Creating an HDR image is a multi-step process. Following is the basic workflow I use.

Capturing Images for Use in Creating an HDR Image

- Use a tripod to when capturing your images. A cable / remote release is desirable to help reduce camera shake.
- It is highly recommended the you shoot your images in Camera RAW.
- Shoot in the highest bit depth your camera will allow.
- Use manual or aperture priority mode to capture your bracketed sequence. I like using my camera's auto bracketing feature.
- Capture a bracketed series of images with no highlight clipping in the darkest image and no shadow clipping in the brightest image.
- You can bracket as much as two stops between images. I normally capture between a 4 stop range and a 8 stop range. The range of stops required will depend on the range of light in the scene you are shooting.
- You should use your camera's histogram to judge whether or not you have the range of images needed to cover the full dynamic range of light in the scene.

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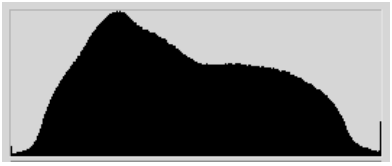
Using Your Camera's Histogram

- The histogram graphically shows the tonal range captured in the image.
- An image is highlight clipped if there are areas in the scene that are recorded as 100% white.
- An image is shadow clipped if there are areas in the scene that are recorded as 100% black.
- This is important because no image detail can be recovered from completely white or black areas of your image.
- The histograms below were taken at 2 stop increments, and will provide good source images to create an HDR photograph.



This histogram shows an image capture that is very slightly highlight clipped.

This histogram shows an image capture that is shadow clipped.

This histogram shows an image capture highlight clipped.

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"Developing" Your RAW Images

Import your RAW images into your RAW Processor

Take a look at the images you have and decide which ones you would like to process. The primary consideration here is evaluating the composition. I also look to see if there is no highlight clipping in the darkest image and no shadow clipping in the brightest image.

If necessary make adjustments to the white balance to the images you have chosen. For me this is an adjustment that is made on what I think looks good. This adjustment does not need to be strictly based on the actual condition under which the image was captured. (Sunny, Cloudy, Shade.) The same white balance value should be applied to all the images in the sequence you will be using to generate the HDR image.

Set the tone curve to linear

It is possible to make other adjustments prior to processing / developing the RAW images to TIFF. What I have outlined above is what I do 95% of the time.

Once these adjustments have been made to the images render, (export) them to 16bit uncompressed TIFF files.

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Using Photomatix

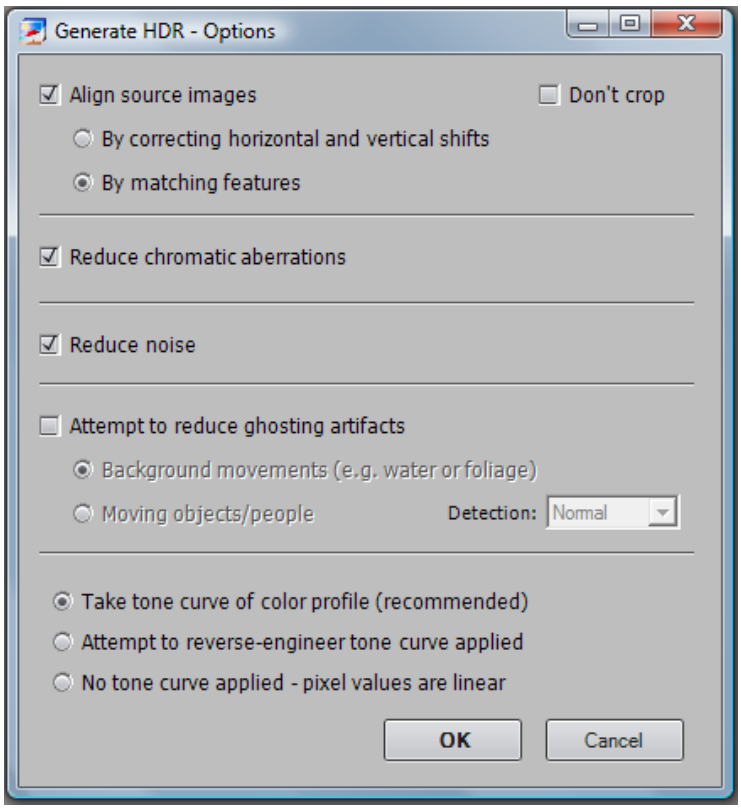
The basic steps are:

- Combine the series of bracketed images into a single .hdr image using Photomatix.
- Tone map the .hdr image in Photomatix and save the image as a TIFF.

The steps with more detail are:

The first step is to "Generate HDR Image". This step combines the series of 16bit TIFF images into a single 32bit HDR file. This 32bit image is also known as a radiance file. My choice is to save this HDR file on my computer, so that if I want to tone map the image more than once I don't have to go through the process to "Generate HDR Image" again. The tradeoff is the .hdr file will take up space on your hard drive.

Generating the HDR image is fairly straight forward. In almost all cases, I choose the following settings:



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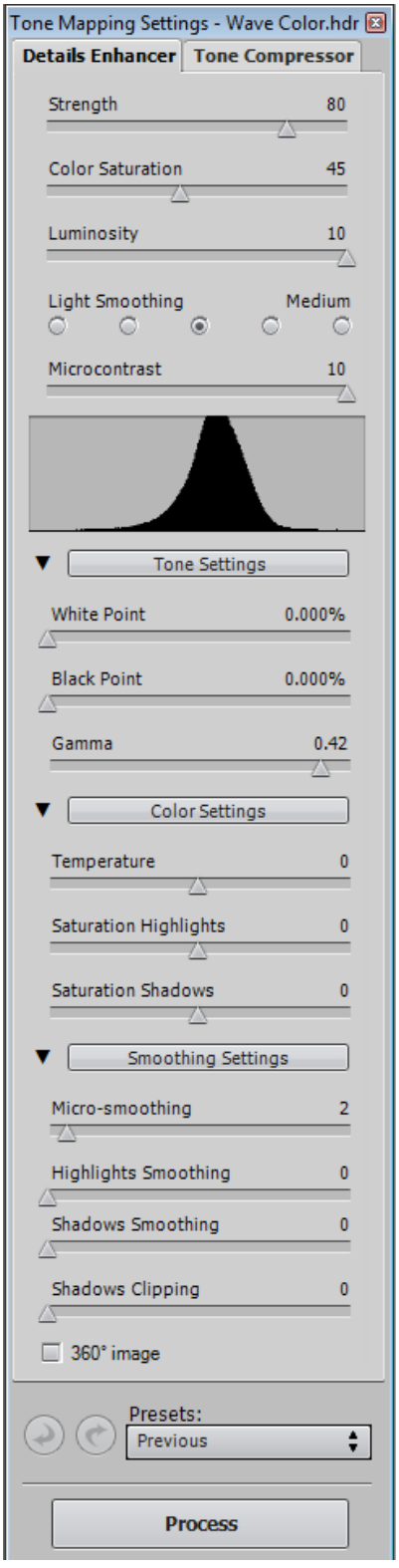
The second step is to apply "Tone Mapping" to the HDR file.

In the Tone Mapping dialogue there are quite a few adjustments you can make.



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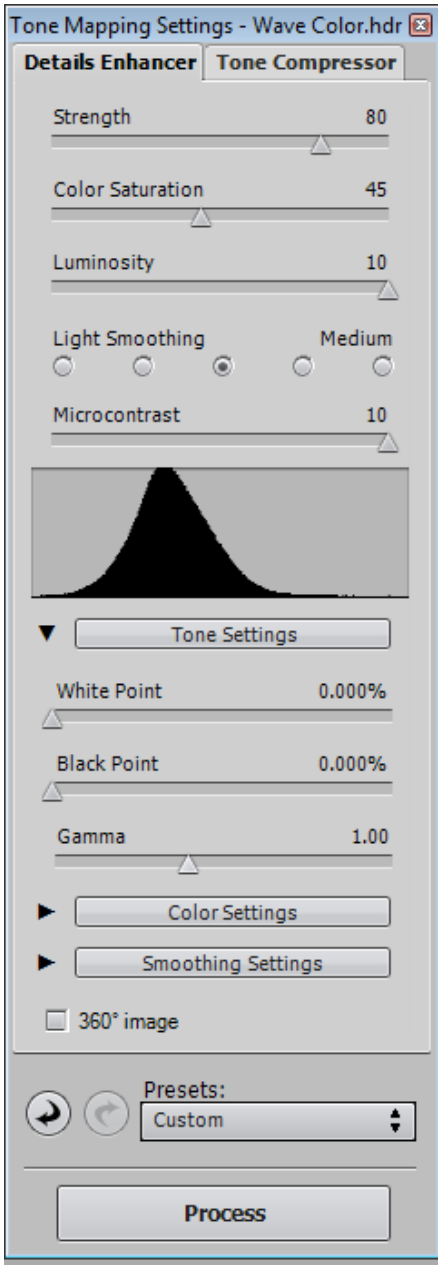
The choices you make in this dialogue will have a significant effect on the tone mapped image.

In most cases, I make adjustments to the following settings:



Strength (This is a subjective adjustment.)

Color Saturation (This is a subjective adjustment.)

Luminosity (Use this adjustment to push the histogram to the right.)

Light Smoothing (This is a subjective adjustment.)

Microcontrast (This enhances the detail of the image.)

White Point (This is an important adjustment. It detriments where 100% white will be in the image. In most cases the value is between 0 and .25. If the histogram is clipped to the right you need to lower the value. Evaluate the tone mapped image in Photoshop. If the highlights are clipped re-tone map the image with a lower white point value)

Black Point (Determines what it 100% black in the image)

Gamma (Lower this value to push the histogram to the right.)

Select "Process" to generate a tone mapped TIFF file.

In all cases I post process my images in Photoshop.

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Post Processing in Photoshop CS4

The basic steps are:

Open the image in Photoshop

Evaluate the white point. If highlights are clipped, re-tone map the image with a lower value for the white point.

Add a Levels Adjustment Layer and adjust the levels to maximize the tonal range.

Add a Curves Adjustment Layer and increase the contrast of the image.

Add Curves Adjustment Layers and or Levels Adjustment Layers with masks to make localized adjustments

Add a Hue Saturation Adjustment Layer to tweak the color of the image.

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