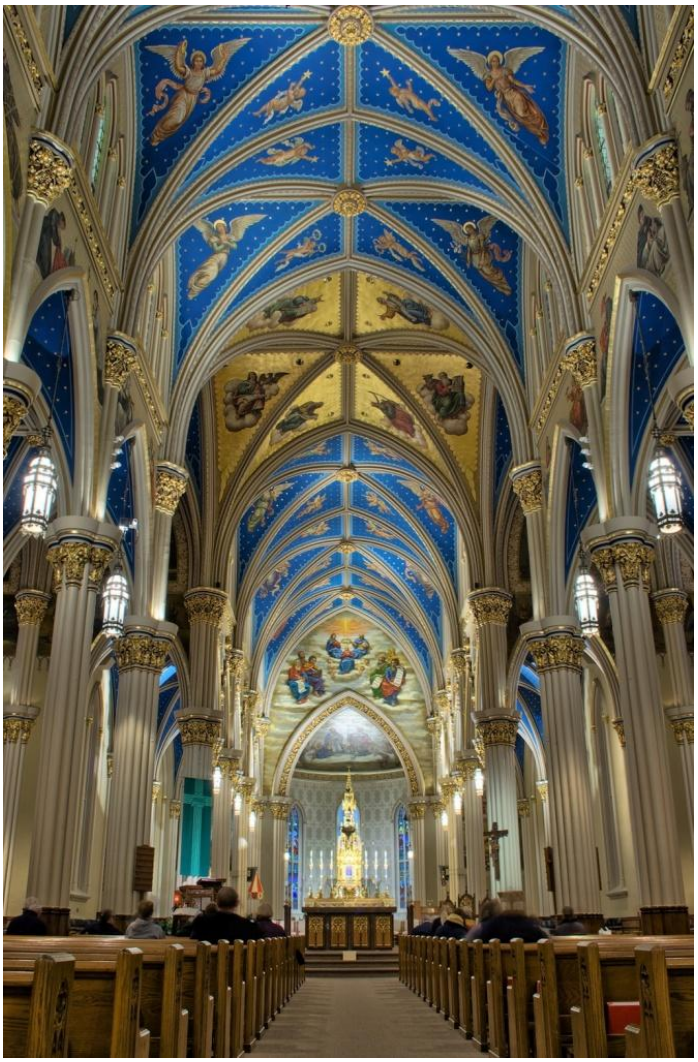
HDR Darkroom 2 Pro User Manual



Content:

1. Introduction

1.1 A Brief Introduction to HDR Photography

HDR stands for High Dynamic Range, and HDR photography utilizes technology that allows you to capture a much wider range of lighting, colors and details than is possible with a standard camera alone.

What are the benefits and uses of HDR photography?

HDR software combines three or more differently exposed photos of the same scene into a single photo that accurately captures the details and vivid colors of the world as scene by the naked eye. The advantage of HDR technology is that it retains details that are lost with standard digital cameras and it reproduces vivid colors in both the light and dark areas of a photo simultaneously.

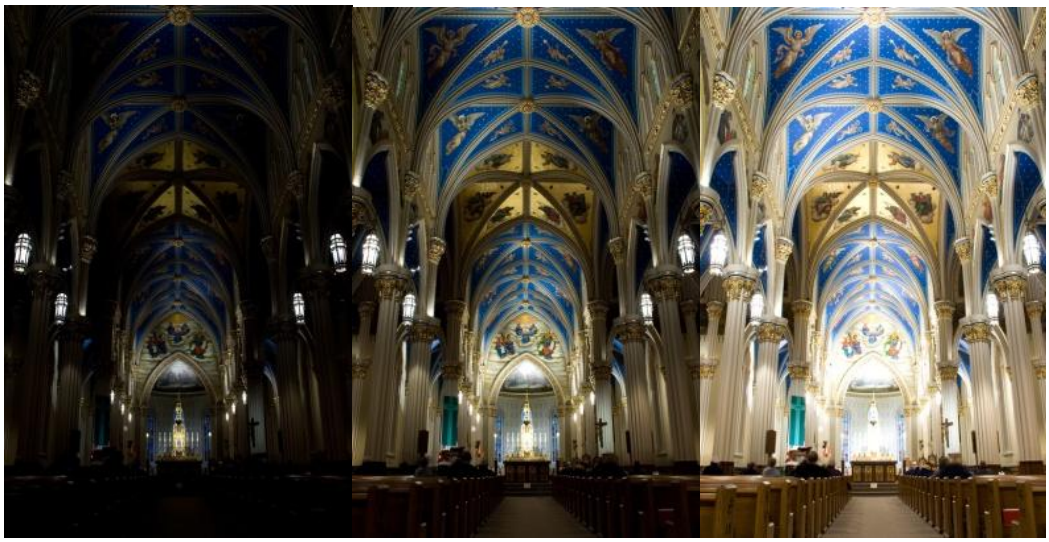
What is Tone Mapping?

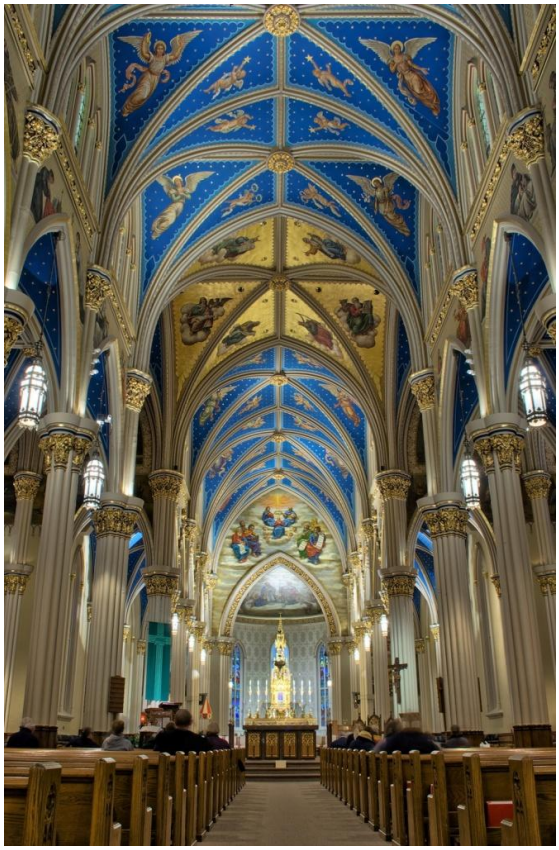
Usually, the first step of HDR software is to merge photos with different exposures into a digital HDR negative, which is also called a 32-bit float point radiance map. Compared with conventional 8-bit image formats like JPEG or BMP, the 32-bit float point format has the capability to record a much wider range of values, and can thus more accurately capture the full dynamic range of the real world. However, a 32-bit float point value cannot be displayed or printed on current 8-bit monitors or printers. Therefore, although a 32-bit float point radiance map records extremely accurate values, at this stage they are just meaningless numbers from the user's perspective because the results cannot be seen. "Tone Mapping" is the technology used to convert a 32-bit float point format to 8-bit images for display or print. Since 32-bit a float point radiance map is also referred to as the digital HDR negative, Tone Mapping can be regarded as a kind of photo development, but for digital photos.

A brief introduction to making HDR photos:

Take three photos of the same scene with different exposure values (like the photos above) and import these photos into HDR software. These photos will be merged into a single radiance map (i.e. HDR negative). Then Tone Mapping is used to convert the digital HDR negative into a

displayable HDR image (the merged photo with richer details and colors is shown below). Our HDR Darkroom 2 Pro is an innovative HDR software that uses the above-mentioned technology to help you to create gorgeous HDR photos with minimal effort.



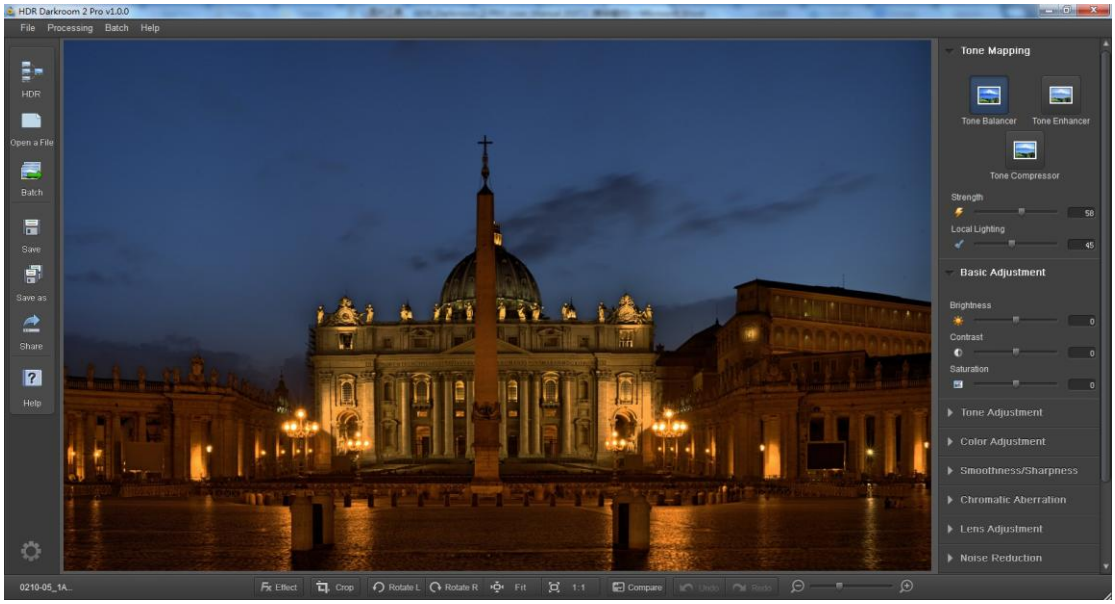


1.2 Introduction to HDR Darkroom 2 Pro

An all-in-one professional HDR application designed to help you rapidly and easily produce stellar results.

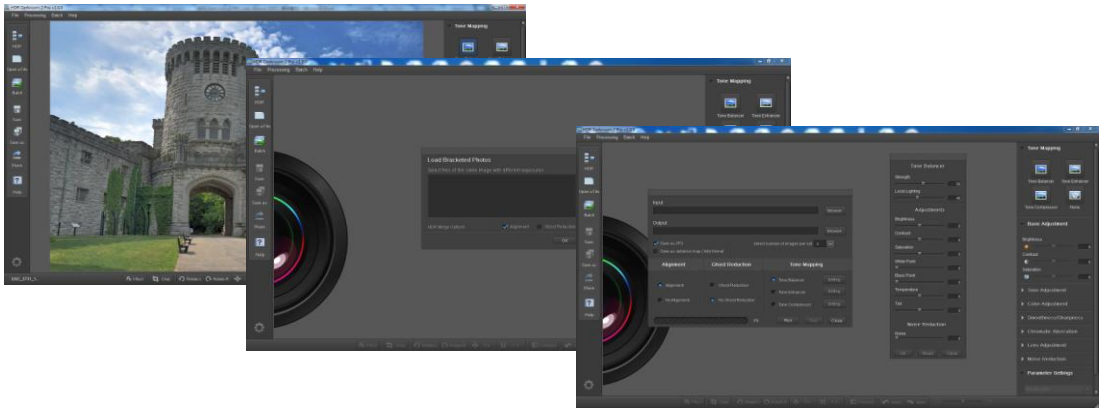
Sophisticated HDR Technology:

HDR Darkroom 2 Pro includes a range of advanced HDR technologies, including Alignment technology, Ghost Reduction technology, Noise Reduction, Local/Global Tone Mapping technology, and more to help you easily produce spectacular images at the fastest speeds available today.



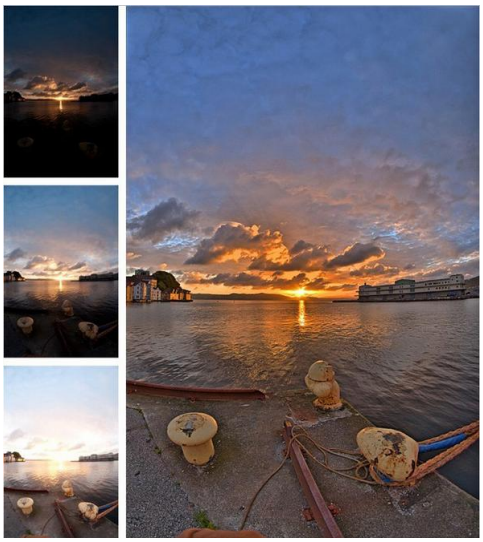
User-friendly Interface:

By working with professional photographers to understand their workflow, we designed HDR Darkroom 2 Pro specifically for ease of use, but without compromising on control.



Cutting-edge Local/Global Tone Mapping Technology:

Using our Local / Global Tone Mapping technology, you will produce the most spectacular, most realistic results in seconds. We offer three types of Tone Mapping technology to suit your needs.



Local

Global

Alignment Technology:

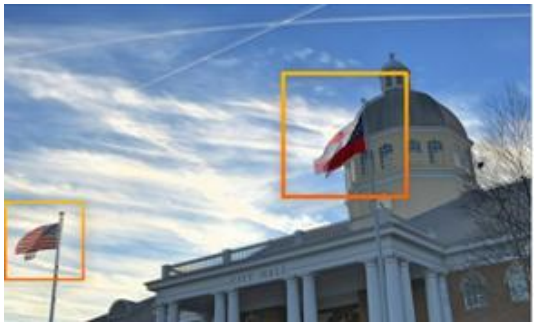
Our powerful Alignment technology corrects problems with misalignment when your camera moves slightly between the bracketed frames.

Before

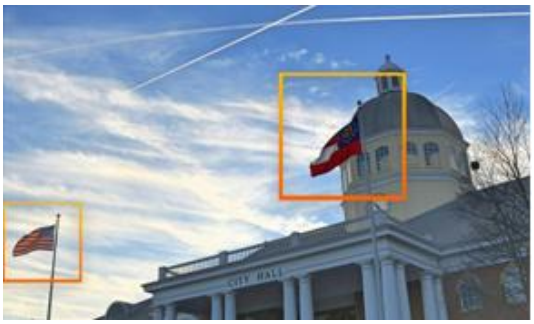
After

Ghost Reduction Technology:

If an object moves through the scene while you are taking multiple shots, our Ghost Reduction technology corrects the problem of "ghosting" when the images are combined.



Before



After

Real Time Processing:

Nearly all of the processing controls in HDR Darkroom 2 Pro are real time, making HDR Darkroom 2 Pro the fastest processing HDR software on the market with real time processing as a standard feature. Don't spend your time sitting in front of a computer. Get back out there and take more great photos!

Powerful Batch Processing:

Our HDR Darkroom 2 Pro Batch Processing Engine automatically handles multiple sets of photos according to your unique preferences. Let us do the work for you and harness the power of batch processing to save you countless hours of manual.

Camera RAW File Converter:

HDR Darkroom 2 Pro supports RAW files of more than 150 camera models, including Canon, Nikon, Sony, Olympus and Panasonic, as well as Adobe (DNG), etc. New formats will be included in future releases once they become available.

RAW

Export to Social Media:

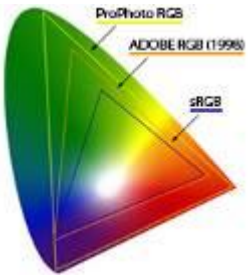
We've made it easy for you to share your amazing HDR images on all the popular social media and photo sharing websites like Facebook, Twitter and Flickr. With a single click you can upload your photos for all of your friends and family to see, or put yourself out there and share your work with an even bigger audience.

Advanced features (compared with HDR Darkroom 2):

Light/Color control at your fingertips:

HDR Darkroom 2 Pro gives you control over more than 30 parameters, so you can fine tune and control your final results. Many levels of adjustments are available on features such as Curve adjustment, color balance, color temperature and tint adjustment, lens correction, highlight/shadow adjustment, black/white point adjustment, and noise reduction. With HDR Darkroom 2 Pro, digital photography processing tasks can be done seamlessly and with results so good you will never need to use another application.

Fully Realized Color Space Management:



HDR Darkroom 2 Pro is the first HDR software with comprehensive color space management. Our HDR Darkroom 2 Pro developers have created color space management tools with a short learning curve, but without compromising on professional level capability. Click here to download the fully-functional free trial version and see for yourself!

Visual Effects:

Stretch your creativity further with a huge palette of effects that were designed with input from experienced graphic designers and photographers.

2. HDR Darkroom 2 Pro Workflow

2.1 HDR Composition Workflow

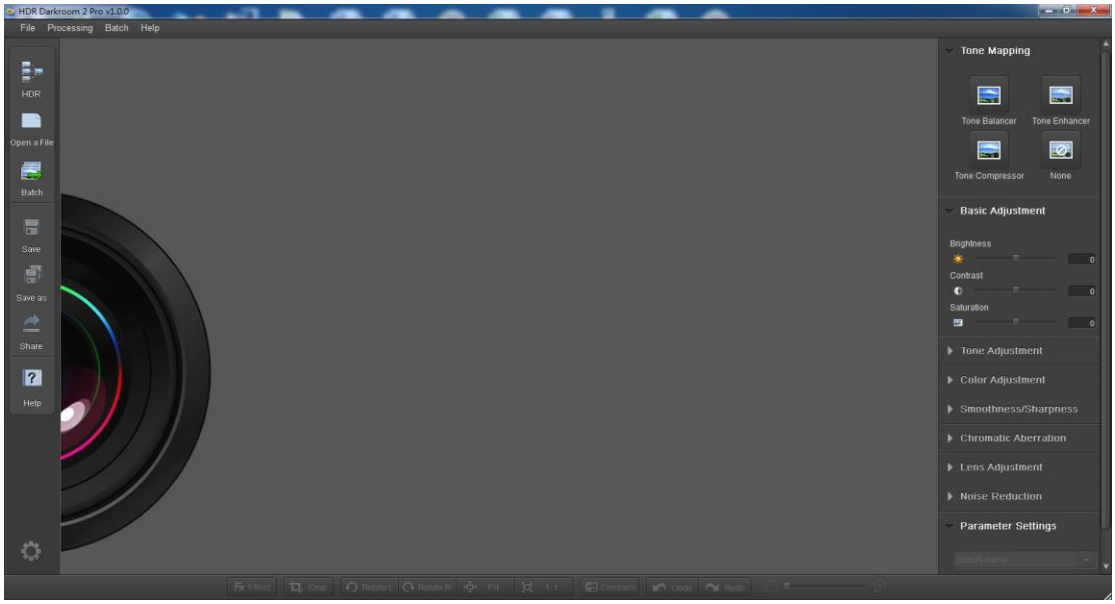
Step 1: Taking HDR photos of a scene

In order to create the best HDR images, be sure to take enough photos (at least 2) with different exposures. Taking 3-5 differently exposed photos will ensure that you cover the full dynamic range of the scene.

Most digital cameras on the market offer an Auto-Exposure Bracketing (AEB) function, which makes capturing HDR photos easy. Our HDR Darkroom 2 Pro software enables you to align images if the camera moves slightly between frames, but it is best to use a tripod if possible.

Step 2: Open your HDR Darkroom 2 Pro workspace

Enter the workspace of HDR Darkroom 2 Pro on your computer by double-clicking on the application's desktop icon, or enter through the **Start** menu and select HDR Darkroom 2 Pro from the list of installed programs. The workspace of HDR Darkroom 2 Pro is shown below.

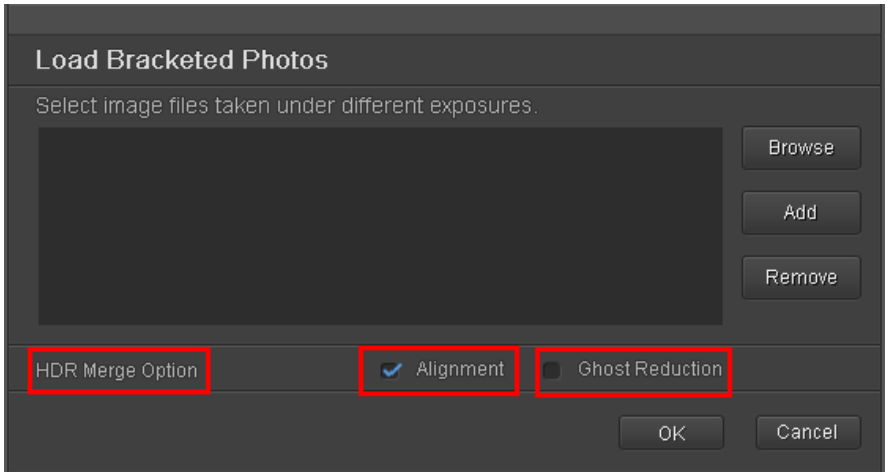


Step 3: Import bracketed photos into your workspace

Click the HDR icon () on the left-hand side of your screen. You can also create an HDR photo from the **File** menu and select **Create HDR**. The merge dialog box will then appear. Click on the **Browse** button to select the bracketed photos that you want to process, otherwise click on the **Remove** button to remove photos from your workspace.

Step 4: Generate an HDR photo

First, select the HDR Merge options that you would like to use at the bottom of the dialog box.

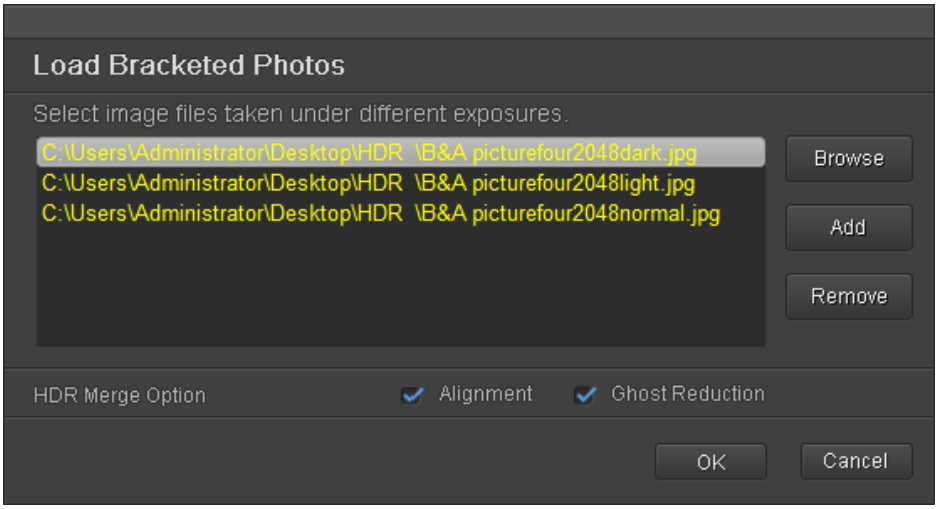


Alignment:

By selecting the **Alignment** option, photos will be aligned using a feature matching method and then be merged into a digital negative (32-bit float point HDR radiance map). The Alignment feature helps to compensate for both translational and rotational movement and even distortions during the capture process. Otherwise, photos will be merged without applying any alignment technology and may appear out of focus or fuzzy. Alignment is selected by default.

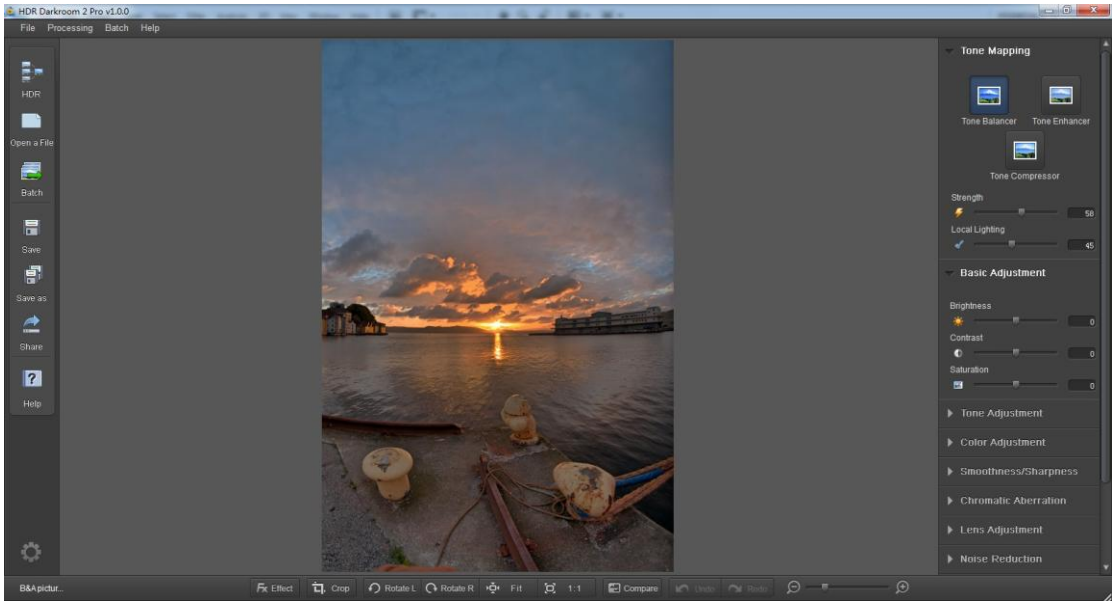
De-ghosting:

By selecting the **Ghost Reduction** option, the problem of moving objects appearing ghost-like in the final photo will be eliminated.



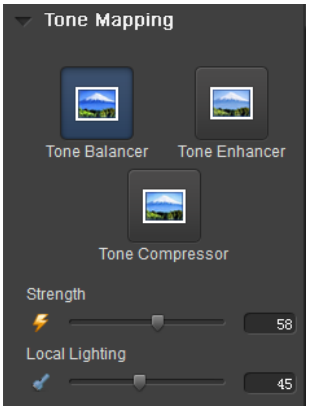
Once you have specified your preferences, click OK to continue.

HDR Darkroom 2 Pro will then process the selected photos and merge them into an HDR photo. Note that the Tone Balancer mapping engine is applied as the *default* setting at this stage. In the next step you can specify the tone mapping settings you prefer.



Step 5: The magic of Tone Mapping

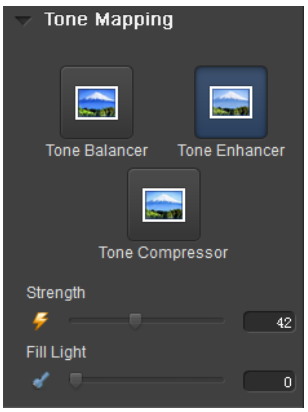
In order to obtain the highest quality HDR image, adjust the tone mapping settings to suit your needs. You can find three different tone mapping options in the Tone Mapping area on the right hand side of your workspace.



Tone Balancer: a patented Local Tone Mapping Engine aimed at balancing tones and revealing both the shadows and highlights of an image

Strength: Adjusts the local contrast levels

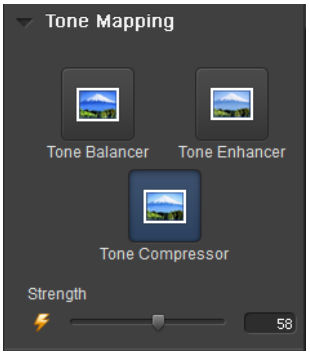
Local Lighting: Adjusts the local lighting levels



Tone Enhancer: a patented Local Tone Mapping Engine with the power to extract and enhance the details of an image

Strength: Adjusts the local contrast of the image

Fill Light: Used to reduce the contrast of a scene and illuminate the parts of an image that are cast in a shadow

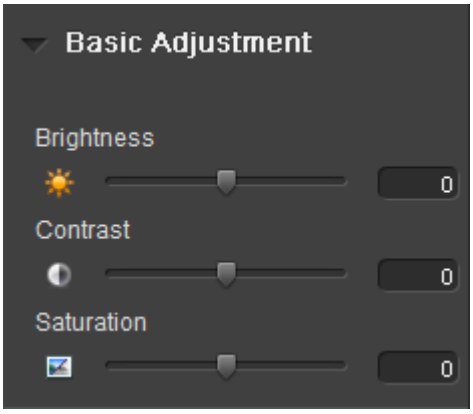


Tone Compressor: a Global Tone Mapping engine that maps every pixel in an image as a whole. Keep in mind that global tone mapping does not take into consideration the position of each pixel or information about its surrounding pixels. Therefore, although the "Compressor" option will process the photos at a much faster rate than the other two engines described above, the results will not be as impressive.

Strength: Adjusts the global contrast of the image

HDR Darkroom 2 Pro also provides features like brightness, contrast, saturation, black/white point, white balance, color temp, tint etc for color and light controls as well as smoothness/sharpness, color aberration, and lens adjustment . After adjusting these parameters, you can save current settings in the "Parameter Setting Log" area.

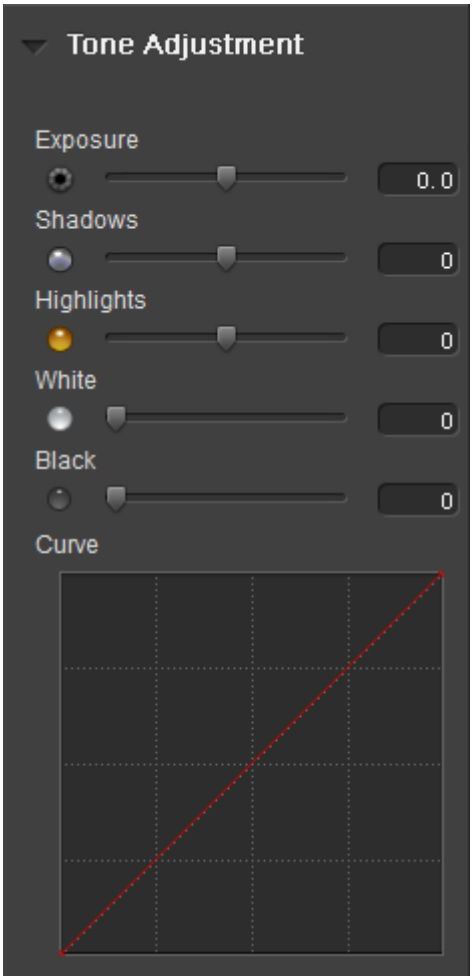
Basic Adjustment	This module provides the basic image adjustments **Brightness:** Adjust the brightness of the image.



Contrast： Adjust the contrast of the image.

Saturation： Adjust the color saturation of the image.

Tone Adjustment



This module uses different approaches to adjust the tones of the images.

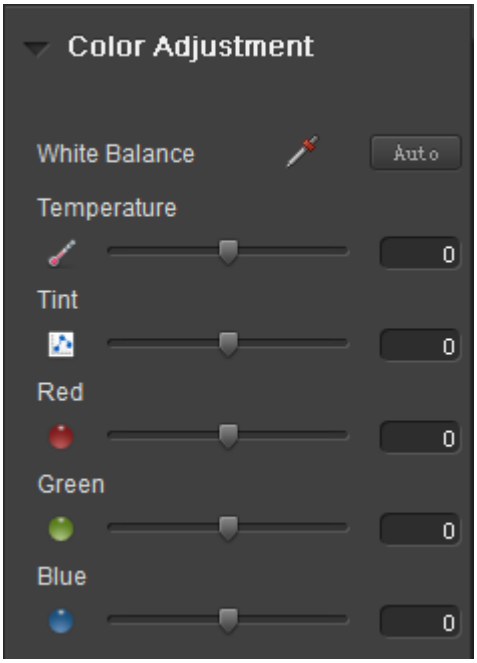
Exposure: Adjust the exposure of the image.

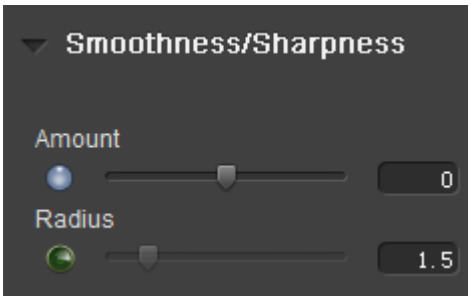
Highlights/Shadows： With this feature it is possible to brighten the shadows while leaving the bright areas in the image as they are. This is done with the slider shadows. The opposite thing, darkening the highlights while leaving the shadow areas in the image as they are. This is done by the highlights slider.

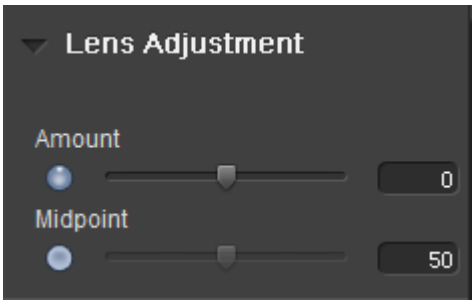
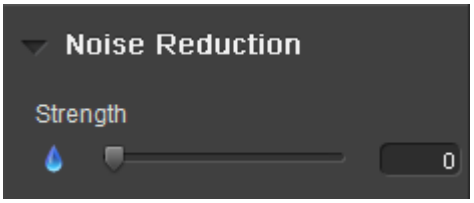
White/Black Point：

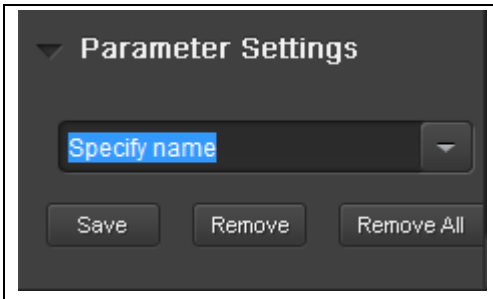
White Point： Specifies which image values map to white. Moving the slider to the right increases the areas that become white, sometimes creating the impression of increased image contrast. The greatest effect is in the shadows, with much less change in the midtones and highlights.

Black Point： Specifies which image values map to black. Moving the slider to the right increases the areas that become black, sometimes creating the impression of increased image contrast. The greatest

	effect is in the highlights, with much less change in the midtones and shadows. **Curve:** With the Curve you can create a custom curve. You can use as many defining points as you like, up to 24. If a point on the curve moves up, it becomes a lighter tone; if it moves down, it becomes darker. A straight, 45-degree line indicates no changes to the tonal scale: the original input values exactly match the output values.
Color Adjustment  	This module uses different approaches to adjust the color of the images. **White Balance：** White balance (WB) is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo.  **White Balance pointer：** Use the pointer selection to pick any area in the image you shot of the neutral gray to remove color cast. **Auto：** Apply an automatic white balance technology to remove color cast. **Temp：** Fine-tunes the white balance using the Kelvin Color temperature scale. Move the slider to the left (negative value) to make the photo appear cooler, and right (positive value) to warm the photo colors. **Tint：** Fine-tunes the white balance to compensate for a green or magenta tint. Move the slider to the

	left (negative value) to add magenta to the photo; move it to the right (positive value) to add green. **Red：** Increase or decrease the component of red color. **Green：** Increase or decrease the component of green color. **Blue：** Increase or decrease the component of blue color.
Smoothness/Sharpness 	Adjust the level of smoothness or sharpening. **Amount：** This parameter controls the strength of smoothness and sharpening. Move the slider to the left (negative value) is for the smoothness effect and move the slider to the right (positive value) is for sharpening effect. **Radius：** This parameter determines the effect of smoothness and sharpening.
Chromatic Aberration 	**Chromatic aberration** is a common property of lenses and caused by the failure of the lens to evenly focus different colors evenly to the same spot on the camera sensor. In one type of chromatic aberration, the image from each color of light is in focus, but each image is a slightly different size. This type of aberration is seen as a complementary color fringing in areas away from the center of the image. For example, you may see a red fringe on the side of an object toward the center of the photo, and a cyan fringe on the side of the object away from the center of the photo.

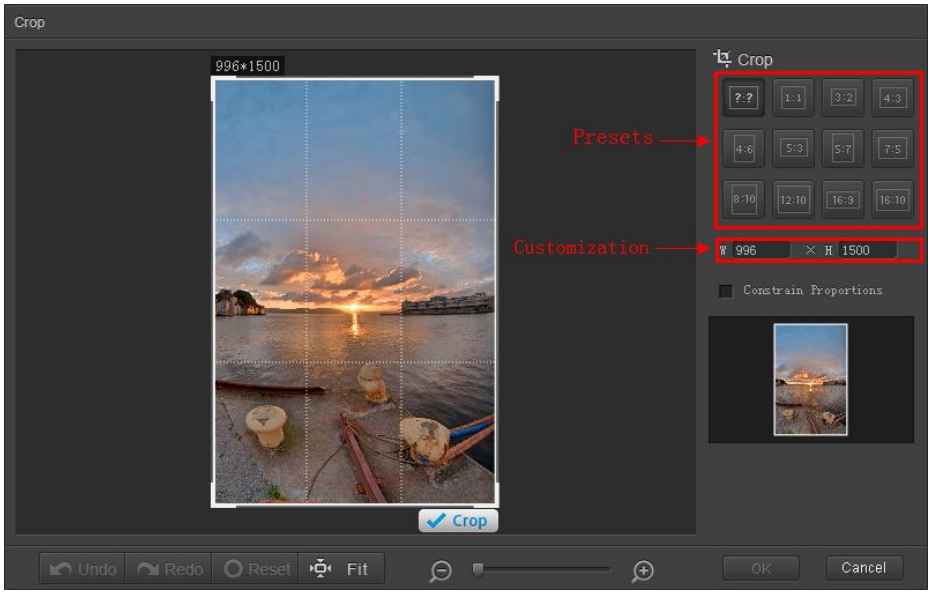
	R/C： Adjusts the size of the red channel relative to the green channel. This compensates for red/cyan color fringing. **B/Y：** Adjusts the size of the blue channel relative to the green channel. This compensates for blue/yellow color fringing.
Lens Adjustment 	Lens Adjustment makes the edges, especially the corners, of an image to be darker than the center. **Amount:** Move the slider to the left (negative value) to darken the corners of the image or move the slider to the right (positive value) to lighten the corners of the image. **Midpoint:** Move the slider to the left (lower value) to restrict the vignettes amount adjustment to an area closer to the corners, or move the slider to the right (higher value) to apply the vignettes amount adjustment to a larger area away from the corners.
Noise Reduction 	Reduces the noise in the image.
Parameter Settings	You can save your satisfied adjustment parameters here, specify a name and you can apply this setting or edit next time.



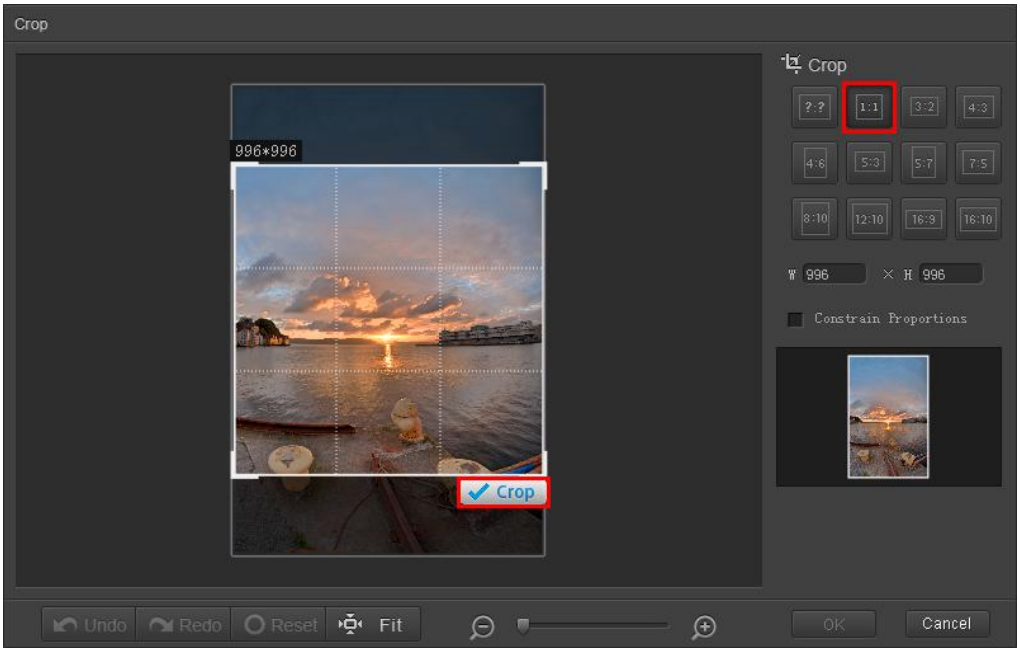
Crop feature is also integrated into HDR Darkroom 2 Pro, which can be tailored to suit your needs. The following screenshots demonstrate how to use the Crop feature.

Click the (

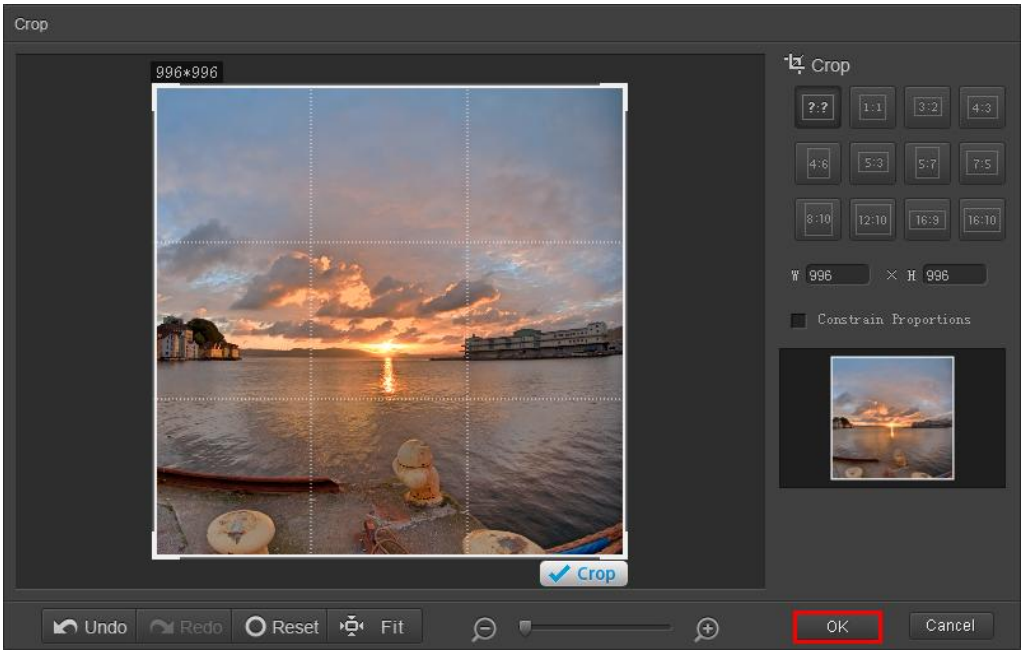
) at the bottom of your workspace, and the Crop box will pop up immediately.



Preset ratios will appear in the right-hand corner. You can select a preset cropping ratio here, or customize a ratio based on your preferences. For instance, select the preset ratio *1:1*, and then apply cropping by clicking on the “Crop” button that appears at the bottom of the photo.

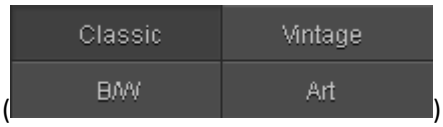


After the boundaries of the photo are exactly where you would like them to be, click on the “OK” button to complete the process.



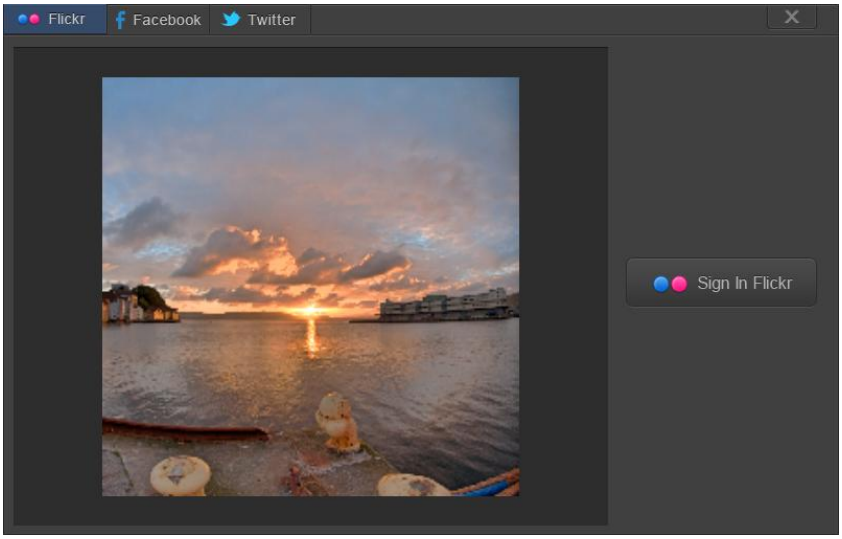
You may then view the cropped image before saving and sharing.

New in HDR Darkroom 2 Pro, you can now add a range of special effects to your photos. Just select the **FX Effect** button (

) in the lower left-hand corner of the workspace, and select the effect you'd like to apply. You will instantly see the effect applied to your image and can select whether or not keep it by clicking either **Apply** or **Cancel**. If you'd like to try a different style of effect, you can choose from one of four categories at the upper right-hand corner of the **FX Effects** (

) screen.

Once you are satisfied with your creation, click on the Save button () to save current image or Save as button () to save the image in any number of formats. You can also click on the Share button () to upload your edited photos to popular social network sites, such as Facebook, Twitter, and Flickr (sign in to your accounts before uploading).

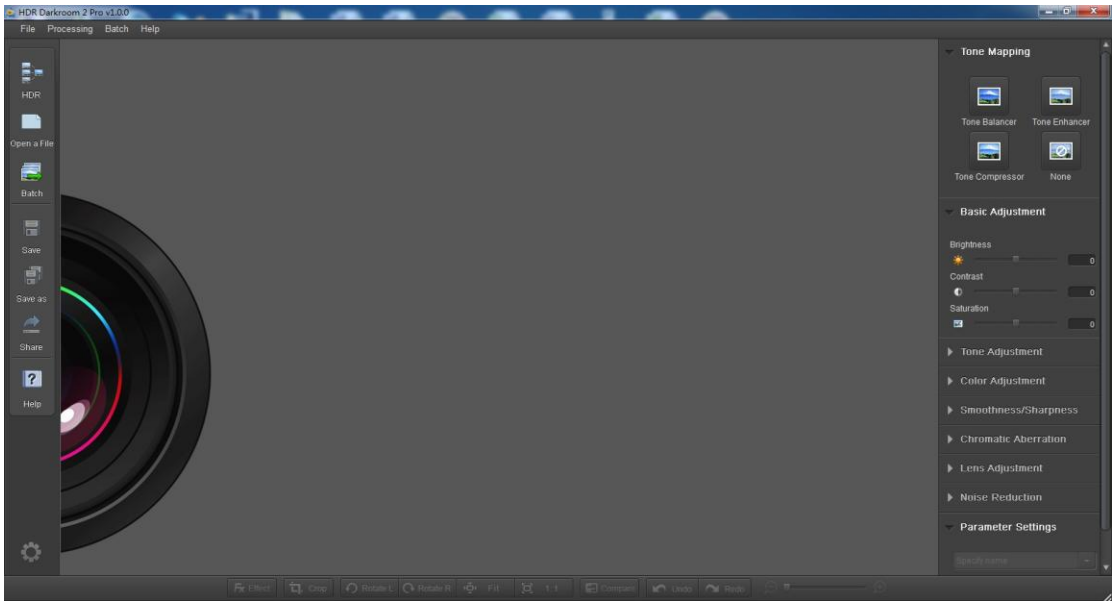


2.2 RAW File Converter Workflow

HDR Darkroom 2 Pro can be used for 16-bit Camera Raw Conversion with our innovative HDR tone mapping technologies.

Step 1: Open HDR Darkroom 2 Pro

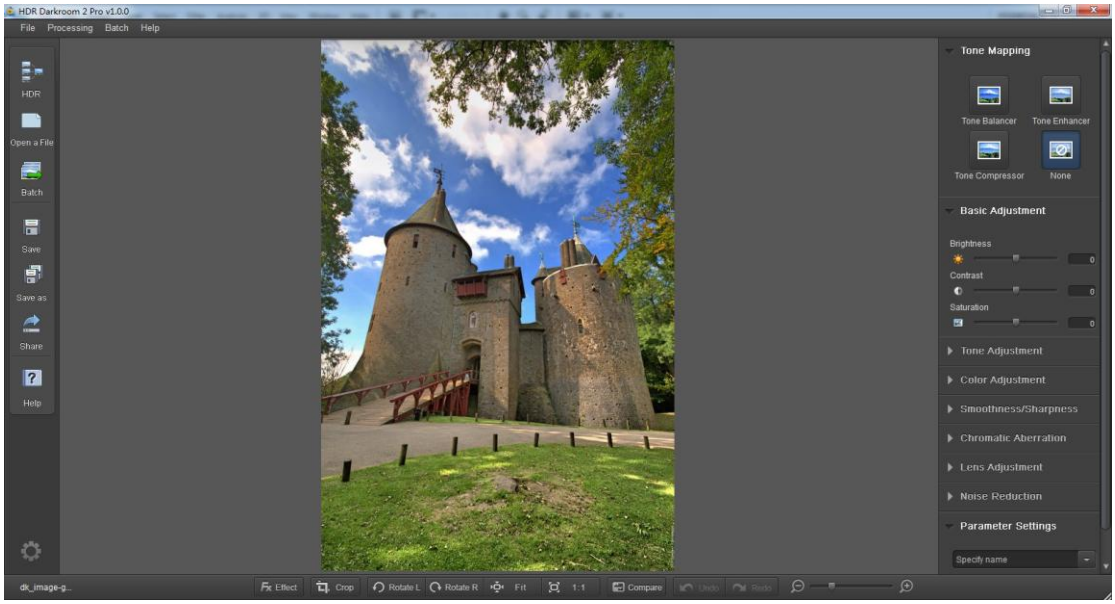
Enter the workspace of HDR Darkroom 2 Pro by double-clicking on the application's desktop icon or enter through the Windows **Start** menu and select HDR Darkroom 2 Pro from the list of installed programs. The workspace of HDR Darkroom 2 Pro is shown as below.



Step 2: Open file

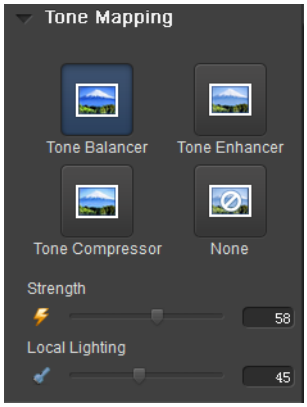
First, select the () icon on the left-hand side of the screen. You can also select "**Open a file**" from the **File** menu. Then choose the RAW file you want to process.

HDR Darkroom 2 Pro will use the demosaicing, decoding, local tone mapping (Tone Balancer) etc. processes to convert the 16-bit Camera RAW file format to 8-bit integer values for display.



Step 3: The magic of Tone Mapping

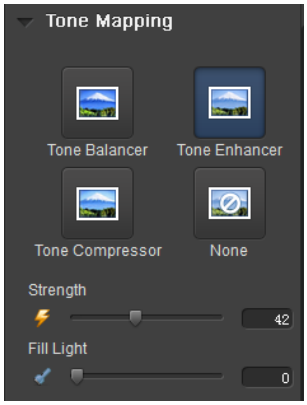
In order to obtain the highest quality HDR image, adjust the tone mapping settings to suit your needs. You can find three different tone mapping options in the Tone Mapping area on the right hand side of your workspace.



Tone Balancer: a patented Local Tone Mapping Engine aimed at balancing tones and revealing both the shadows and highlights of an image

Strength: Adjusts the local contrast levels

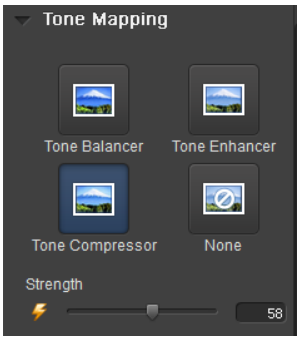
Local Lighting: Adjusts the local lighting levels



Tone Enhancer: a patented Local Tone Mapping Engine with the power to extract and enhance the details of an image

Strength: Adjusts the local contrast of the image

Fill Light: Used to reduce the contrast of a scene and illuminate the parts of an image that are cast in a shadow



Tone Compressor: a Global Tone Mapping engine that maps every pixel in an image as a whole. Keep in mind that global tone mapping does not take into consideration the position of each pixel or information about its surrounding pixels. Therefore, although the "Compressor" option will process the photos at a much faster rate than the other two engines described above, the results will not be as impressive.

Strength: Adjusts the global contrast of the image

For post processing a RAW file, you can also use the **Basic Adjustment**, **Color Adjustment**, **Tone Adjustment**, **Smoothness/Sharpness**, **Lens Adjustment**, and **Noise Reduction** features. Once you are satisfied with your settings, click () to save, or click () to share.

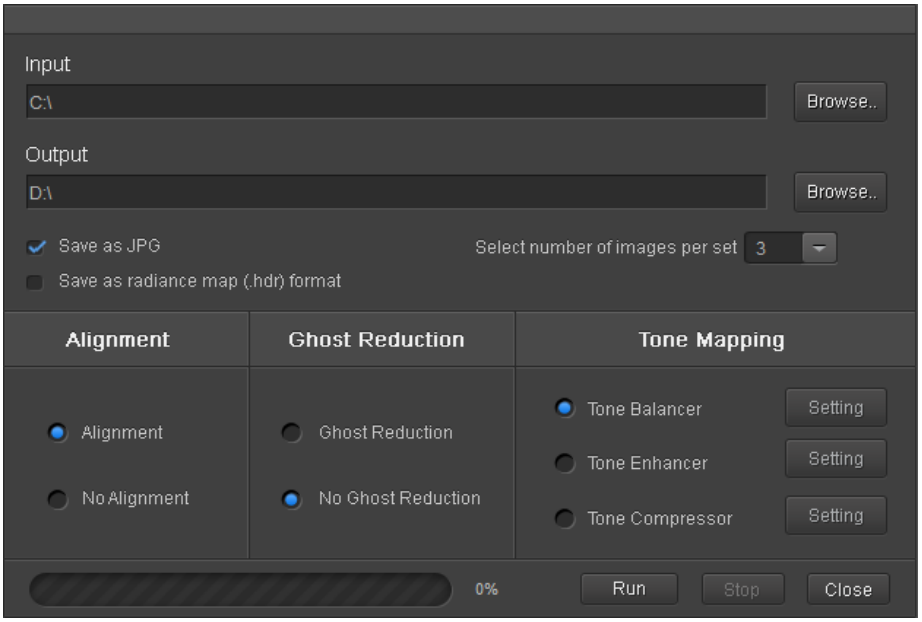
3. Batch Processing

3.1 Batch merging bracketed photos into HDR images

If you have a large amount of photos to be processed, you can use our batch processing mode. This feature allows you to process large quantities of images without the need to make manual adjustments for each new set.

Step 1: Open the Batch Processing tool

To use the batch processing mode, click the () icon on the left hand side of the screen, or select **Batch** from the menu at the top of the workspace. The following window will be displayed:



Step 2: Select photos for batch processing

For the “Input” field, select “Browse” to locate the folder with the images you would like to batch process. Then, select the number of images per set.

Important Note:

You must specify the number of photos for each set. If you merge 3 photos to produce a single HDR photo in the first set for example, there must be only 3 photos for each set in the batch. Let’s

say you have two sets of photos. The first set consists of A1, A2, and A3 and the second set consists of B1, B2, B3. You can then place both sets in the same folder as ***Input*** *and indicate that you would like to select 3 images at a time for batch processing. Each set of photos that are processed within the same batch must consist of the same number of photos. You cannot for example place one set of photos consisting of four differently exposed photos and another set of photos consisting of five differently exposed photos in the* ***Input*** *folder to be processed in the same batch.*

Step 3: Select the file location for processed photos

For the "Output" field, select "Browse" to locate the folder where you would like your processed photos to be saved. Then, select the format you would like to use. "Save as JPG" in order to view the processed photos on any device, for printing photos and to share your photos with friends. "Save as radiance map (.hdr) format" for further editing on any HDR software.

Step 4: Specify alignment, ghost reduction and tone mapping preferences

For further explanation of these tools, please see **HDR Darkroom 2 Pro Workflow** in section 2 of the user guide.

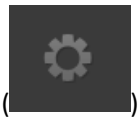
Step 5: Run batch processing

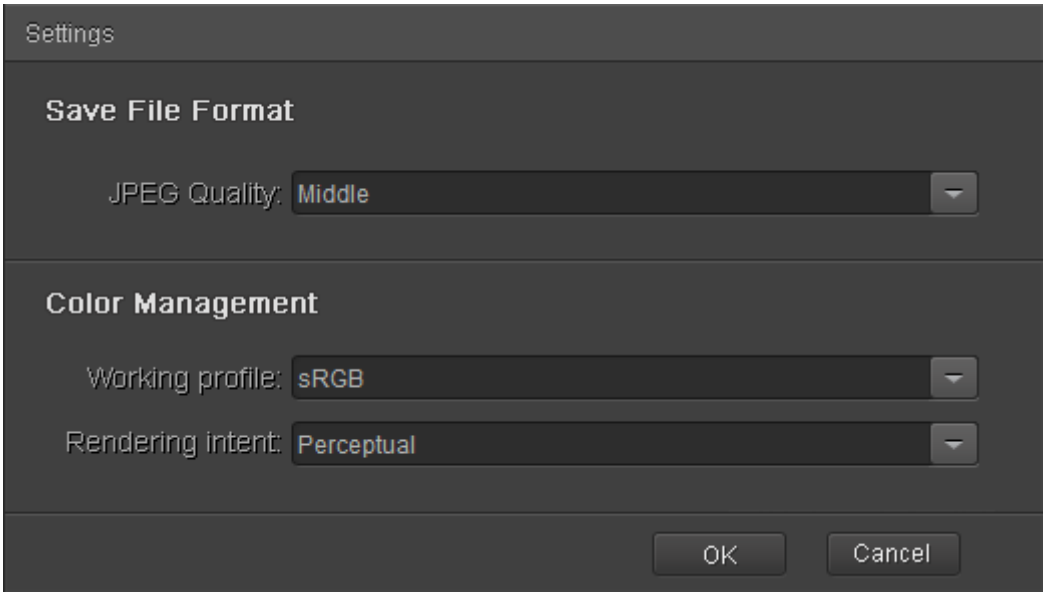
After you have specified your preferences, click **Run** to start batch processing. There may be a delay before processing begins depending on the number of photos you have input.

3.2 Batch converting single 16-bit RAW files to 8-bit images

You can also use batch processing to convert the 16-bit Camera RAW file format to 8-bit integer values that can be displayed on your monitor. Select *1* in the "Bracketed image number" field to indicate that you will "Input" only 1 photo per set. Then, select "**No Alignment**" and **"No Ghost Reduction"** from the menu options at the bottom of the dialog box. Because there is only a single picture per set, there is no need to use these tools. Lastly, indicate which tone mapping method you would like to use and then run the batch.

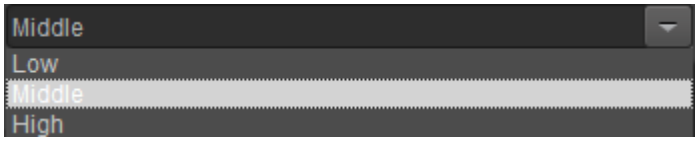
4. Settings

Click the () icon on the left-hand side of the screen into setting window.



Save File Format:

JPEG quality： Adjust the output quality of JPEG images.



Low： Smallest file size but relatively poorer image quality.

Middle： Moderate image file size and better image quality. Recommended for uploading and sharing.

High： Maximum file size but the highest image quality. Recommended for printing.

Color Mangagement

Working profile: Which working profile you choose depends very much on the later use of your image. For highest compatibility use sRGB. Use it also if you don't know what color management might be useful for. If you only plan to show your images on your monitor or on the Internet this

is also a good choice. Because then no profile has to be embedded into a JPG as sRGB is always assumed as default. If you plan to print your image AdobeRGB might be a better choice as it was developed to work best with CMYK devices such as printers. But you could also change to ProPhoto. But beware using a color profile with a big gamut may lead to problems or unwanted colors depending on the final use and colorimetric intent.

Rendering intent

When the gamut of the source color space exceeds that of the destination device (a monitor or printer,) saturated colors are liable to become clipped (inaccurately represented), or "burned." The color management module can adjust the image to resolve this challenge in several ways. Industry standards, (from the ICC specification) include four different rendering intents: Perceptual, Relative Colorimetric, Saturation and Absolute Colorimetric.

Perceptual: If the color gamut of your image is higher than that of your device (monitor or printer) then it is compressed a bit to fit the gamut of your device as far as possible. This might result in an image with reduced saturation, but the hue is still kept as faithfully as possible. While it might look a bit dull, this effect is not really that as visible as the color relations stay the same. This method is activated by default (in most cases it is the recommended choice.)

Relative Colorimetric: The colors existing in the color gamut of both your image and your device (monitor or printer) are kept and displayed 100% perfect. If the color does not exist within the color gamut of your device the nearest possible value is taken. This might lead to some banding effects especially visible in blue sky. The white point will be corrected.

Saturation: Very similar to Perceptual, instead keeping the saturation and changing the hue

instead. This is very useful for screenshots and similar uses. It could also be used when you do not care of some possible color shift as long the resultant image does not look “dull.”

Absolute Colorimetric: Similar to Relative Colorimetric. It tries to reproduce the exact colors recorded in the original scene. The white point will not be corrected. It is normally to be used when the gamut of your image and your output device are nearly the same.