

Both Film and Digital cameras are limited in the dynamic range they can capture. Roughly they capture a ten-stop range. Have you ever taken a photo indoors only to have the windows blow out? And if you expose for information outside the windows, the interior of the room becomes too dark. In this situation the dynamic range of the scene is too great for the camera to record. There are four ways to remedy this situation, either bring in artificial lighting to increase the exposure inside the room, place a neutral density gels on the window to lower the exterior exposure, manually composite the shot from several exposures, or use the HDR technique.

In the right hands, High Dynamic Range imaging can blend multiple exposures of the same scene to more closely reproduce what your eye can see. Here's how to do HDR the right way.

So when should you use HDR? It's simple: when you're trying to capture a scene with a wide range between its lightest and darkest areas as accurately as possible. HDR images are created by combining the pixel information from several pictures into one 32-bit file that contains the full dynamic range of each of the individual shots used to create it.

Take a look at range of shots I provide you of a bedroom. Neither one of the exposures accurately exposes the whole scene—in the shot that captures the windows correctly, the room is too dark, and when the room is exposed accurately, the draperies on the windows get blown out, losing all detail. So this is the perfect situation for an HDR image.

In many cases rightfully, HDR has a reputation as a gimmick that can easily be abused to turn your photos into dreadful, over-saturated, tacky looking mess. But if your main intent is to accurately capture a scene as your eye sees it, you can come away with some believable but still otherworldly images. In the end, it all comes down to personal preference.

What You'll Need:

- A camera that has auto exposure bracketing (not essential, but without it, you'll have to set the range of exposures manually and will need a tripod). At the very least you'll need manual exposure controls.
- Photoshop CS2 or higher (you can also use specialized HDR software like Photomatrix, but for in this class were using using Photoshop CS5).
- Some knowledge of curves and histograms in Photoshop.

Take your shots in a exposure bracketed sequence as mentioned before, you'll get the most bang for your HDR buck with scenes that have both extremely bright and extremely dark areas of interesting detail to bring out. So choosing the right scene is an obvious first step.

1. Set your camera to auto exposure bracketing mode, which takes three (usually) sequential shots at three different exposure levels: one correctly exposed, one one-stop overexposed, and one one-stop underexposed. (If you can photograph a wider range with more exposures it would be even better.)
2. Put your camera on a tripod. If you don't have one then you will want to take the three shots in the quickest succession possible since we'll be merging them later and you will want the compositions to be as identical as possible.

Note: If you can, shoot in RAW. Photoshop HDR Pro can handle RAW files just fine, and the extra exposure information within compared to JPEG will make your HDR images all the more rich.

Create Your HDR Image

3. In Photoshop, go to File > Automate > Merge to HDR Pro. Select your images. Click "Attempt to Automatically Align Source Images" if you think they may be slightly crooked, and then hit OK. In Bridge, select your images and go to Tools > Photoshop > Merge to HDR Pro... Photoshop will then chew on them for a while.

Merge To HDR Pro Presets

4. Once the Merge to HDR Pro dialog appears, you'll see the source image thumbnails arranged below an initial preview of the merged image. Before we get into the controls in detail, open the Preset drop-down menu and take some of these settings for a test drive. Most of these are pretty useless without additional intervention and should only be considered as a starting point for further explorations. What they're good for

is seeing how the sliders are configured to achieve a certain type of look. This is information you can use to help you find the look you want.

Choose A Starting Preset

5. Set the Preset to Photorealistic. Though fairly unremarkable, it's a good place to start. In the two Mode drop-down menus, 16 Bit and Local Adaptation should be selected (if you select 32 Bit, the dialog will look like earlier versions of Merge to HDR; you don't have all the new creative controls, but it's useful if you want to create a 32-bit merged file to import into other HDR applications, such as HDRsoft's Photomatix).

Modifying Edge Glow

6. In the Edge Glow section, move the Strength slider first to the far left and then to the far right and observe how this affects the "halo" edge around contrast edges. Strength controls the level of contrast in the glow effect. Set this slider to 1.00 and move the Radius slider back and forth to see how it affects the glow. Radius controls the size of the glow effect. Set the Radius to 125. The Strength should still be set to 1.00.

Set Gamma And Exposure

7. As you did with the previous sliders, experiment with Gamma and Exposure by moving each one in turn to opposite ends. Gamma adjusts the difference between highlights and shadows, while Exposure adjusts the overall image tone and brightness. The Gamma slider is reversed in terms of how sliders normally work; moving it to the left results in higher values, while moving it right results in lower values. Set the Gamma to .85 and Exposure to 1.85.

Detail, Shadow, And Highlight

8. Detail sets the amount of contrast in the detail of the image. Low values create a dreamy, diffuse look, while high values render a stark, high-contrast effect. Set the Detail to 30%. Shadow and Highlight adjust the luminance (brightness) of those regions. Set the Shadow to -50% and the Highlight to -60%. Working with all of the sliders involves a lot of back and forth as they're interdependent; changes to one may prompt you to make further refinements to sliders you've already set. That's why getting a sense of exactly what each slider does is so important.

Color Settings

9. Vibrance and Saturation are fairly self-explanatory, especially if you're used to how they work in Camera Raw or Lightroom. Saturation affects all colors equally while Vibrance has a more refined approach, affecting less-saturated colors more and more-saturated colors less. Set both to 20%. Next, click on the Curve tab (located next to the Color tab).

Adjust The Curve

10. The Curve is where you can have a great deal of control as to how the image looks. If you know how curves work in Photoshop, then this will be familiar to you. Most likely you are looking to darken the shadows a bit and brighten the highlights.

Save HDR Presets

11. If you've created an HDR look that you like, and that you feel might work well on other images that are similar in overall tone and contrast (i.e., such as landscape images), then it's a good idea to save your settings as a preset so you don't have to start from scratch every time. Click the Preset Options icon just to the right of the Preset drop-down menu and choose Save Preset. Name your preset and click Save. Your new preset will now appear in the Preset drop-down menu.

Double-Check Edges At 100%

12. Before clicking OK in the Merge to HDR Pro dialog, be sure to zoom in to 100% or more and scroll around the image to check the edges. Some combinations of settings can create hard and jagged pixilation along contrast edges. Low Strength settings are often to blame for hard "crackly" edges, so if you see any, try increasing the value of this setting. And, keep in mind that changes to Strength may require slight modifications to Radius, Detail, and other settings.

Remove Ghosts

13. If your image contains elements that might have traces of motion in them, such as moving water or tree branches, enable the Remove Ghosts checkbox near the top of the dialog. HDR Pro will select the source file that's best for the motion-affected areas in the image (the thumbnail will be highlighted in green). You

can also make your own choice simply by clicking on a thumbnail. After checking for ghosts, now you can click OK.

Customize With Adjustment Layers

14. One very important thing to remember is that simply running a series of files through HDR Pro doesn't necessarily make a finished image. At best, you'll have a really good combination of all the source exposures that gives you a solid platform on which to continue enhancing the image. The use of additional adjustment layers with layer masks can greatly improve the overall look of the final image.

HDR toning

Tone Mapping A Single Image

Photoshop CS5 also has a great new HDR Toning feature that let's you create an HDR look for a single exposure. This is great for those shots where you either don't have multiple exposures, or making them doesn't work for the subject (such as people). You can find this by going to Image > Adjustments > HDR Toning. The controls are exactly the same as those in HDR Pro, and you can even use saved HDR Pro Presets. It's not the same as real HDR, however; the tonal range will be limited to the single exposure you're using.