the tools of the program up to version 8 and only finally put the feature in version 9.... however, if you've got an older version, no problem - there are a couple of ways to put a layer mask in. I'll show you the one that doesn't require a whole new tutorial about putting Actions into Elements.

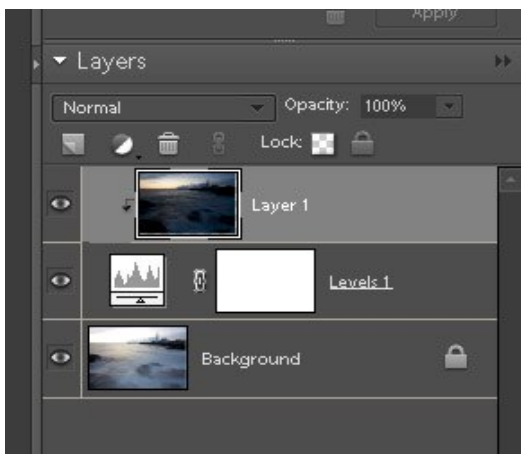
With that upper layer selected (highlighted), add a Levels adjustment layer.... (click on the half black, half white circle icon, second left and select Levels). Make no adjustments to it, just OK it. You should have this....



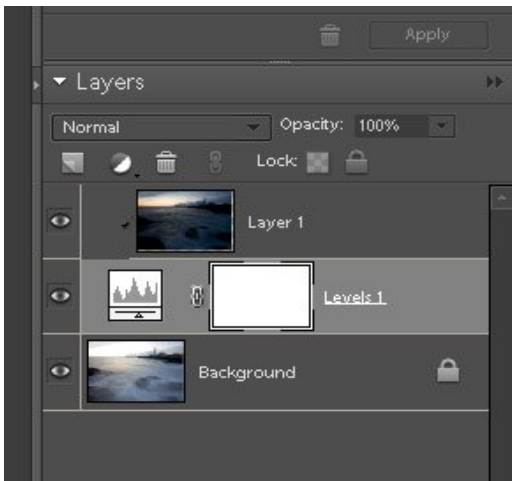
Now 'click and drag' Layer 1 to the top of the 'stack', which moves the 'Levels 1' layer to the middle row.



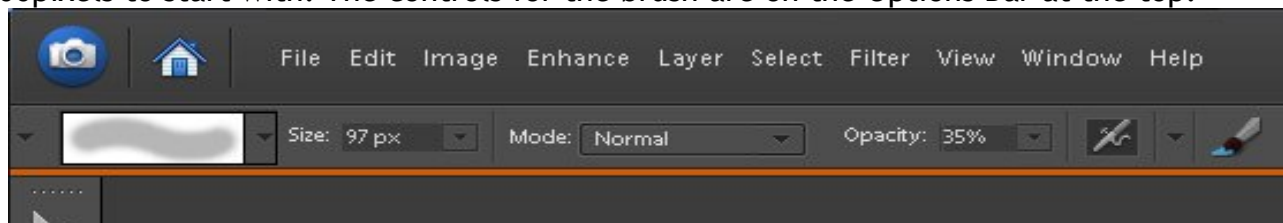
Now hold down the Alt key (Option on a Mac) and move your mouse to the border between Layer 1 and Levels 1..... you will see the pointer turn into a chain link. When it does, click your mouse and you will have 'Grouped' the two layers and it will look like this...



The Layer Mask that belongs to the Levels Adjustment (the blank white box) can now act as a 'shield' between the two image layers. With a white fill in the layer mask, the top layer is opaque and you will not 'see through' it. Make the Layer Mask active - click on the white box and it will have a double border and is now 'active'.



Now, if white held all the top layer in place, painting with black would let the bottom layer show through - a bit like removing whitewash from a window. So that's what we need.... a Brush, using Black as the foreground colour. Hitting 'D' will give you the default colours, Black and White, in the colour swatch at the bottom of the toolbox. Use 'X' to swap them over at any time. It's best to have a low opacity, so we can build up the effect and it's better, to start with, to have a soft-edged brush. As for size of Brush, don't try to paint large areas at a time, but don't dabble with a small brush either - it depends on the size of the image and the area that you want to paint over but for a large image I'd suggest about 100pixels to start with. The controls for the brush are on the Options Bar at the top.



So now, **(in the Editing Window - the main image)**

start to paint the black over the parts of the sea that are currently very dark.... you will see the well-exposed sea emerging underneath. You will need to paint everything that looks a little dark, because there's a better exposure underneath. When you get close to the horizon, a 'hard edge' brush is better to keep the lines clean. If you go nuts and paint above the horizon and start to see a much brighter sky (looking like a halo), no problem - just change the colour to white and 'paint it back in'. (If you hit 'X' at any time, you'll swap black for white and vice versa, and you can adjust the size of the brush by the two 'square brackets', [ for smaller, ] for larger). As you paint black in the main window, you will also see black areas appear in the Layer Mask box itself. If your first efforts are a bit messy, don't worry - this does take some practice.

Let's see what it's looking like half-way through the masking job....



This is nearly done.....

When you're fully happy with your efforts - you've got a well-exposed sky and sea - you can just flatten the layers - right click on any of the layers and select Flatten Image. Save the file in the best quality as a PSD file (or a TIFF file) for printing, and then save again as a Jpeg for web or computer viewing.

