

Photomatix Pro 6



User Manual

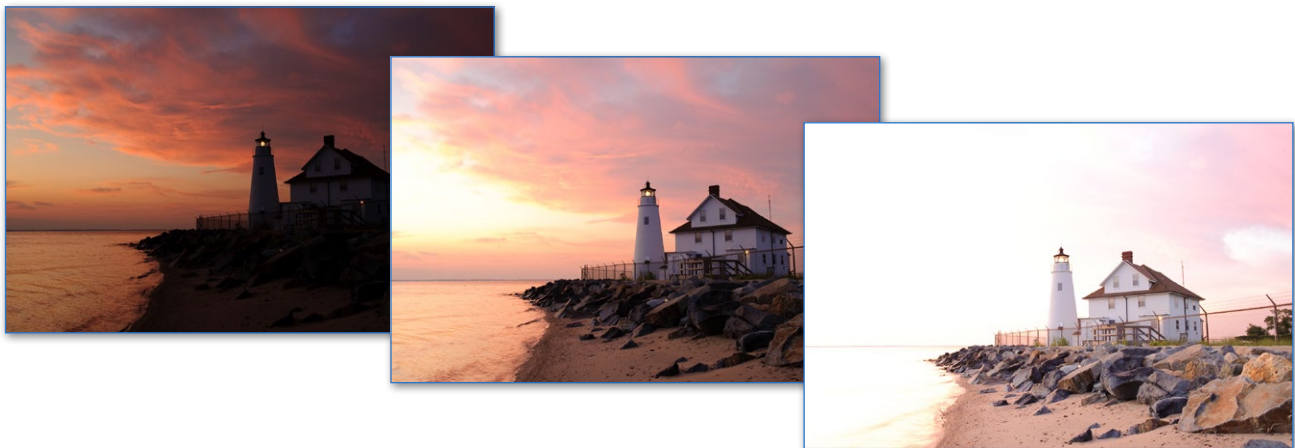
Table of Contents

	Introduction	1
1	Taking Photos for HDR	2
	1.1 Setting up the Camera	3
	1.2 Exposure.....	3
	1.2.1 Selecting Exposures	4
	1.2.2 Interiors with Bright Windows, and other High Contrast Scenes.....	4
	1.3 Using Film-Based Cameras.....	5
2	Loading and Pre-Processing Images	6
	2.1 Merging a Bracketed Photo Set	6
	2.1.1 Loading a Bracketed Photo Set.....	6
	2.1.2 Merge to HDR Options	8
	2.1.3 The Deghosting Options Window.....	10
	2.1.4 Using the Selective Deghosting Tool.....	11
	2.1.5 Using Automatic Deghosting.....	12
	2.1.6 Options for Raw Files	13
	2.2 Working with Single Image Files	14
	2.2.1 Options for Single Raw Image Files	14
3	HDR Rendering Images	15
	3.1 HDR Rendering Workflow.....	15
	3.1.1 Workflow Differences when using the Lightroom Plugin.....	16
	3.1.2 Save As dialog.....	16
	3.2 Image Adjustment Interface	17
	3.2.1 Preview.....	17
	3.3 Working with Presets	18
	3.3.1 Preset Thumbnails Panel.....	18
	3.3.2 Built-in Presets.....	18
	3.3.3 Custom Presets.....	18
	3.3.4 Saving Custom Presets	19
	3.3.5 Favorite Presets	19
	3.4 Color Adjustments	20
4	Brush Selection Tool.....	21
	4.1 Selective Adjustment Workflow	21
	4.1.1 Brush Strokes and Selections.....	21
	4.1.2 Adding Selective Adjustments, Removing Selective Adjustments.....	22
	4.1.3 Brush Tool Usage Example: Adjusting Color.....	22
	4.1.4 Brush Tool Usage Example: Blending Source Photos.....	23
	4.2 Brush Tool Palette.....	23
5	Finishing Touch.....	25
	5.1 Contrast and Sharpen.....	25
	5.2 Crop and Straighten.....	25
6	Automating with Batch Processing.....	26
	6.1 Batch Processing Bracketed Photos	26
	6.1.1 Using Batch Processing.....	26
	6.1.2 Custom Settings or Multiple Presets Window.....	27
	6.1.3 More Merge Options.....	28
	6.1.4 Batch Processing Subfolders	29
	6.1.5 Advanced Selection Options.....	29
	6.2 Batch Processing Single Images	30
7	Tips and Techniques	31
	7.1 Integrating Lightroom with Photomatix Pro.....	31
	7.2 Processing Raw files in Third-Party Raw Converters	31
	7.3 Dealing with Noise.....	32
	7.4 Photomatix Pro and Color Management.....	32
8	Appendix: Rendering Settings	33
	8.1 Color and Blending Settings	33
	8.2 HDR Settings - Details Enhancer.....	34
	8.3 HDR Settings - Contrast Optimizer	36
	8.4 HDR Settings - Tone Compressor.....	37
	8.5 HDR Settings - Tone Balancer.....	38
	8.6 HDR Settings - Fusion	39
	Glossary.....	41
	Getting More Information and Help.....	43

All sections above are clickable links. Click any page footer below, to return to this TOC.

Introduction

Photomatix Pro works with photographs of the same scene taken under different exposure settings. These differently exposed images of the same scene are often called “bracketed” images in reference to the auto-bracketing exposure functions available on many camera models. If you have not taken any bracketed photo sets, you can start using Photomatix Pro with the sample images available from the download page of the Photomatix Pro website – <http://www.hdrsoft.com>. Use the information in Section 1, **Taking Photos for HDR** to try Photomatix Pro with your own bracketed images.



Cove Point Lighthouse photo © Ferrell McCollough



This manual contains information about how to use Photomatix Pro to render images using different HDR Rendering methods. All of the methods are accessed from one window within the application, making it easy to try different settings to achieve the results you want. Refer to **Section 2, Loading and Pre-Processing Images** and **Section 3, HDR Rendering Images** for detailed information about the different settings that are available.

1 Taking Photos for HDR

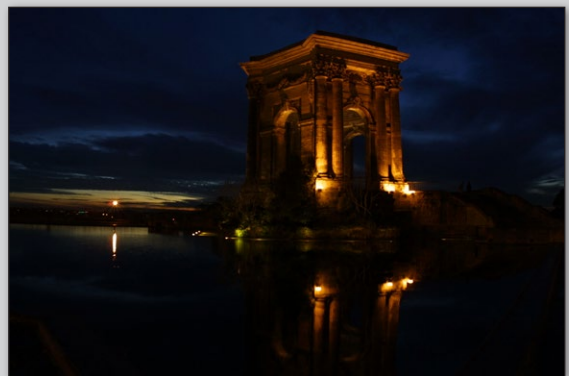
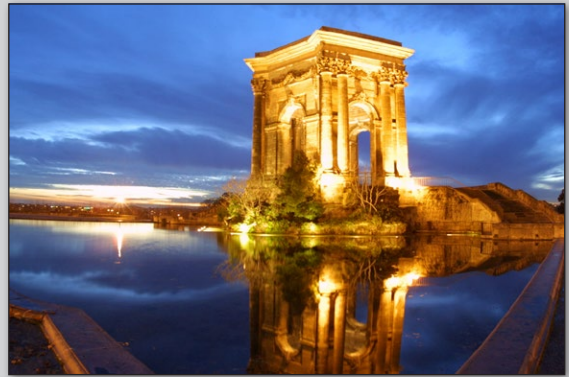
The shooting phase is essential for getting good results with Photomatix Pro. To photograph a high contrast scene, you need to take several exposures in order to capture information in both the highlights and the shadows of the scene. The exposures taken must properly cover the dynamic range of the scene, especially the shadows.

The number of photos you need depends on the scene. It also depends on the **Exposure Value (EV)** spacing separating the photos. If you take them in one-EV steps (e.g., -1, 0, +1 EV), you will need more photos than if you take them in two-EV steps (e.g., -2, 0, +2 EV). We recommend shooting in two-EV steps whenever possible.

High contrast scenes can be grouped into roughly two types depending on their dynamic range:

- **Medium dynamic range scene:** Most landscapes and other types of outdoor scenes fall into this category. Three exposures taken in two-EV steps (i.e. -2, 0 +2 EV), or five exposures taken in one-EV steps, are usually sufficient for this type of scene.
- **High dynamic range scene:** A typical example is the interior of a room with a view outside the window on a sunny day. You need to take at least five exposures in two-EV steps (or nine exposures in one-EV steps) to capture this type of scene, but you may need more.

The source photographs for HDR processing can be taken with digital or film-based cameras. The only requirement is that the exposure can be adjusted when taking pictures. If you use a film-based camera, you will need to scan the photographs into your computer before processing them (refer to **Section 1.3**).



Three exposures of a medium dynamic range scene, taken in two-EV steps

1.1 Setting up the Camera

- Set your camera to **Aperture priority** (the "A" setting) so that only shutter speed will vary between the exposures.
- Set a low ISO such as ISO 100, or lower if available.
- Turn off the flash. The flash may try to balance the exposure of all the images, when the goal instead is a range of exposures.
- A tripod is typically recommended, but is not required, as Photomatix Pro includes options to automatically align hand-held bracketed sets.

DSLR cameras and some compact digital cameras offer **Automatic Exposure Bracketing** (AEB). This enables you to automatically take three or more exposures in a row: one at the proper exposure, one or more underexposed, and one or more overexposed. Follow these steps if your camera offers AEB mode:

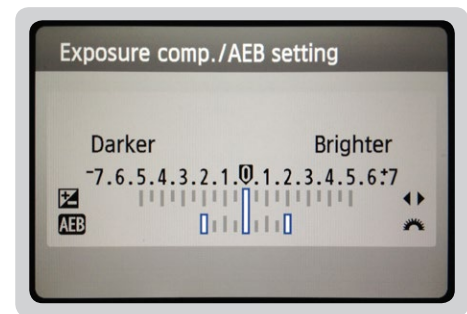
- Select the **Continuous shooting** mode on the camera's drive setting. Consult your camera manual for model-specific instructions for using this setting.
- Set the camera to **Auto Exposure Bracketing** (AEB).
- If possible, use the camera's self-timer setting, a cable release or a wireless shutter release to minimize camera shake.
- Set the exposure increment to ± 2 for optimal exposure range. If your camera does not offer ± 2 exposure increments, select the maximum possible. Consult the camera manual for model-specific instructions for choosing this setting.

1.2 Exposures

To get good results with HDR processing, your bracketed sequence must include photos that correctly expose highlights as well as photos that correctly expose shadows. The latter is especially important to prevent noise in the processed HDR image.

In the lightest photo of the sequence, the darkest shadow areas of the scene should be shifted at least into the mid-tones. To check this, use your camera's histogram preview in playback mode. In your most overexposed photo, the left part of the histogram should be empty until 1/3rd of the histogram's width. If this is not the case, add one or more photos taken with longer exposure times. Another option is to re-shoot the exposure sequence with the normal exposure set one or more EVs higher if your most underexposed image in the exposure sequence was too dark. This is the case when the histogram of your darkest image is completely empty on the right half.

The number of exposures needed depends on the dynamic range of the scene, in addition to the exposure increment. For most outdoor scenes, three exposures taken at ± 2 exposure increments is sufficient, provided the scene does not include the sun. However, for the interior of a room with a bright view out the window, you will need at least five images taken with an exposure increment of ± 2 , or nine images taken with an exposure increment of ± 1 .



Canon Rebel T2i/550D LCD showing AEB with ± 2 EV increments selected



AEB settings on a Nikon D7000 (3 frames, at ± 2 EV)



Note

The continuous shooting mode may not always be the best strategy, because camera shake may build up. It is recommended to use a method that ensures the least possible shake for each single shot, such as mirror lock-up functionality, if available.

1.2.1 Selecting Exposures

The number of exposures to shoot depends on the dynamic range in frame, the exposure difference between the darkest and brightest areas of the scene. Your brightest exposure must capture the darkest areas of the scene, and the darkest exposure must capture the brightest sections of the scene.

The total number of exposures also depends on the Exposure Value (EV) spacing between each exposure. If you shoot your exposures in 1 EV steps, you will need more exposures to capture the entire dynamic range of a scene than if you shoot them in 2 EV steps. We recommend shooting in 2 EV steps whenever possible.

A typical outdoor scenes will usually require 3 shots at 2 EV spacing (i.e. -2, 0, +2. Very high contrast scenes, such as a interior with a bright window in the frame, will typically require 5 frames, at 2 EV steps, and sometimes more.

A 2 EV spacing has several advantages compared to an 1 EV spacing. It requires fewer shots to span the dynamic range, and therefore reduces the risk of ghosting in non-static scenes. It also reduces storage needs and makes for faster processing in Photomatix. On the other hand, an 1 EV spacing -or lower- does have the advantage of better smoothing out noise when merging to an HDR image.

1.2.2 Interiors with Bright Windows, and other High Contrast Scenes

Capturing a particularly high contrast scene, such as a room interior which includes a bright window, requires more bracketed exposures. The key to getting a good result with such scenes is to take enough exposures to properly cover the dynamic range. In most cases, you will need at least five exposures, spaced 2 EVs apart. If you take fewer exposures, you may get washed-out highlights or noisy shadows due to "holes" in the coverage of the dynamic range.

To help determine the exposures required in scenes with extreme differences between the lightest and darkest details, you can use the HDR Exposure Calculator tool available in the "HDR Tutorial for real estate photographers" linked below.

When using Photomatix Pro to edit real estate photos, we recommend you display just the "Architecture" category (using the presets filter menu, above the thumbnails list on the right). The presets with "Interior" in their name are optimized for room interiors with bright windows, and provide a good starting point when working with high contrast scenes in general. The presets "Interior" and "Interior 2", are particularly good at keeping a balanced and "photorealistic" look, while still preserving highlights. For real estate interiors in particular, please refer to these real estate shooting [tips](#).

The steps listed below apply to any scene with very high contrast. If you are taking real estate interiors with bright windows, see more specific instructions in the [HDR tutorial for real estate photographers](#).

These steps listed below apply to any scene with very high contrast:

1. Set the ISO below 400.
2. Set your camera to Aperture priority, and set the aperture for the scene, based on the depth of field you are trying to achieve or other considerations.
3. Set your camera to Auto Exposure Bracketing (AEB). If you are not familiar with the AEB functionality of your camera, see the [Automatic Exposure Bracketing Setup page](#) or consult your camera's manual..
4. Using the AEB option, set the EV spacing to +/- 2 EV if your camera supports it, otherwise to the highest EV spacing it supports.
5. Switch your camera's to spot metering mode. Aim the camera at the darkest area of the scene and adjust the shutter speed until your camera indicates a correct exposure. This will be the shutter speed for your most overexposed photo.

6. Aim the camera at the brightest area of the scene and adjust the shutter speed until your camera indicates a correct exposure. This will be the shutter speed for your most underexposed photo.
7. [Optional]: To check the shutter speeds you just measured, it is a good idea to take a photo for each meter reading and look at the camera's histogram. If the histogram graph touches the left side, this indicates that there is lost shadow information. If the graph touches the right side, this indicates burned out highlights.
8. Using this [HDR Exposure Calculator](#) enter the shutter speeds you measured in Steps 5 and 6.
9. Switch the camera to Manual mode and Set the Shutter Speed determined by the HDR Exposure Calculator for the first bracketed set.
10. Select the Continuous Shooting mode on the camera and release the shutter to take the first set of bracketed photos.
11. Take the other photos or bracketed photos determined by the HDR Exposure Calculator, if any. Note that you will need to use a tripod if you cannot cover the range with just one bracketed set.

1.3 Using Film-Based Cameras

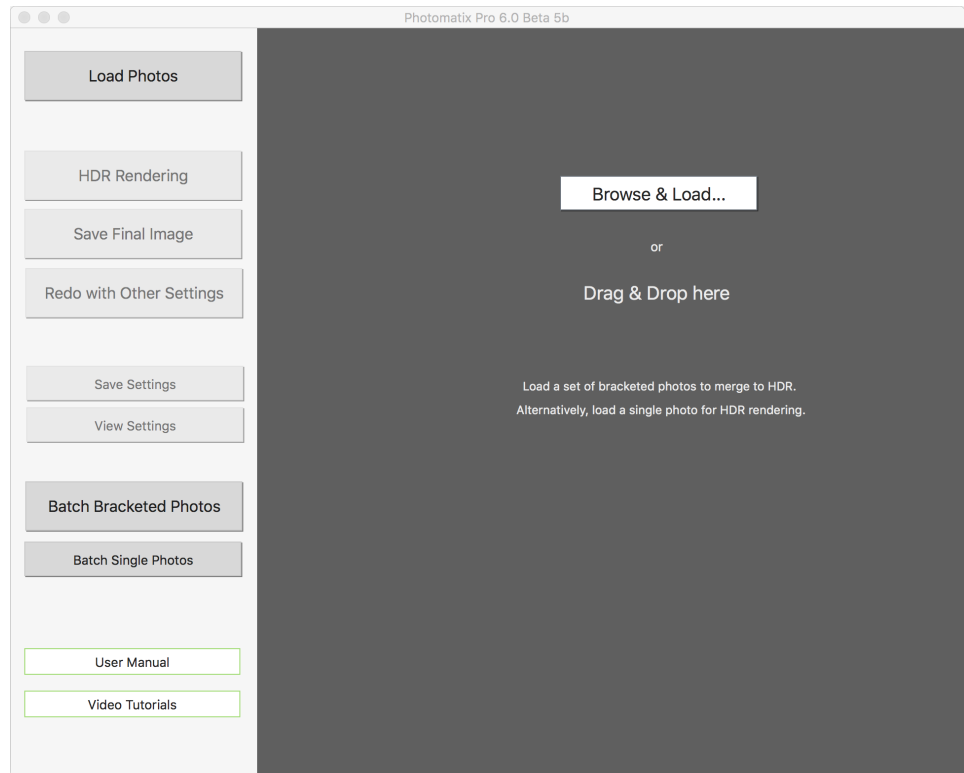
- Follow the camera setup listed at the top of **Section 1.1** and the tips on selecting exposures in **Sections 1.2** and **1.2.1**. Keep in mind that you will not have the option of previewing the live histogram to determine your exposure range.
- Scan film or slides, not prints. Photo labs attempt to make the best print from each of your source images, and you will not achieve good results scanning these for HDR generation.
- Turn off your scanner's auto-exposure options. This allows you to manually control the exposure.
- Make sure you select the **Align images** option in Photomatix Pro when combining your images.

2 Loading and Merging Photos

This section describes how to load and merge **bracketed image files** of a scene taken under different exposure settings, as well as how to load single images into Photomatix Pro. See Section 2.2 regarding how to load a **single image file** for HDR rendering.

Photomatix Pro works with bracketed images that are in 8-bit or 16-bit/channel mode, as well as Camera Raw files.

Supported file types include JPEG, TIFF, PSD, DNG, and Raw files from many camera models. Photomatix Pro is updated frequently to add support for Raw files of new camera models. You can check whether a new update of Photomatix Pro is available by choosing "**Check for updates...**" from the Help menu (Windows) or Photomatix Pro menu (Mac).



Drag and drop images here, or load images using a standard dialog

2.1 Merging a Bracketed Photo Set

2.1.1 Loading a Bracketed Photo Set

To load bracketed image files, do one of the following:

- **Drag and drop** the files onto the Photomatix Pro app (the screen shot, shown above), or onto the app icon.
 - Click on the **Browse & Load** button in the above window, which opens at start up. The **Open** file dialog then appears, allowing you to select an image file set to process.
1. Select image files to load, using one of the following methods:
 - Click the first file, then press and hold the **Command [Mac]** or **Ctrl [PC]** key. While still holding down the Command/Ctrl key, click each of the other files you wish to select.



Note

The term "**bracketed images**" refers to a sequence of images of the same scene taken under different exposure settings. A bracketed image set can be produced using a camera's **Automatic Exposure Bracketing (AEB)** function, if available. Without AEB any camera can still be used to produce a bracketed set, manually.



Note

Drag and drop all image files for a given bracketed exposure sequence all at the same time, so that they will be properly processed and merged.



Note

If you have Lightroom, you can use the **Photomatix Plug-in for Lightroom** to load images into Photomatix Pro. Refer to **Section 7** for more information.

- Click the first file, then press and hold the **Shift key**. While still holding the Shift key down, click the last file. This will select all the files in between the first and last file.

- Click **Load**, and the selected image files will be loaded into the **Selected Photos** window.

The Selected Photos Window

Before merging your bracketed set into a single image file, review the thumbnails and deselect any photos you may wish to not include in the merge (for example, a duplicate photo).

Click **Next: Choose Merge Options**, if your bracketed set is complete and correct.

Entering Missing Exposure Values

If exposure information cannot be located in the metadata of the image files, or if there are any duplicate EV values, the Selected Photos dialog will display estimated relative **Exposure Values**.

If the estimated Exposure Values are incorrect, you can either click on and edit each one of them individually, or set global EV Spacing for the bracketed set.

Click **Next: Choose Merge Options**, once you've set the missing Exposure Values.

Merge options are covered next, in section 2.1.2

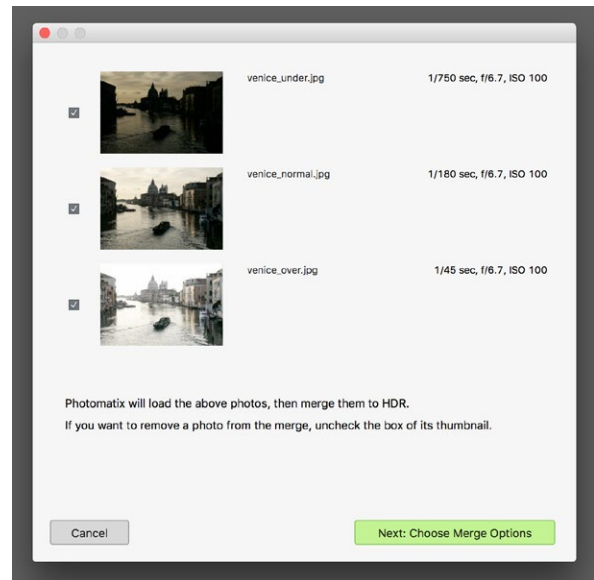
Single Image Files

Please refer to Section 2.2, which describes options for loading a single image for HDR rendering.

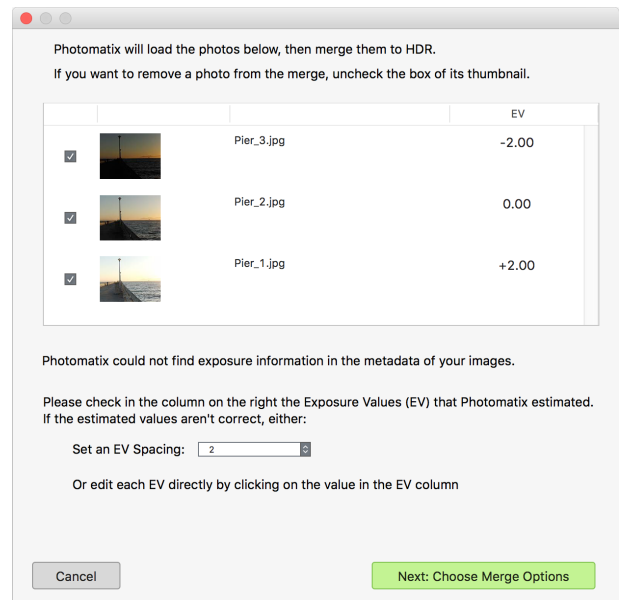


Note

The order of the files in a bracketing sequence does not matter. Photomatix Pro automatically sorts the images based on the exposure information in the image files' EXIF metadata. If exposure information is not available in the EXIF data, Photomatix Pro sorts the images by evaluating the relative brightness of the photos.



Selected photos, ready to "Choose Merge Options"



Set or adjust missing exposure settings

2.1.2 Merge to HDR Options

After the bracketed photos are selected, you can customize the steps performed before merging the images, such as aligning the images or removing "ghosts".

- Refer to the following 2 pages for a description of the **options for merging a bracketed photo set**.
- Section 2.2 describes **options for loading a single image** for HDR rendering.

Alignment Options

The **Align source images** option is checked by default. It corrects misalignment problems when the camera moves slightly between the bracketed frames. Handheld bracketed sets have camera movement between frames, but even bracketed sets shot on a tripod can have some slight camera movement between frames as well, as can be caused by wind, for example.

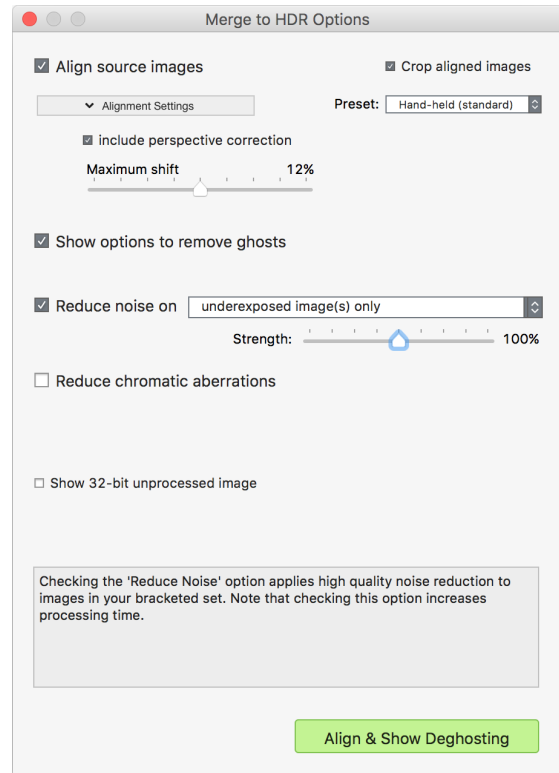
The **Crop aligned images** option removes unneeded borders resulting from alignment adjustments. Without this, the merged image will have white areas around the edges. You should disable this option when you need the resulting image to have exactly the same width and height as the source images.

You can customize alignment settings depending on how the given bracketed set was taken:

- **Include perspective correction:** This alignment option corrects for all types of camera movement, including rotation in all three dimensions, as well as horizontal, vertical, forward, and backward motion.
- **Maximum shift:** Sets the maximum amount of camera movement between photos that the alignment will try to correct for, expressed as a percentage of the image size. Larger values increase the time required for alignment, but may be necessary when hand-held shots are taken when it is windy, or when using a long zoom lens.

The alignment **Preset** drop-down menu lets you select pre-defined alignment settings that are appropriate for particular shooting situations. The four presets offered are *On Tripod*, *Hand-held (minimal movement)*, *Hand-held (standard)* and *Hand-held (large shifts)*.

If you took the photos hand-held, the default preset, *Hand-held (standard)*, is suitable in most cases. The *Hand-held (minimal movement)* preset is appropriate when the camera barely moved between the bracketed shots, and has the advantage of being faster. The *Hand-held (large shifts)* preset is for photos taken in conditions where significant camera movements are difficult to avoid. If you choose *Hand-held (large shifts)*, a more extensive alignment search will be done, though at the expense of longer processing times.



Selecting options to merge to HDR



Note

The **Align source images** option should not be checked when your source images are stitched panoramas or when they are "fake exposures" derived from a single Raw file.

Deghosting Options

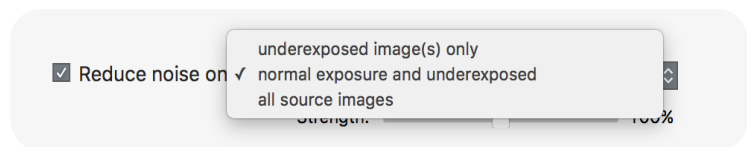
Deghosting addresses the problem of artifacts that appear when combining the bracketed images of a dynamic scene. For example, if the moving subjects are people walking, the people will appear multiple times in the combined image, once for each frame, faded and in a different position as if they were “ghosts”. This is why artifacts that arise from movement in a scene are commonly referred to as “ghosting” and the techniques to eliminate them are referred to as “deghosting”.

Show options to remove ghosts enables the **Deghosting Options** window, which will then open after you select your merge to HDR options, and then click the **Align & Show Deghosting** button. The Deghosting Options window provides an adjustable image-wide **Automatic Deghosting** algorithm and, for more control over deghosting, a manually applied **Selective Deghosting Tool**. Refer to section 2.1.3 for details on this window.

Noise Reduction Options

The **Reduce noise on** option processes source photos with a high-quality noise reduction algorithm, and is recommended when processing Raw files directly in Photomatix Pro.

Noise reduction is typically most helpful in dark areas of the source images, and these dark areas are more prevalent in the underexposed and, sometimes, in the normally exposed frames. With this in mind, you can use the **Reduce noise on** menu to specify that noise reduction be applied only to the darkest images in the bracketed set, to the normal and the darker images, or to all the images in the set.



Noise reduction options

Strength increases or decreases noise reduction strength relative to the automatically determined default strength value, which is based on the noise level in the image. Values range from 50% to 150%.

Reduce Chromatic Aberrations

The **Reduce Chromatic Aberrations** option automatically corrects color fringing due to chromatic aberrations of the lens. Checking this option is recommended, given that chromatic aberrations tend to show around high contrast edges, and are particularly an issue for HDR images.

Show 32-bit Unprocessed Image

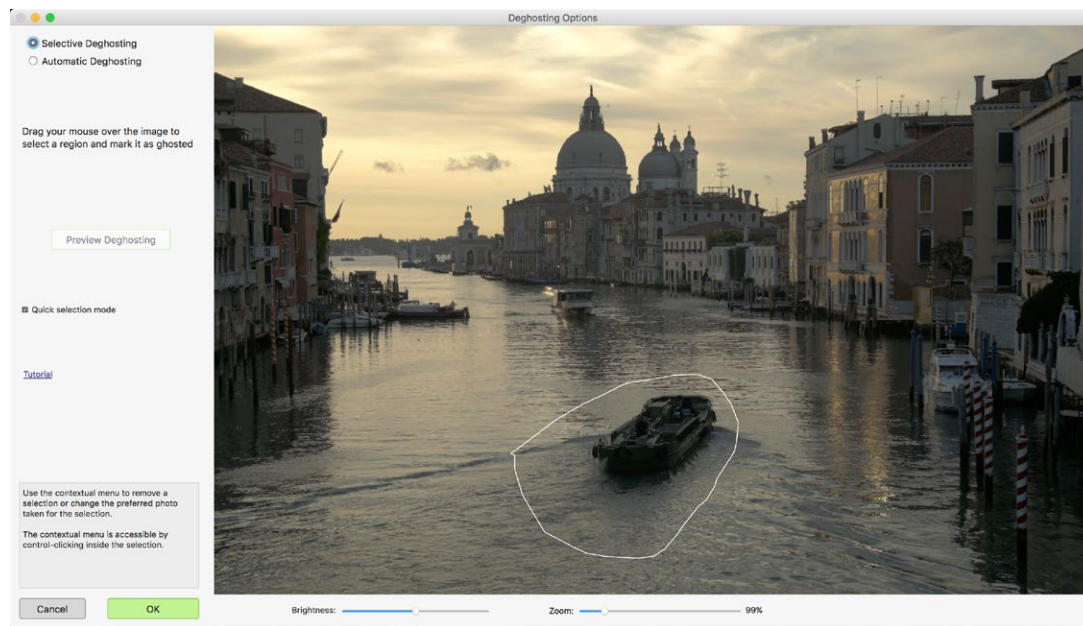
This option opens the merged, but not yet processed, bracketed image set in a viewing window. This allows you to save the merged-but-unprocessed file in an HDR image file format such as **Radiance** or **OpenEXR**. Saving the 32-bit unprocessed merged image is useful when you want to be able to process the image with other settings later without having to load and merge your bracketed photos again. However, you will still need to load and merge the original photos again if you want to use Exposure Fusion.



Note

If you check **Show 32-bit unprocessed image**, when the unprocessed image is displayed you will have to click the **HDR Rendering** button, in the Workflow Shortcuts window, to continue to the next step.

2.1.3 The Deghosting Options Window



The Deghosting Options window

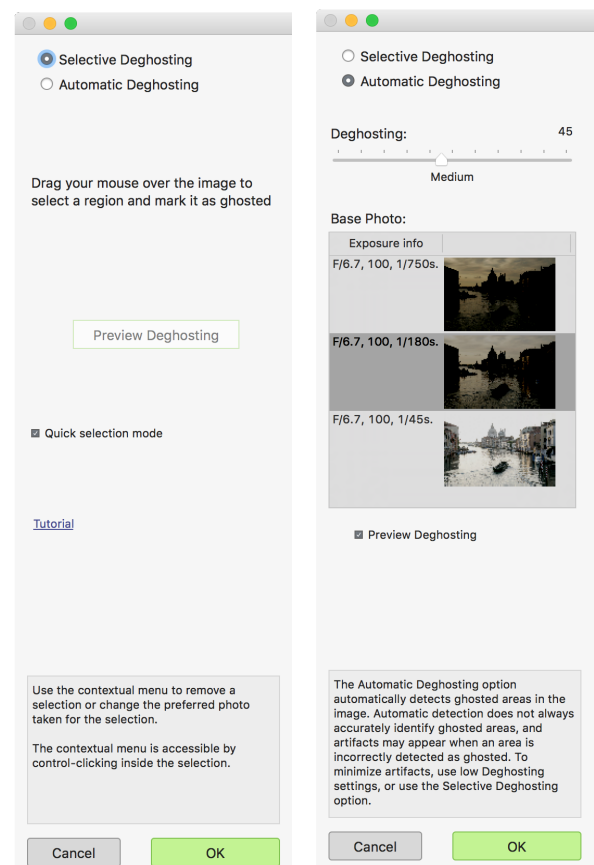
Select **Show options to remove ghosts** in the Preprocessing Options window, to subsequently access the Deghosting Options window.

The Deghosting Options window provides two deghosting methods:

- A manually applied **Selective Deghosting Tool**
- An adjustable **Automatic Deghosting** algorithm.

The **Selective Deghosting Tool** enables you to lasso-select the specific areas of the image that require processing to remove ghosting caused by image to image movement of elements in the scene. Photomatix Pro uses the single image that it deems best exposed for each selected area's brightness, as the default deghosting target image. You may change the automatically selected deghosting target image to any other image of your choice using the tool.

Automatic Deghosting processes the entire image with an automated ghost reduction algorithm. It is useful for scenes with many small changes image to image, which are not practical to lasso manually. This deghosting method has the disadvantage of potentially degrading image quality, depending upon the nature of the scene, the type of ghosting, the number of source frames, and other factors. When applying Automatic Deghosting, use the lowest setting that successfully deghosts the image.



Two Deghosting methods: Selective, Automatic

2.1.4 Using the Selective Deghosting Tool

To use the Selective Deghosting tool, click and drag the mouse to draw a lasso around a region that requires deghosting. Ensure that the dashed line forms a fully closed loop.

Right-click (Windows) or control-click (Mac) inside the selected region and select **Mark selection as ghosted area** from the pop-up menu. The line around the selected area changes from dashed to solid, to indicate that the area is now selected for deghosting. You may make additional deghosting selections, following these same steps, to mark other image areas for deghosting.

At any time, use the **Brightness** slider to increase or decrease the brightness of the image. Or, use the Zoom slider to zoom in and out.

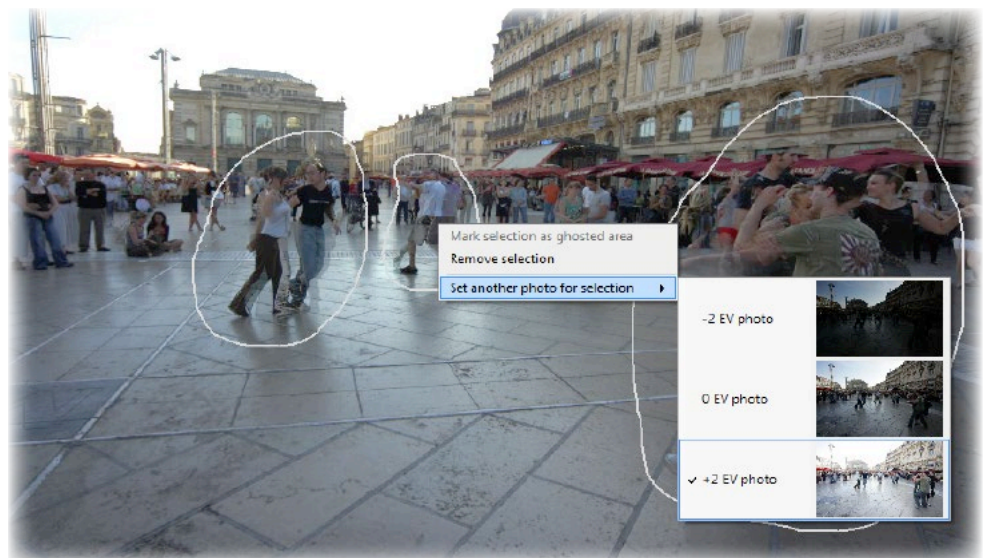
If necessary, you can remove a region from the deghosting selection. Control click or right click inside an already marked region and click **Remove selection** from the pop-up menu.

You may also change the image used as the deghosting target. Control-click or right-click inside an already marked region and click **Set another photo for selection** from the pop-up menu. The tool displays a pop-up menu with a list of the available exposures. Select an exposure value from the list.

The photo that the tool automatically sets for the selection is not always the most appropriate exposure choice. It is thus a good idea to check whether changing to another photo produces a better deghosting result.



A dotted selection being marked for deghosting



Right-clicking a marked selection, to choose a different replacement photo

To view a preview of the deghosted image, click **Preview deghosting**. To make more selections or modify existing regions selected for deghosting, click **Return to selection mode**. You may continue selecting regions of the image and previewing the results until you are satisfied with the results.

In **Quick Selection Mode**, every completed selection lasso will automatically be converted into a deghosting selection, without the need to individually "**Mark selection as ghosted area**".

2.1.5 Using Automatic Deghosting

The **Automatic Deghosting** option automatically detects ghosted areas in the image. The deghosting slider sets the "aggressiveness" of ghosting detection.

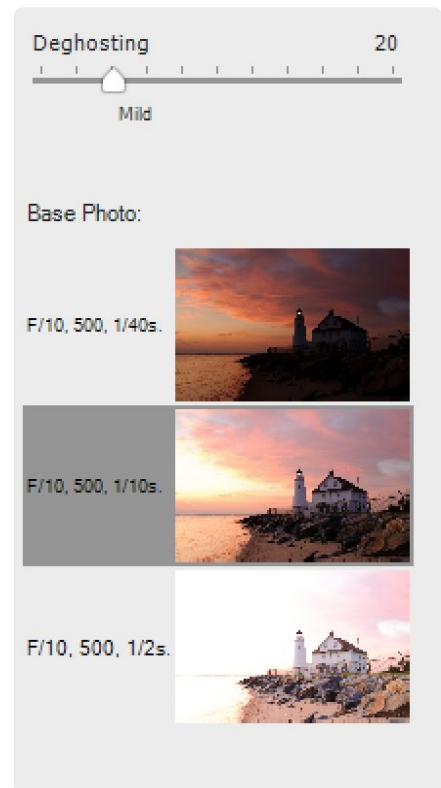
Aggressive Deghosting setting removes more ghosting artifacts, but increases the possibility and severity of unwanted artifacts. Use a setting as low as possible, to maximize the quality of the merged HDR image.

If you need high settings to remove ghosts completely, it is recommended that you use the manually applied **Selective Deghosting Tool** instead, if possible.

When automatic deghosting is used, one of the source photos is used to create the HDR image in areas detected as ghosted. The **Base Photo** is the one selected to do this. By default this is the median exposure, but you can select one of the other photos instead by clicking on its thumbnail.

After using the **Selective Deghosting Tool**, or applying **Automatic Deghosting**, click **OK** to apply the deghosting adjustments to the image, or click **Cancel** to stop merging the images.

If you wish to continue working with the current bracketed set without deghosting applied, then set the **Automatic Deghosting** amount to "0", or make no **Selective Deghosting Tool** selections, and simply click **OK** to proceed.



Automatic Deghosting tools



Note

Deghosting works with all HDR rendering methods (**Details Enhancer**, **Contrast Optimizer**, **Tone Balancer** and **Tone Compressor**) and with the **Fusion/Natural** method. Deghosting however is not applicable to any of the other Exposure Fusion methods.

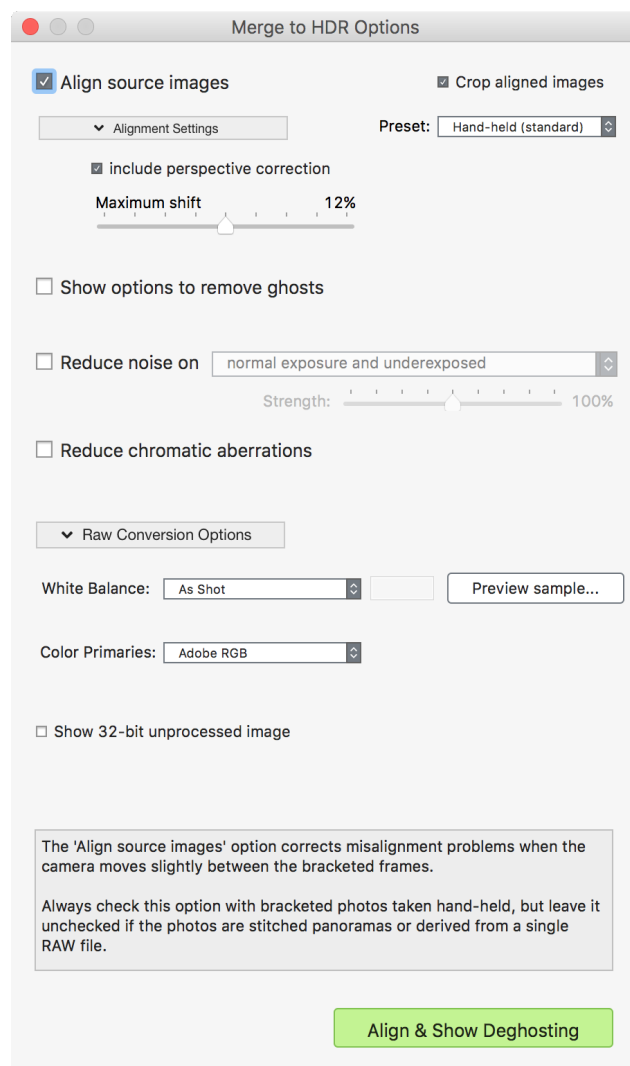
2.1.6 Options for Raw Files

Photomatix Pro offers additional pre-processing options for Raw files. These options are automatically available when Raw files are loaded.

The **White Balance** option lets you change the white balance if desired, and preview the effect of changing it. The default value is "As Shot", which reads the white balance setting from the EXIF metadata. To adjust the white balance, either select a pre-defined value from the White Balance drop-down list, or type a color temperature value in Kelvin in the text box.

Click **Preview Sample** to view the effect of the white balance change on the source image.

The **Color Primaries** drop-down list provides options for converting the Raw data from the camera's native color space to the display profile of the selected value. Adobe RGB is the default value, and is appropriate when you want to print the resulting image. If you would like to display the resulting image only on the web and do not intend to print it, then select sRGB to avoid having to convert the image from Adobe RGB to sRGB.



Merge to HDR Options window for Raw files

2.2 Working with Single Image Files

Photomatix Pro supports HDR Rendering with single image files. To load a single image file:

1. **Drag and drop** the file onto the Photomatix Pro app, or onto the app icon.
Or, click on the **Browse** button of the window that shows at start up.
2. A file browser window displays.
Navigate to the file and open it.
3. To process the image, click **Next: HDR Rendering**.



Note

HDR rendering using the **Details Enhancer** method makes any noise present in the image much more visible, so it is a good idea to use noise reduction when merging photos for use with that HDR rendering method.

2.2.1 Options for Single Raw Image Files

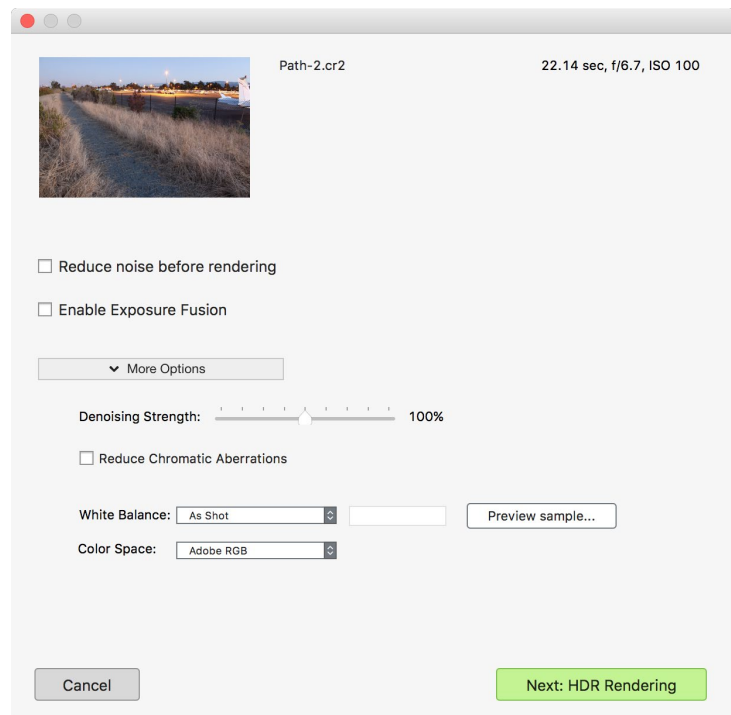
When your single image is a Raw file, Photomatix must first convert the Raw data. The following options are available for pre-processing the Raw data.

The **Reduce noise before rendering** option processes the converted Raw file with a high-quality noise reduction algorithm. It is checked by default as reducing noise is always recommended when processing Raw files. The Strength slider lets you increase or decrease the strength of the noise reduction relative to the automatically determined value based on the noise level in the image. Values range from 50% to 150%.

Enable Exposure Fusion allows a single image to be processed using Fusion methods. Normally, Fusion methods only apply to multiple image sets. This option will split the single Raw file into darker and lighter images, which can then be rendered using Exposure Fusion-based presets, such as the '*Natural*' preset, for instance.

The **Reduce chromatic aberrations** option automatically corrects color fringing due to lens chromatic aberrations.

The **White Balance** options let you change the white balance, if desired, and preview the effect of changing it. The default value is "As Shot", which reads the white balance from the EXIF metadata. To adjust the white balance, select an item from the White Balance drop-down list or type a color temperature in Kelvin in the text box.



Raw Processing Options

Click **Preview sample** to view the effect of the white balance change on the source image.

The **Color Space** drop-down list provides options for converting the Raw data from the camera's native color space to the display profile of the selected value. **Adobe RGB** is the default value and is appropriate when you want to print the resulting image. Select **sRGB** for web-only images, to avoid having to convert the image from **Adobe RGB** to **sRGB**.

3 HDR Rendering Images

The heart of Photomatix Pro is where you adjust the image with various HDR Rendering methods. The image adjustment interface has three main sections:

Adjustments Panel on the left, **Preview** in the middle, **Presets Panel** on the right.

3.1 HDR Rendering Workflow

After you have merged your source images (or opened a single image file), the main workflow steps are:

1. Choose a Style for Your Image

Choose a style by selecting a thumbnail in the **Presets Panel**, either a built-in preset delivered with Photomatix Pro, or a custom preset that you previously created.

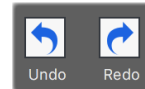
See **Section 3.3** for details on working with presets.

2. Refine the Effect

You can refine the effect of the Preset using the controls in the **HDR Settings** and **Color Settings** sections (see descriptions of each setting in **Section 8: Settings**). You can also selectively assign settings to specific parts of your image, using the Brush Tool (see **Section 4: Brush Selection Tool**).



Note



To undo or redo your adjustment steps, click the **undo / redo arrows** in the Adjustments panel. For multiple undo or redo steps, click multiple times.

3. Apply the Adjustments

When you are satisfied with the preview result, click on the **Next: Finish** button at the bottom of the Adjustments panel. This will apply the selected preset and settings adjustments to the image, at its original resolution.

4. Add Finishing Touches

Before saving the image, you can use the options on the **Finishing Touch** palette in order to increase the Contrast of your image, Sharpen it, Crop it or Straighten it.

5. Save the Image

Choose **File > Save As** to save the image.

Refer to section 3.1.2 on the following page for information on the **Save As** dialog.

6. [Optional] Try Other Adjustments

You can try other adjustment on the same image, without having to load and merge the photos again:

- Selecting **Redo With Other Settings** in the Workflow Shortcuts panel allows you to start fresh with the current image, and apply another preset or settings.
- Selecting **Double HDR Rendering** allows you to add additional effects, using your already-rendered image as the starting point.



Note

The settings you selected are automatically embedded in the saved rendered image. To view the settings, click **View Settings** from the Workflow Shortcuts panel.



Note

Presets from **Fusion** rendering methods (e.g. the **"Natural"** preset) are only available when you have loaded bracketed photos. If you loaded a single Raw file, however, you can still use Fusion presets if you select **"Enable Exposure Fusion"**.

3.1.1 Workflow Differences when using the Lightroom Plugin

If you are using the **Export to Photomatix Pro** Plugin for Lightroom, and have checked the option to **Automatically re-import into Lightroom library**, the rendering workflow described above stops at **step 4**. Additionally, the button that returns the rendered image to Lightroom will be named **Reimport & Save** instead of **Done**.



Note

By default, the file name of the rendered image is suffixed by either the name of the Preset you selected or the name of the method used when you adjusted the image with custom settings. You can change this rule or set your own suffix under the **Files** tab of the **Preferences** panel.

3.1.2 Save As Dialog

To save your image, choose **File > Save As**, navigate to the folder where you want to save the image, and use the default file name or enter a new name in the **File name** field. Then, select a file type among the three offered.

JPEG is best if you want to go straight to the Web with no further processing.

TIFF 16-bit offers the highest quality output and is the best format if you plan on processing the image further in an image editor.

If you would like to automatically reimport the saved image into another photo or image application, check **Open Saved Images with** and select an application from the drop-down list. If the desired photo application is not on the list, click **Add application...**, navigate to the folder that contains the application, and select it.

If you would like to save your image at a specific pixel size/resolution, use the **Save with Size** option. There are various standard image export size options.

3.2 Image Adjustment Interface

Image Adjustment Interface Overview

The image adjustment interface consists of three main sections:

The setting **Adjustments Panel**, the image **Preview**, and the thumbnail **Presets Panel**.

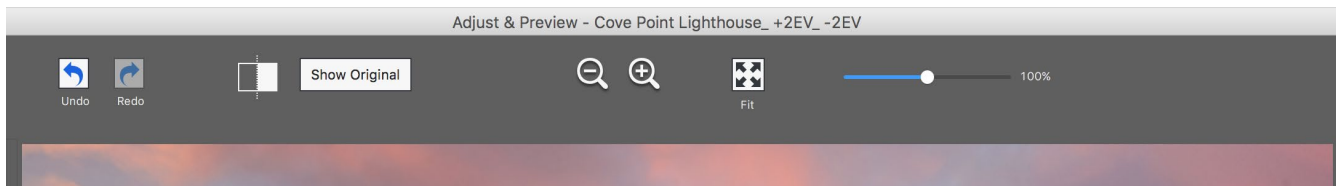


Image adjustment Preview panel controls

3.2.1 Preview

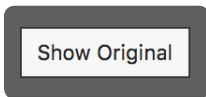
The **Preview** displays the image rendered with your current Preset and settings, and is updated immediately after a Preset or setting has been changed. The Preview panel provides the following controls.



Undo / Redo: Undo allows you to step backwards through your most recent adjustments, removing them one by one. You can Redo any Undo steps, if you wish to keep your recent adjustments after all.



Split View: Clicking the Split View button temporarily removes the HDR rendered preview from the left half of the image. This allows you to compare your original unprocessed image to the **rendered image**. To return to adjusting your image, click the Split View button a 2nd time.



Show Original/Show Preview: Toggles between a preview of the image and the “normal” exposure (0EV) of the set. This is helpful for evaluating your current effect settings.



Magnify icons +/-: Increases or decreases image preview size by 20%, and re-renders it at the new size.



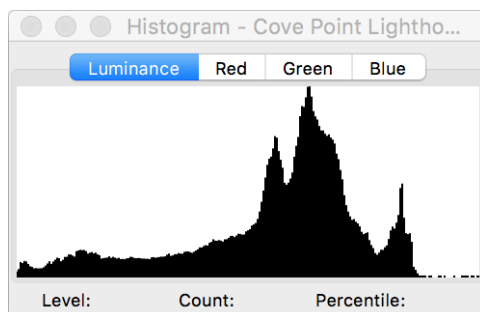
Fit: Resizes the preview to fill the available space in the Preview panel.



Scaling Slider: Zooms in or out the refreshed preview from 50% to 150%. The preview is not re-rendered but is simply scaled. When **Fit** or one of the **Magnify** icons is clicked, the Preview is not simply scaled but is re-rendered, and the **Zoom Slider** is reset to 100%

Histogram: This floating window contains four tabbed histograms: **Luminance**, **Red**, **Green**, and **Blue**.

In addition, you can move the mouse back and forth across the histogram to display **Level**, **Count**, and **Percentile** information. If the histogram is turned off, enable it by selecting **8-bit Histogram** from the View menu.



8-bit Histogram



Important Note

The **Loupe** may not properly show the effect of some settings, especially **Details Enhancer's Micro-smoothing** setting, when the area magnified is uniform. If you want to see the effect of the Micro-smoothing setting at 100% resolution on a uniform area such as the sky, you will have to select an area that contains an object in the scene in addition to the sky.

3.3 Working with Presets

3.3.1 Preset Thumbnails Panel

The **Presets** panel lists the available presets, showing a thumbnail preview of the effect of that preset. When you click on a preset thumbnail, the Preview image is refreshed to show the result of rendering with the settings of that preset.

By default, the panel displays one column of small thumbnails. Click on the "+" icon on the top of the panel to enlarge the thumbnails. Click on the icon on the top right of the panel to display the thumbnails in two columns.

There are two types of presets, "**Built-in**" factory presets, and "**My Presets**". "My Presets" are your customized presets – presets that you have carefully refined to match your tastes and your images – as well as presets that you have collected from other Photomatix users.

3.3.2 Built-in Presets

Built-in or "factory" presets are those provided with the software. Photomatix Pro offers 41 built-in presets when you are working with bracketed photo sets, and 34 built-in presets for when you are working with single photo files.

The drop-down list at the top of the **Presets** panel lets you filter presets by categories. There are four categories of built-in presets which correspond to effect styles (*Artistic*, *Realistic*, *Architecture* and *Black & White*) and four categories which correspond to rendering methods (*Details Enhancer*, *Contrast Optimizer*, *Tone Balancer*, *Tone Compressor* and *Fusion*).

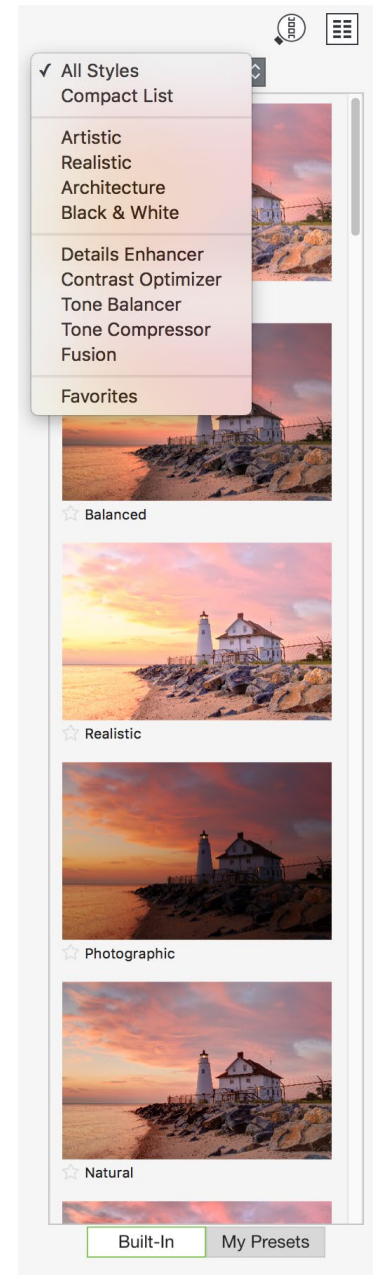
The **Compact List** item displays a selected subset of presets from all categories. The **Favorites** item displays only presets you have marked as favorite. See more details on Favorite presets at the end of this section.

3.3.3 Custom Presets

Custom presets are presets that you saved while adjusting your images, or presets created by other Photomatix users that you have imported.

To access custom presets, click on the **My Presets** tab located at the bottom of the **Preset Thumbnails** panel. To create your own custom presets, refer to the **Saving Custom Presets** paragraph below.

You can also import custom presets created by other Photomatix users which you have downloaded to your computer as XMP files. To import these presets, select the **Import Presets...** item in the pop-up menu on the top left of the Preset Thumbnails panel, and browse to the location on your computer where you downloaded the XMP preset files.



Preset panel, All Styles
Single column, large thumbs



Note

If you save the preset in the default location (which is the Presets folder of the Photomatix Pro application), the preset is automatically added to the Presets combo-box list, and also shows in the **My Presets** tab of the thumbnail **Presets Panel**.

3.3.4 Saving Custom Presets

There are two ways to save custom presets as an XMP file for future use: during the image adjustment phase, or after HDR Rendering is complete. To save custom presets during image adjustment:

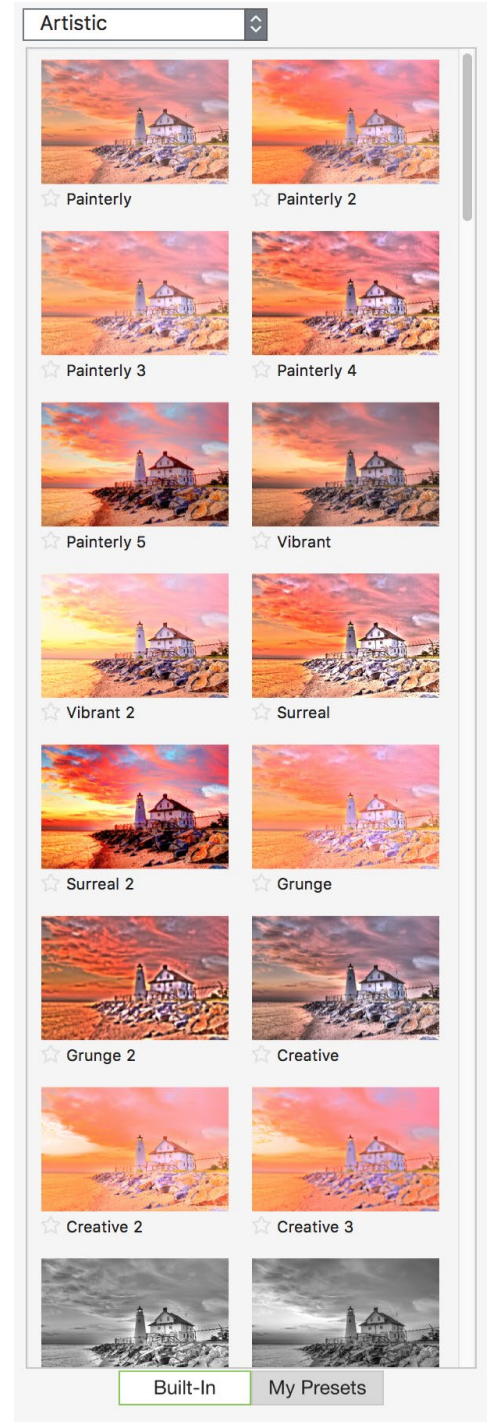
1. In the Adjustments panel, at the left side of the Preview window, click the **Presets** drop-down list.
2. Select **Save Preset** from the list.
3. Enter a name for the preset in the File name field and click **Save**.

To save the selected settings as a preset after you have already applied the settings or saved the image:

1. Click **Save Preset** from the Workflow Shortcuts panel or select **Save Preset** from the File menu. A dialog prompts for the file name.
2. Enter the file name and click **OK**.

3.3.5 Favorite Presets

You can mark presets as favorites, so that you can then filter the preset list to see just those favorites. To mark a preset as a favorite, click on the grey star icon on the left of the preset's name. The star turns yellow, indicating a "favorited" preset. You can un-favorite a preset by clicking again on its yellow star.



Artistic Style Presets
Two columns, small thumbs

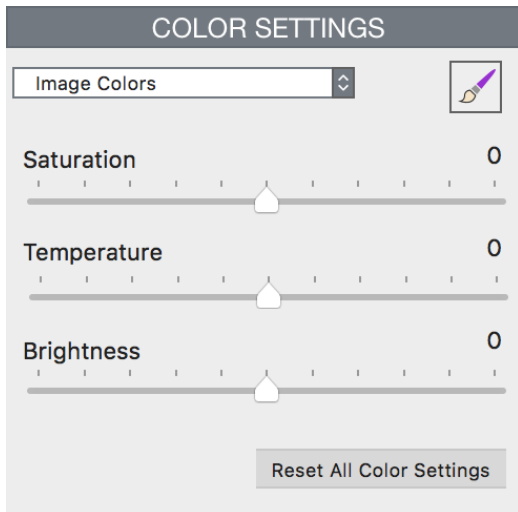
3.4 Color Adjustments

The **Color Settings** section is identical for all HDR rendering methods. It consists of a **Saturation** and **Brightness** setting, as well as a **Hue / Temperature** setting.

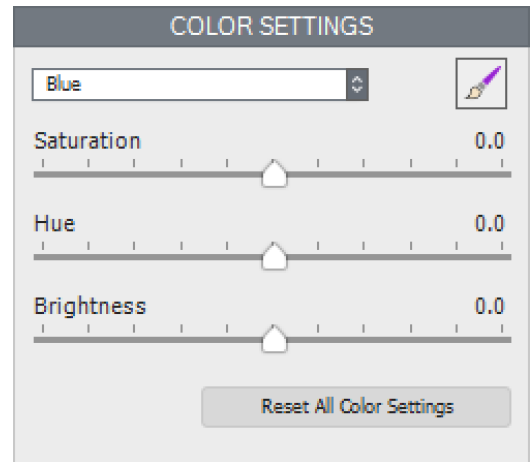
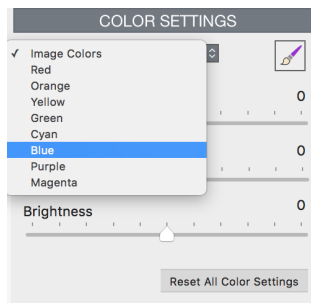
When adjusting an individual image color, the **Hue** setting is available. The Hue setting allows you to push a given color towards either of its neighboring colors in the spectrum. For example, Orange tones can be pushed towards either Yellow or Red. When you are not constraining your color adjustment to a single image color, and you are adjusting overall color instead, the **Temperature** setting is available. Temperature controls the overall **warmth** or **coolness** of your image.

Constrain your color adjustments to a specific image color, by making a selection in the **Color Settings** menu. Or leave the default **Image Colors** setting, which applies your adjustments to all colors. Selecting **Red** can target your adjustments to just a single red rose, in a bouquet of differently colored flowers. Selecting **Green** can target your adjustments to a patch of vegetation. Selecting **Cyan** or **Blue** can constrain your adjustments to the sky, for example, depending on the hue of that specific sky.

As described next, in the **Brush Selection Tool** section, you can not only constrain your color adjustments to specific **colors** in an image. You can also constrain them to specific **sections** of an image. This allows you to have multiple selections which adjust the same image color, but in different ways: *"This green area should be more saturated... This other green area should be darkened..."*



Adjusting all color in the image



Adjusting only the blue shades and hues

4 Brush Selection Tool

The **Brush Selection Tool** lets you make precise *selections* within an image, to which you can then make two types of *selective adjustments*:

1. **Color adjustments** to change color saturation, hue, temperature, and brightness attributes of the part of the image you have selected.
2. **Blending adjustments** to blend the selected part of your image with your original photo, or with one of your other source images, if you are working with a bracketed photo set.

Section 4.1 describes how to use the Brush Selection tool to make selections to apply color and blending adjustments.

4.1 Selective Adjustment Workflow

Selective Adjustment mode begins when you click the Brush icon, in either the Color Setting section or the Blending section. The **Brush Tool Palette** window will then open.

While open, only the settings in the section from which you opened the Brush Tool remain enabled. Among the preview controls, only the **Zoom Slider** and **Show/Hide Original** button remain accessible.

The Color or Blending *adjustments* that are applied while you are in **Selective Adjustment** mode, are limited to those areas of your image where you have made one or more **Brush Strokes**.

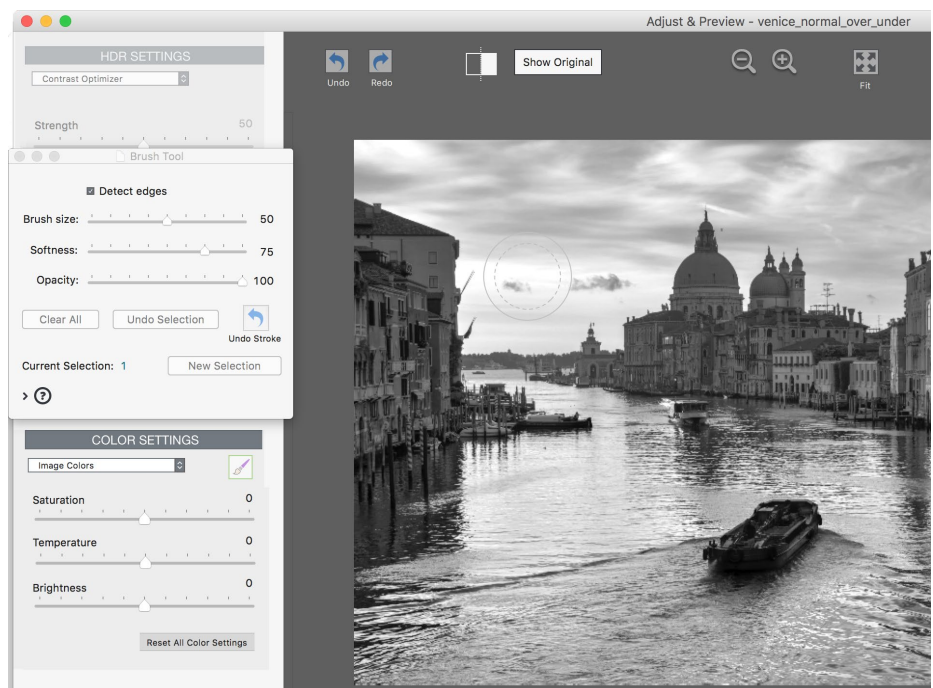
Sections 4.1.1 and 4.1.2 describe making brush strokes for color adjustments. Brush strokes for blending adjustment work the same way as described in these color adjustment examples.

4.1.1 Brush Strokes and Selections

"Selections" are sub-sections of your image that you have defined, for the purpose of receiving their own special color treatment. Color treatments applied to selections do not affect any colors, or settings or parts of the image outside of the given selection. You define selections by using the Brush Tool as follows.

Click the brush icon in the Color section. The Brush Tool palette will open and you will be in **Selective Adjustment Mode**. The mouse is now a size-adjustable round brush which, when tapped on or dragged across the Preview image - in other words "*brushed*" on the image - will select that portion of the image and apply the current Color adjustments to it.

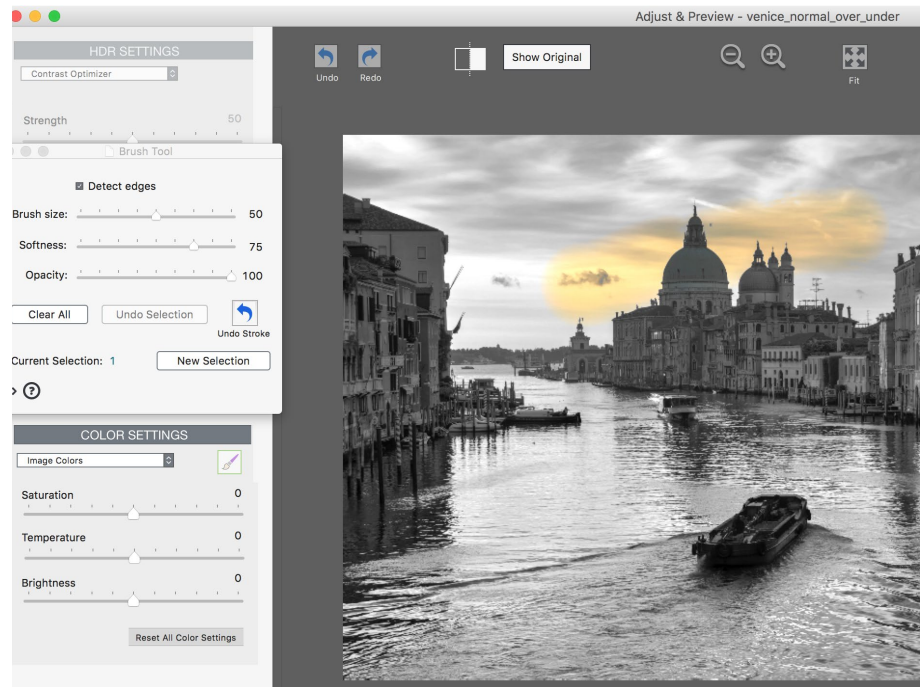
Your **Brush Strokes** define the size and shape of your selection. Brush **Size**, edge **Softness** and **Opacity** are adjustable, allowing you to customize your brush strokes. The settings in the Color section define the specific adjustments that are applied. Make at least one adjustment before you start your selection so that the adjustments in the area



With image saturation set to zero, ready to brush saturation back into the sky
(continues in following screen shot)

that you are selecting will be immediately apparent upon your first brush stroke. You can continue to extend your selection with additional brush strokes, and modify the settings as needed.

Click **Add Selection** to begin a new selection, with its own custom adjustment settings. As noted before, make at least one settings adjustment before you begin, so that the desired effect will start to take shape as soon as you start your selection. If an adjustment is no longer desired you can remove it by undoing its selection, which removes all of its associated settings adjustments as well.



(Continued from previous screen shot)

First brush stroke. "Detect Edges" limits the effect to contiguous areas.

4.1.2 Adding Selective Adjustments, Removing Selective Adjustments

In **Selective Adjustment Mode** the entire image is masked and protected from adjustment, until you start making **Brush Strokes**. Your Brush strokes define where in the image your Adjustment will apply. A Selection is thus like a window or a keyhole through the mask, allowing adjustments which normally would affect the entire image to affect just the areas of the image that you selectively define with the Brush tool.

The Brush Selection tool supports multiple Selections, each with its own color adjustment settings. To begin working on a new Selection, click the **"Add Selection"** button. The Color parameter settings will revert to their defaults, allowing you to specify new color adjustments to be applied to your new Selective Adjustment.

"Undo Selection" removes the most recent Selection. All Selections can be removed by clicking **"Clear All"**

4.1.3 Brush Tool Usage Example: Adjusting Color

Follow these steps, to learn the work flow of the Brush Selection tool for making color adjustments:

1. **Click the Color Settings section brush icon**, to open the Color Brush Tool. With the Brush Tool now open, no new color settings adjustments will affect the image, until and unless you apply them.
2. For example, **set Saturation to -10**.
Result: Nothing yet, as you've not yet applied any of this Saturation adjustment to the image.
3. Now, when you **click and drag your mouse over the image**, the areas you brush the image will become desaturated.

Additional features to try:

- **Adjust the size of the brush**, in conjunction with zooming in the Preview, to make precise adjustments.
- **Apply multiple selections**, each with its own color settings:
Return global Saturation to its default, and instead desaturate the individual colors Blue and Cyan. Now, if your image has a blue sky in it you are ready to paint it grey. Use the maximum brush size, so that you can complete the task with just a few strokes.

- **Change the brush Opacity setting**, to adjust the strength of the color setting you apply to the image.

When you close the Brush Tool window, you will be leaving **selective adjustment mode**, and further color adjustments will be applied to the whole image.

4.1.4 Brush Tool Usage Example: Blending Source Photos

The **Blending** tool allows you to precisely select areas of your image, and use that selection as a "key", to display just one of the source photos, in place of the full merged image. The chosen source photo can be blended at 100% Opacity, or can be set to any fade level, from 100% to close to zero.

Follow these steps, to learn the work flow of this tool:

1. **Click the Blending section brush icon**, to open the Blending Brush Tool.
2. In the Blend menu, **choose the source image** you wish selectively blend more strongly into the image.
3. **Select a suitable brush size**, and start painting on your image. Each brush stroke reveals your selected Blend image.

Additional features to try:

- **Click "New Selection"** to make a second brush stroke. In the Blend menu, choose a different source image, from the one you chose above in step 2.

When you close the Brush Selection window, you will be leaving **brush mode**, and further color adjustments will be applied to the whole image.



Note

Selective Adjustments apply only to the current HDR rendering Method. When you switch to a new Method, selections are discarded.

to

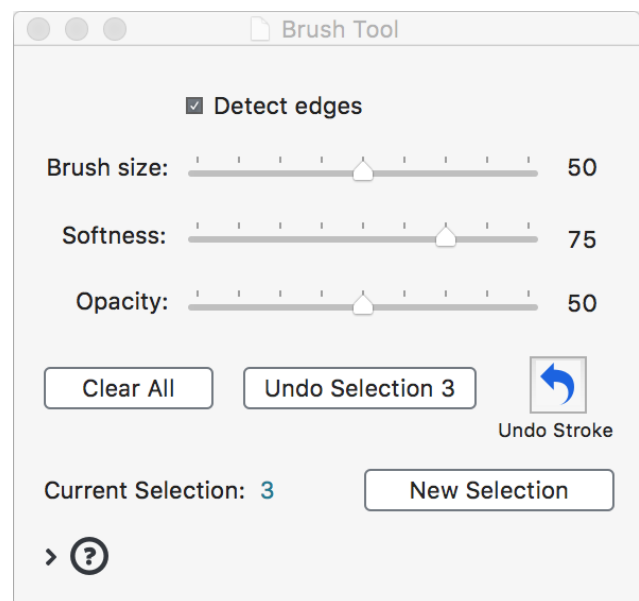
4.2 Brush Tool Palette

The Brush Selection tool provides a resizable round selection brush, with which you simply "paint" your desired selection onto your image.

The features of the Brush Selection tool are:

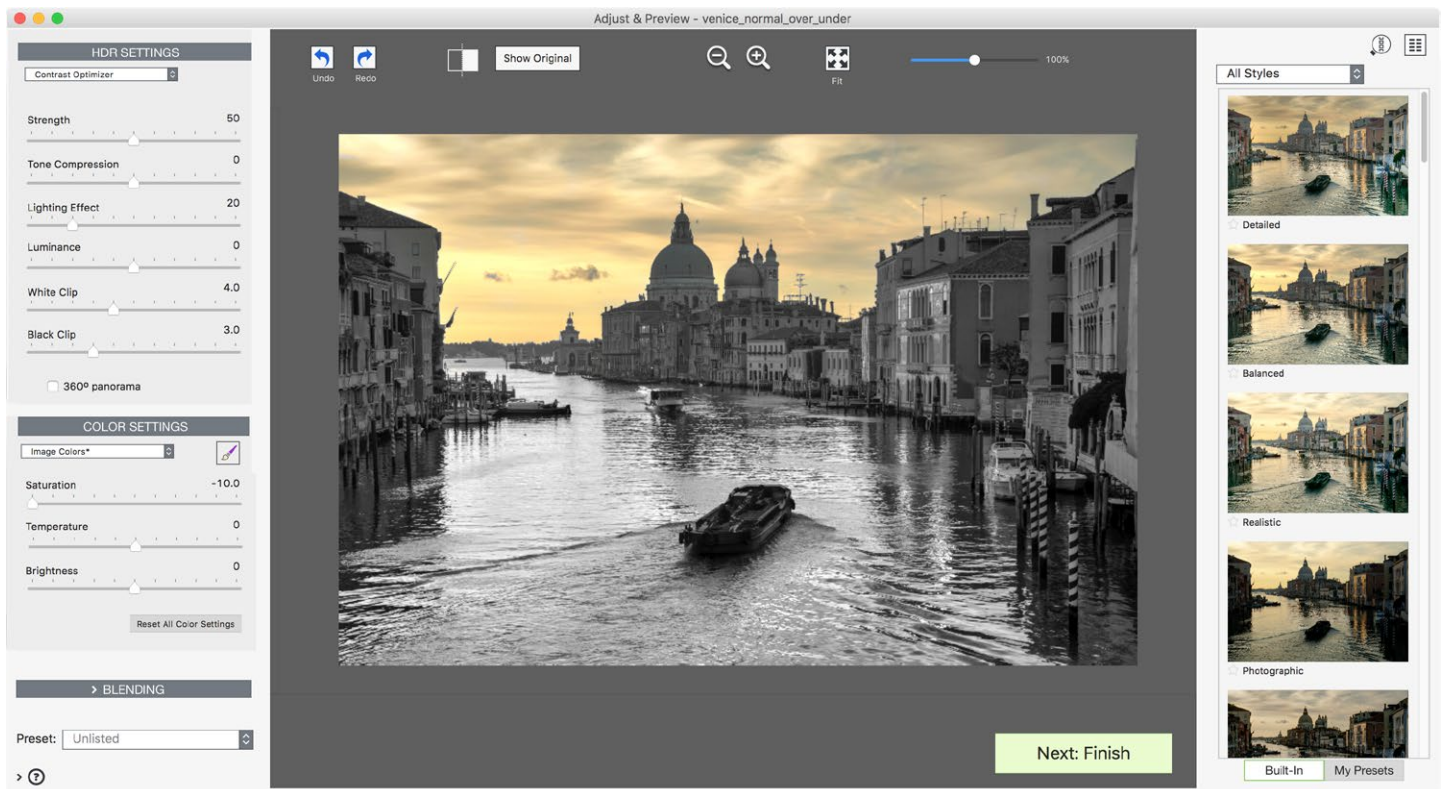
- **Brush Size** slider:
From 1 to 100, with 50 as the default. This brush size scale varies proportionally with the image size.
- **Softness** slider:
From 0 to 100. Gives the Brush a softened edge. A soft-edged brush is helpful to make a subtle transition, when applying a color adjustment to one area but not to an adjacent area.
- **Opacity** slider:
From 0 to 1, in 100 steps. Fades the selection brush, to allow translucent selections.

Note: **Opacity** is intrinsic to the concept of a Blending adjustment, as opposed to being a brush option as with color adjustments. This is why you will find the Blending Opacity setting in the Blending section, rather than in the Brush Tool palette.



The Brush Tool

- **Detect Edges** checkbox:
Limits the brush stroke to areas that do not include sharp contrast or color differences. This is helpful, for example, if you wish your brush stroke (and thus your color or your blending adjustment) to affect the blue sky, but not the buildings silhouetted in front of it.
- **New Selection** button:
Adds a new selection. Multiple selections are allowed, each with its own color or blending setting.
- **Undo Selection** button:
Removes the most recently added selection, and all the individual brush strokes that created it.
- **Undo Stroke** button:
Removes the most recent brush stroke added to the current selection.
- **Clear All** button:
Clears all selections, and the brush strokes that created them.
- **Selection Number** label:
Indicates the number of the current selection.



(Continued from screen shots on pages 21 & 22)
Saturation in the sky has now been fully brushed back in, and the Brush Tool is now closed.

5 Finishing Touch

After "**Next: Finish**", you may wish to apply a few optional finishing touches, before saving.

You can choose whether to automatically display this Finishing Touch window, using the check box at the bottom of the window. When not automatically displayed, the Finishing Touch window can be opened from the Utilities Menu.

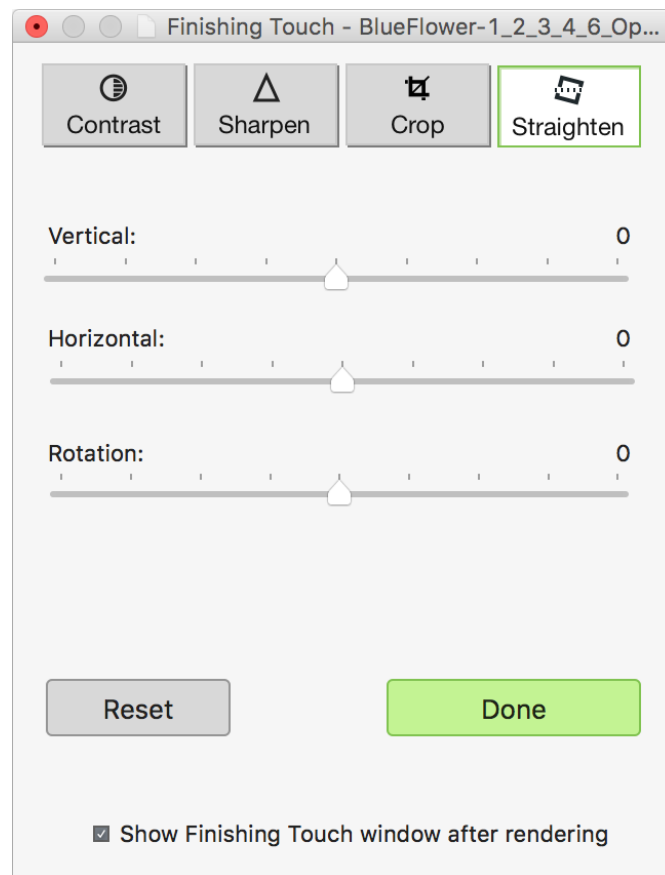
5.1 Contrast and Sharpen

The Contrast and Sharpen tabs of the Finishing Touch window provide "Mild", "Medium" and "Strong" presets (and "Extreme" as well, for Contrast). The "Show Options" button gives access to options for more precise custom settings.

5.2 Crop and Straighten

The Crop tool allows you to click and drag on your image, to set a custom crop. The Aspect Ratio menu allows you to constrain your crop to standard aspect ratios, such as square, 3:4, 9:16, etc.

The Straighten tool allows you to correct a non-level horizon line, and correct vertical lines that are not quite vertical, such as in an architectural shot. Vertical Perspective has the effect of "tilting" the image slightly forward or back. The Rotation control allows you to adjust/correct the horizon line of an image.



The Straighten tab, in the Finishing Touch window

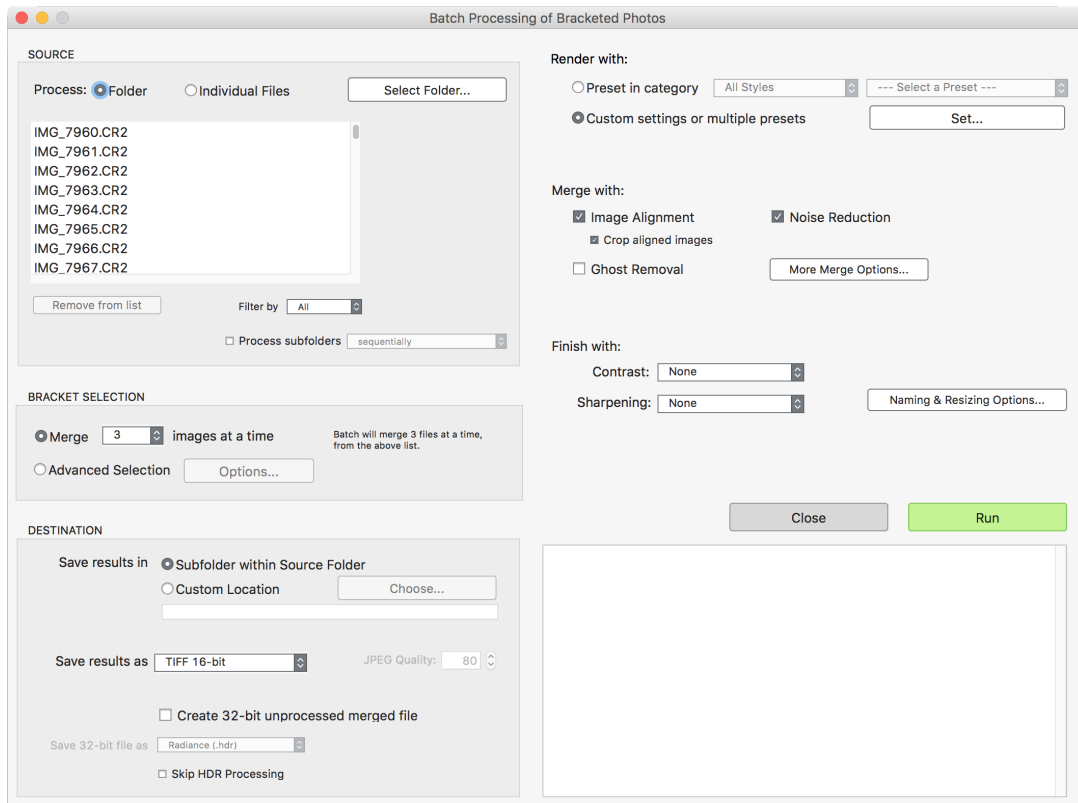
6 Automating with Batch Processing

Use batch processing to automatically process image files. The batch processing tool saves time processing many images. Photomatix Pro offers two different batch modes:

- **Batch Bracketed Photos:** Processes multiple bracketed sets in one step, which can save you a lot of time when you have many bracketed sets to render.
- **Batch Single Photos:** Processes multiple single image files using HDR Rendering.

6.1 Batch Processing Bracketed Photos Sets

This section describes batch processing of bracketed photo sets, taken under multiple exposure settings.



Batch Processing of bracketed photos

6.1.1 Using Batch Processing

To batch process multiple sets of bracketed photos follow these steps:

1. Open the **Batch Processing of Bracketed Photos** window by clicking the **Batch Bracketed Photos** button in the **Workflow Shortcuts** panel. You can also select **Batch Bracketed Photos** from the **Automate** menu or use a keyboard shortcut: **Ctrl+B** on Windows, **Cmd+B** on Mac.
2. In the **Source** section, select the folder where the bracketed photo sets are located. The files are arranged in alphabetical order. "N" files at a time are processed where "N" is the number specified in the next step.
3. In the **Bracket Selection** section, select the number of exposures to combine using the pull-down menu. For example, select "3" if your bracketed sets consist of three exposures each. You can also let the batch automatically detect the bracketed exposures or select specific exposures via the **Advanced Selection** option, detailed in section 4.1.5 below.

4. In the **Destination** section, select the output file type. When using JPEG file output, select the amount of JPEG compression. 100 gives the least compressed JPEG file, with most image quality retained.
5. If you want to save the results in a different folder than the folder containing the source photos, select **Custom Location** option in the **Destination** section, and then click **Choose....** Otherwise, select the default of **Subfolder within Source Folder**. This will create a subfolder with the name "PhotomatixResults" in the source folder selected in the **Source** section.
6. Select the preset that will be applied to all the bracketed sets in this batch. To do this, select first the category to which the preset belongs from the **Preset in category** pull-down menu, then select the preset on the next pull-down menu.
7. Specify whether image alignment, ghost removal or noise reduction are needed. Image alignment is recommended, unless your bracketed sets are stitched panoramas or "fake" exposures derived from a single Raw file. Noise reduction is recommended too, especially with Raw files. However, ghost removal should only be selected for images that do need it, and left unchecked otherwise. Refer to section 2.1.2 for details on the merge options.
8. Add contrast or sharpening, if desired, and click **Naming and Resizing Options** if you would like to rename or resize the resulting images.
9. Click **Run** to start batch processing.



Note

The **Custom settings or multiple presets** option allows you to select custom settings and also to process each bracketed set with more than one preset. This more advanced batch option is explained in section 4.1.2 below.

While the batch is running, the processing status will display in the area below the **Run** button. When processing is complete, a link to the batch results will be displayed

6.1.2 Custom Settings or Multiple Presets window

The **Custom Settings or Multiple Presets** window is accessed by clicking the **Set...** button at the top of the batch processing window. This window allows you to compile a list of multiple built-in presets and/or custom settings, to be applied to a single bracketed image set or to a batch of bracketed image sets. This feature may be thought of as "**Preset batches**". The presets batch lists compiled in this window are applied to the image set batches which are specified in the Source frame of the main batch window.

Preset batches applied to bracketed sets provides a wide range of processing options. You may wish in some instances to work with just a single bracketed set, and apply a batch of 20 or 30 different presets to it, allowing you to conveniently test which presets give the most pleasing results for a given image set.

Another strategy is to apply several different favorite presets to multiple image sets. While exploring this tool, be aware that the batch results can become very large.

Render with:

☐ Preset in category All Styles Realistic

☒ Custom settings or multiple presets Set...

Click Set..., to set up preset batches

Batch Processing of Bracketed Photos

Preset: Balanced Add

Filter: All Styles

Custom Settings: Contrast Optimizer Set...

Settings Type	Preset/Settings Name
Built-in Preset	Detailed
Built-in Preset	Painterly 5
Built-in Preset	Creative 2
Custom Settings	Details Enhancer Custom Settings 01
Custom Settings	Contrast Optimizer Custom Settings 01

Update... Remove Clear List

☐ Save custom settings in XMP file OK

The Custom Settings or Multiple Presets window

For example, **30** Presets applied to **30** bracketed sets will output **900** processed images. Plan ahead for the processing time and the disk space required when combining large preset batches with large image set batches.

To set up a batch of existing presets, follow these steps:

1. Select a Built-in preset, or one of your own saved presets, from the **Preset** menu and then click **Add**. This preset will appear in the list frame.
2. Repeat step 1 as many times as you like, to add additional presets to the list.
3. If you wish to remove a preset from the list frame, select it and click **Remove**.
4. You may now click **OK** to close this window.
The specified presets will be applied the next time a batch is run.

To set up a batch of modified presets or new custom settings, follow these steps:

1. Select a method from the **Custom Settings** menu, and then click **Set...**
The Settings Adjustments window for the selected method will open.
2. Select a method preset from the Presets: menu, and modify as desired.
OR
Modify the existing settings. The existing settings are the default for that method.
3. Click **OK**. The new custom setting will be added to the list frame.
4. Repeat steps 1, 2 and 3 as many times as you like, to add additional custom settings to the list.
5. If you wish to update a previously added custom setting, select it in the list frame, and click **Update...**
6. If you wish to remove a custom setting from the list frame,
select it and click **Remove**.
7. You may now click **OK** to close this window.
The specified presets will be applied next time a batch is run.

6.1.3 More Merge Options

Use the **More Merge Options...** button to access more advanced alignment, dehisting and noise reduction settings, as well as other merge options.

One of these is the **Force Exposure Values spacing** option, which forces the EV spacing to the specified value. This option can be used when the exposure information is not available in the EXIF data, if two or more images have the same exposure information, or to force the EV spacing in all cases. In the latter case, the exposure information in the EXIF data is ignored.

Refer to sections 2.1.2 and 2.1.6 above for a description of the merge options

The screenshot shows the 'Batch Processing of Bracketed Photos' window. It contains several sections of settings:

- Image Alignment Advanced Settings:**
 - ☒ Include perspective correction
 - Maximum shift: [slider] 12%
- Ghost Removal Advanced Setting:**
 - Deghosting: [slider] 50 (Medium)
 - Base exposure: [dropdown] 0 EV
- Noise Reduction Advanced Settings:**
 - Reduce noise on: [dropdown] underexposed image(s) only
 - Strength: [slider] 100%
- Other Preprocessing Setting:**
 - ☐ Reduce Chromatic Aberrations
- 32-bit HDR File Creation Advanced Settings:**
 - ☐ Force Exposure Values spacing to [dropdown] 2
 - ☒ When exposure information not found in EXIF data
 - ☐ In all cases
- RAW Conversion Settings:**
 - White Balance: [dropdown] As Shot [input]
 - [button] Preview Sample...
 - Color primaries based on: [dropdown] Adobe RGB
 - [button] OK

[More Merge Options window](#)

6.1.4 Batch Processing Subfolders

When your bracketed series are located in multiple folders, they can all be processed in one run, provided they are in subfolders of the same parent folder. To batch process multiple subfolders, check the **Process subfolders** option at bottom of the **Source** frame on the **Batch Processing** dialog and select **sequentially**. When **Process subfolders sequentially** is selected, the batch will process the bracketed image files in one subfolder and then move on to the next subfolder, all of which are contained in the main parent folder.



Note

All of the subfolders must be contained in the main parent folder for this option to work properly.

Processing Series of Photos with Varying Numbers of Exposures

When your bracketed sets are composed of varying numbers of exposures, you can use **Process subfolders sequentially** to combine the exposures in these sets in one batch run. Place each bracketed set in a separate subfolder, group the subfolders under a parent folder, select **Process subfolders sequentially** and select **All** from the pull-down menu for the number of images to process at one time.

Grouped by Exposures Option

If you are processing bracketed photos that will be part of a panorama, you may find it useful to be able to organize your photos in such a way that all exposures of the same levels are in the same folder. Let's take as an example a panorama composed of four views that need to be stitched, with each view having been taken using three exposures: **-2, 0, +2**. You will then have 12 photos, and may need to place them in three separate subfolders composed of four photos each as follows:

- **Subfolder-1** contains the four photos for the panorama taken at **EV -2**
- **Subfolder-2** contains the four photos for the panorama taken at **EV 0**
- **Subfolder-3** contains the four photos for the panorama taken at **EV +2**

If you check **Process subfolders** and select **grouped by exposures**, the batch will combine the first file of **Subfolder-1** with the first file of **Subfolder-2** and the first file of **Subfolder-3**. The batch will then combine the second file of **Subfolder-1** with the second file of **Subfolder-2** and the second file of **Subfolder-3**, and so on for the third and fourth file of each subfolder.

6.1.5 Advanced Selection Options

The following items are accessed from the Process frame when you click **Advanced** and click **Options** to configure automatic selection of bracketed image files.

Click **Automatically detect the number of bracketed frames** when processing a folder that contains files in addition to those in the set of bracketed photos/frames or when the number of photos/frames in the set varies. Photomatix Pro uses the metadata from the image files to perform automatic bracketed set detection.

- Specify a range using the two drop-down lists to automatically detect the number of bracketed photos/frames.
- Move the **Maximum time between two successive frames** slider right or left to allow more or less time (read from the metadata). If your camera is set on continuous shooting and takes 3 frames/second, for example, then the slider could safely be set on 1 second.

The screenshot shows the 'Batch Processing of Bracketed Photos' dialog box. The 'Advanced Selection Options' section is active, showing the following settings:

- ☒ Automatically detect number of bracketed frames:
 - Bracketed sets have between and frames
 - ☐ Bracketed sets may have an even number of frames
 - Maximum time between two successive bracketed frames: seconds
- ☐ Select only some of the frames in bracketed set:
 - Bracketed sets have frames each, but only process the frames selected below:
 - A list box containing: first frame, second frame, third frame, fourth frame, last frame

Below the list box, there is a note: "This option is useful when some of the photos in the processed folder are not part of a bracketed set and/or when the number of frames per bracketed set varies." Another note states: "Note that the automatic detection is based on the metadata information of the image files and not on the image content. It can therefore only work with photos shot under different exposure settings - such as Auto Exposure Bracketed photos- with their EXIF data preserved."

An 'OK' button is located at the bottom right of the dialog.

Advanced Selection options

Click **Select only part of the frames in bracketed set** to load only selected photos/frames from a bracketed set.

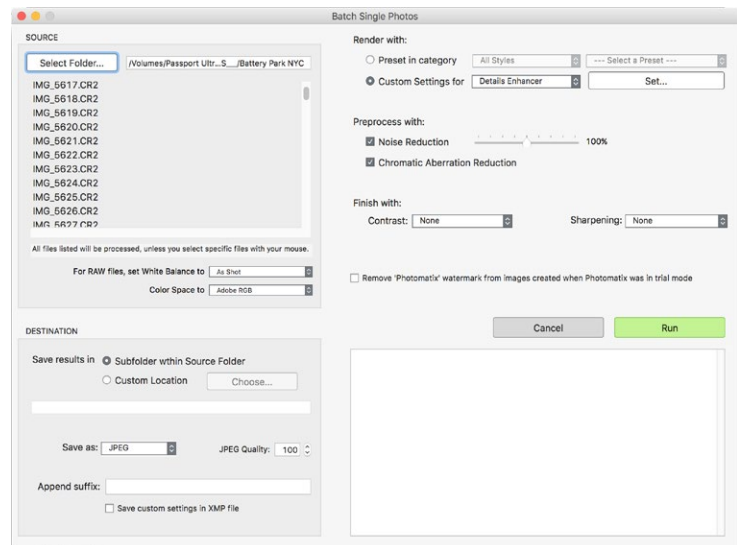
- Specify the total number of photos/frames in each set using the drop-down list.
- Select the specific photos/frames to process from the list. Select more than one file by holding down the Control key and clicking on the desired frames.

6.2 Batch Processing Single Images

To process a batch of single image files, follow these steps:

1. Click on the **Batch Single Photos** button in the **Workflow Shortcuts** panel or select **Batch Single Photos** from the **Automate** menu
2. In the **Source** section, select the folder where the files are located. Optionally, you may select a subset of the displayed files to process by holding the **Control key** (Windows) or **Command key** (Mac) and clicking on the files you want to select for processing.
3. If you want to save the results in a different folder than the folder containing the source photos, select **Custom Location** option in the **Destination** section, and then click **Choose...**. Otherwise, select the default of **Subfolder within Source Folder**. This will create a subfolder with the name "**PhotomatixConversion**" in the source folder selected in the **Source** section.
4. Select the output file type. When using JPEG file output, select the amount of JPEG compression. 100 gives the least compressed JPEG file, and best image quality.
5. Select the preset that will be applied to HDR render the files listed in the source section. Select first the category to which the preset belongs from the **Preset in category** pull-down menu, then select the preset on the next pull down menu. To Process the files using a custom HDR rendering setting, select a method from the **Custom Settings for** pull-down menu, click **Set...**, and then configure the preset as desired. When you have used custom settings you may check the **Save custom settings in XMP file** box located in the **Destination** section in order to have the batch save the custom settings alongside the resulting images.
6. Click the check boxes for noise reduction and CA correction, if needed.
7. Add contrast or sharpening, if desired.
8. Click **Run**. The batch processing status displays.

When complete, a link to the batch results will be displayed.



Batch HDR Rendering of Single Photos



Note

The **Batch Single Photos** feature is intended for automating the processing of many photos. To process a single image file, load a single image file as described in **Section 2.2**.



Note

To remove the "Photomatix" watermark added when using Photomatix Pro in trial mode, images must not have been retouched after the "Photomatix" watermark was added. If the brightness or contrast of the image has been changed, or the image has been double rendered, cropped or resized, then the licensed version of Photomatix Pro will not be able to remove the trial version's watermark.

7 Tips and Techniques

This section provides tips for working with images in Photomatix Pro. More tips and techniques, and regularly updated information, can be found on the Photomatix Pro FAQ on the HDRsoft website at http://www.hdrsoft.com/support/faq_photomatix.html.

7.1 Integrating Lightroom and Photomatix Pro

You can export photos for processing in Photomatix Pro directly from Lightroom and reimport them back into the Lightroom library.

The **Lightroom Export to Photomatix plug-in** is free and included with the Photomatix Pro package. Please refer to the HDRsoft website at <http://www.hdrsoft.com/download/lrplugin.html> for installation instructions and a short tutorial showing how to use the Lightroom export plug-in for HDR processing in Photomatix Pro.

7.2 Processing Raw files in Third-Party Raw Converters

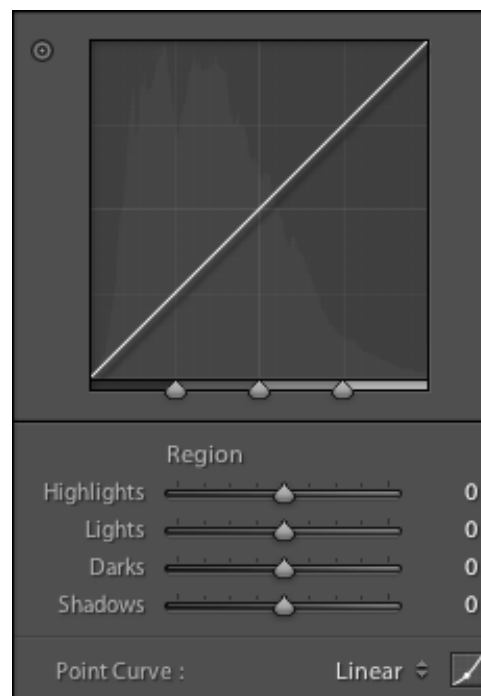
When using a third-party Raw converter, develop the Raw images with the following settings.

- **White Balance:** Use the same white balance for all source photos.
- **Basic settings:** Set all to zero. It is particularly important to set the Blacks setting to zero.
- **Curves:** Parametric and Point Curves should be linear.
- **Details:** (Not shown below.) Set the Sharpening Amount to zero.

As an example, these screenshots show our recommended Raw processing settings, applied in Lightroom:



Basic Settings in Lightroom



Working with curves in Lightroom

7.3 Dealing with Noise

When you process your photos using **Exposure Fusion**, the fused image will tend to show less noise than the source images. This is because Exposure Fusion works by directly combining your bracketed photos, thus averaging out noise. However, when you create a 32-bit HDR image, your bracketed photos are assembled in linear space into an image that spans the full range of luminance values captured by the camera. If the lightest photo of your exposure sequence is not bright enough to expose the shadows of the scene, then the noise in the source photographs will be transferred to the HDR image. Noise in the HDR image will then be made more apparent by Tone Mapping, especially with Details Enhancer as this Tone Mapping method increases local details.

Though Photomatix Pro includes options to reduce noise, *it is still always better to avoid noise at capture time as much as possible*. There are two tips to ensure a low noise level:

- **Tip 1:** Set a low ISO setting (ISO 100 or lower) whenever possible
- **Tip 2:** Overexpose sufficiently, ensuring that the lightest image of your exposure sequence has its shadows in the mid-tones.

7.4 Photomatix Pro and Color Management

Photomatix Pro supports color management even if RAW files are processed. You should use the same working space in Photomatix Pro as you use in other image editors (e.g. Photoshop).

Photomatix supports the three most popular working spaces:

- **sRGB:** Use if the images are created only for the web.
- **Adobe RGB:** Popular working space for printing if extremely saturated colors are not used.
- **ProPhoto RGB:** Wide gamut working space. This should never be used for 8-bit images.

For all JPEG and TIFF files, Photomatix Pro preserves the color spaces of the source files.

8 Appendix: Rendering Settings

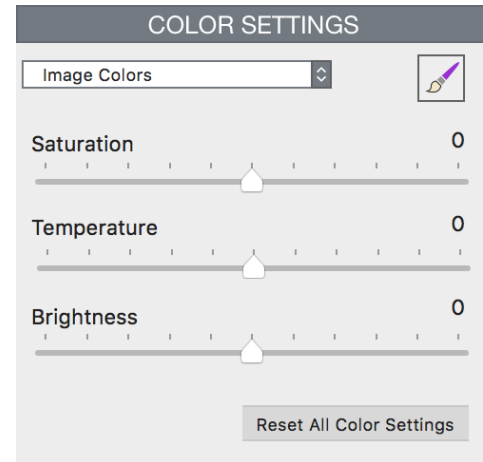
8.1 Color and Blending Settings

8.1.1 Color Settings

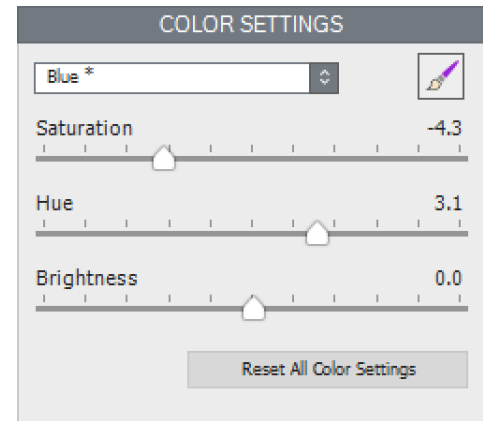
- **Saturation (*image colors*):** Adjusts the color saturation of the overall image. The greater the saturation, the more intense the color. Setting Saturation to its lowest value (-10) produces a grayscale image. The default value (0) leaves saturation unchanged.
- **Saturation (*individual color*):** Adjusts the saturation of the selected color. The greater the saturation, the more intense the color. Setting Saturation to its lowest value (-10) removes all chroma from the selected color. The default value (0) leaves saturation unchanged.
- **Temperature (*image colors*):** Adjusts the color temperature of the image, giving it a “warmer”, more yellow-orange colored look when moving the slider to the right, or a “colder” more bluish look when moving the slider to the left. The default value (0) leaves the color temperature unchanged.
- **Hue (*individual color*):** Pushes the selected color towards an adjacent hue. For example, Orange tones can be pushed towards Red, or Yellow, the two adjacent hues to Orange.
- **Brightness:** Adjusts the overall brightness of the image, or of the selected color.

8.1.2 Blending Settings

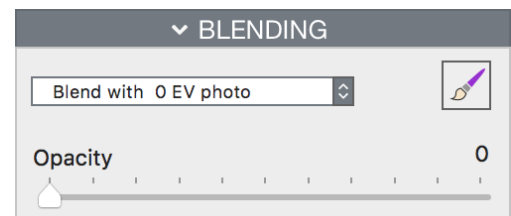
- **Blend with [selected frame]:** Sets which exposure from the bracketed source files will be blended with the merged and rendered image. The "0 EV" image, or the median image of the bracketed set, is selected by default. When working with a single image, the blending source will be the original image.
Note: When you apply a preset that was saved with a "Blend with" exposure that is not available in the current bracketed set, Photomatix uses the nearest available exposure.
- **Opacity:** Opacity sets how much of the original photo is blended with the rendered image. An Opacity of 50, for instance, means that half of a pixel's color comes from the original photo and half from the rendered image.



Color Settings
"Image Colors" (all colors) selected



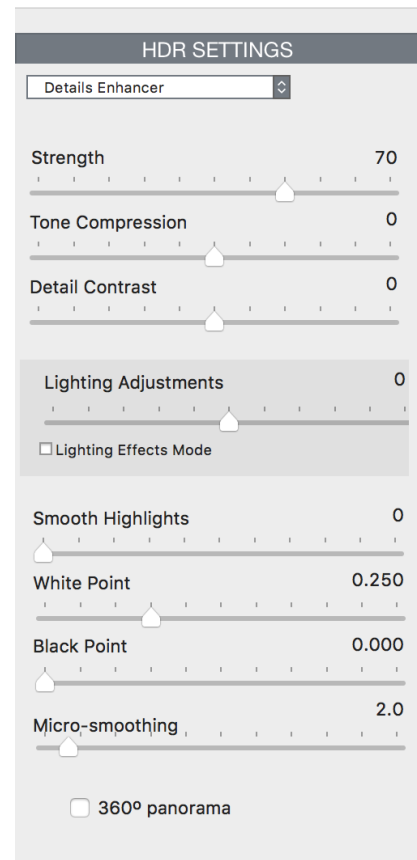
Color Settings
An individual color ("Blue") selected



Blending Opacity setting

8.2 HDR Settings - Details Enhancer

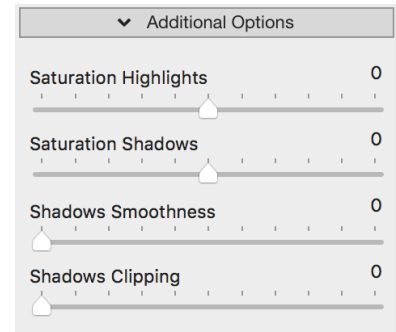
- **Strength:** Affects the amount of enhancement given to contrast and detail in the image. A value of 100 gives the greatest enhancement. Moving the slider to the left gives a more natural effect. The default value is 70.
- **Tone Compression:** Adjusts the dynamic range of the rendered image. Moving the slider to the right decreases the dynamic range, brightening the shadows and darkening the highlights. Moving to the left has the opposite effect, giving a more "natural" look. (This setting was named "Luminosity" in older Photomatix versions.)
- **Detail Contrast:** Controls the amount of contrast applied to detail in the image. Moving the slider to the right increases the contrast of details and gives a sharper look to the image, but also has a darkening effect. Moving to the left decreases the contrast of details and brightens the image.
- **Lighting Adjustments pane:** The two lighting adjustment modes affect the overall "look", controlling the extent to which the image looks natural or surreal.
- **Lighting Adjustments slider:** Affects the overall "look", controlling the extent to which the image looks natural or surreal. Moving the slider to the right makes the image look more natural. Moving to the left makes it look more "painterly" or surreal.
- **Lighting Effects Mode check box:** Lighting Effects Mode lets you switch between two modes for the Lighting Adjustments setting, where each mode produces slightly different results. Checking the box tends to produce results with a type of "Magic Light" effect. Note that finer control is not possible in this mode.
- **Lighting Effects Mode:** Affects the overall "look", controlling the extent to which the image looks natural or surreal.
- **Smooth Highlights:** Reduces contrast enhancements in the highlights, preventing white highlights from turning grey, or preserving a uniform blue sky. It is also useful for reducing halos around objects placed against bright backgrounds.
- **White Point:** Sets the maximum value of the rendered image. Moving the slider to the right sets a lower maximum value, which brightens the image and increases global contrast. Moving to the left sets a higher maximum value, which decreases global contrast and reduces highlights clipping. The default value is 0.25%.
- **Black Point:** Sets the minimum value of the rendered image. Moving the slider to the right increases global contrast. Moving to the left sets a lower minimum value, which decreases global contrast and reduces shadows clipping.
- **Micro-smoothing:** Smooths out the enhancement of small details, which has the effect of reducing noise in the sky for instance, and tends to give a "cleaner" look to the result



Details Enhancer settings

8.2.1 Additional Options for Details Enhancer

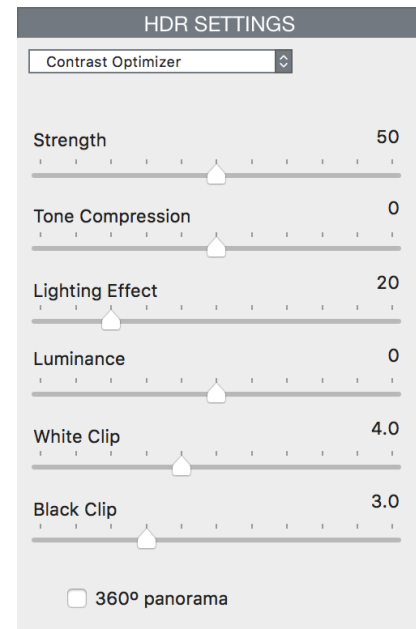
- **Saturation Highlights:** Adjusts the color saturation of the highlights relative to the color saturation set with the Color Saturation slider. Values higher than 0 increase the color saturation in the highlights. Values lower than 0 decrease it. The default value is 0.
- **Saturation Shadows:** Adjusts the color saturation of the shadows relative to the color saturation set with the Color Saturation slider. Values higher than zero increase the color saturation in the shadows. Values lower than zero decrease it. The default value is 0.
- **Shadows Smoothness:** Reduces contrast enhancements in the shadows.
- **Shadows Clipping:** The value of the Shadows Clipping sets how much of the shadows range is clipped. This control may be useful to cut out noise in the dark area of a photo taken in a low-light situation.
- **360° panorama:** Checking this option eliminates the seam between the left and right sides of a panorama viewed in a 360 degree panoramic viewer. This option is intended for a stitched panorama - it should not be used for individual frames of a panorama that have not yet been stitched.



**Details Enhancer
Additional Options**

8.3 HDR Settings - Contrast Optimizer

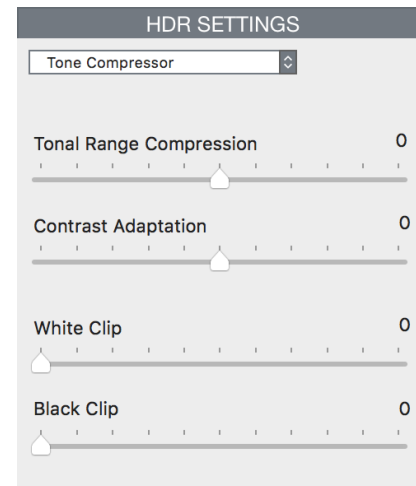
- **Strength:** Affects the amount of enhancement given to contrast and detail in the image. A value of 100 gives the greatest enhancement. Moving the slider to the left gives a more natural effect. The default value is 50.
- **Tone Compression:** Alters the dynamic range of the rendered image. Moving the slider to the right decreases the dynamic range, brightening the shadows and darkening the highlights. Moving to the left has the opposite effect, giving a more "natural" look to the image.
- **Lighting Effect:** Controls the prominence of the shadows, affecting the overall look of the image. Moving the slider to the right brightens the shadows, giving a more "vibrant" or surreal look. A value of zero disables the effect, leaving the shadows unaffected. The default value is 20.
- **Luminance:** Affects the brightness of the image, with the strongest changes in the lighter areas and highlights. Moving the slider to the right brightens the lighter areas, resulting in a bolder looking image, while moving to the left gives a darker, more subdued look.
- **White Clip:** Adjusts the amount of highlights clipping. Moving the slider to the right brightens the image and increases global contrast. Moving to the left decreases global contrast and reduces highlights clipping.
- **Black Clip:** Adjusts the amount of shadows clipping. Moving the slider to the right darkens the image and increases global contrast. Moving to the left decreases global contrast and reduces shadows clipping.
- **Midtone:** Adjusts the brightness of the midtones, which also has an impact on the overall contrast. Moving the slider to the right brightens the midtones and decreases contrast. Moving to the left darkens the midtones and increases contrast.
- **360° panorama:** Checking this option eliminates the seam between the left and right sides of a panorama viewed in a 360 degree panoramic viewer. This option is intended for a stitched panorama - it should not be used for individual frames of a panorama that have not yet been stitched.



Contrast Optimizer Settings

8.4 HDR Settings - Tone Compressor

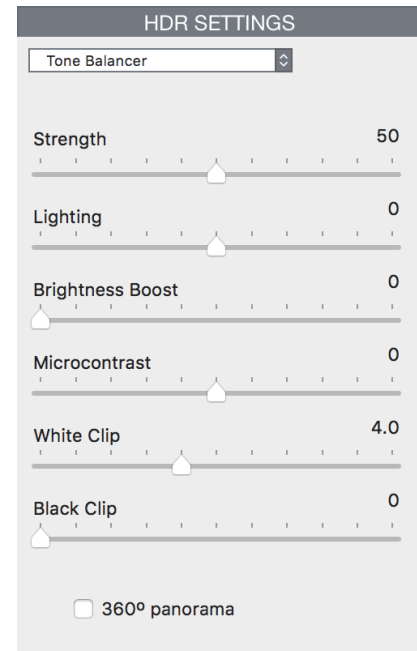
- **Brightness:** Adjusts the overall brightness of the image.
- **Tonal Range Compression:** Controls the compression of the tonal range. Moving the slider to the right has the effect of shifting both shadows and highlights toward the midtones.
- **Contrast Adaptation:** Adjusts the contrast in relation to the average brightness. Moving the slider to the right tends to decrease contrast and give more "pronounced" colors. Moving to the left tends to increase contrast and give a more "natural" look.
- **White Clip:** Adjusts the amount of highlights clipping. Moving the slider to the right brightens the image and increases global contrast. Moving to the left decreases global contrast and reduces highlights clipping.
- **Black Clip:** Adjusts the amount of shadows clipping. Moving the slider to the right darkens the image and increases global contrast. Moving to the left decreases global contrast and reduces shadows clipping.



Tone Compressor Settings

8.5 HDR Settings - Tone Balancer

- **Strength:** Strength controls the amount of contrast and detail enhancement in the image. Moving the slider to the right increases the enhancement, which has the effect of brightening the image. Moving the slider to the left gives a more natural effect. A value of 100 gives the greatest enhancement. The default value is 50.
- **Lighting:** Lighting affects the shadows, or darker parts of the image. Moving the slider to the left darkens the shadows, which tends to increase the contrast within the image. Moving it to the right brightens the shadows, decreasing the contrast. The default value is 0.
- **Brightness Boost:** Amplifies the effect of the Strength setting. Moving the slider to the right brightens the image, while preserving the highlights, and tends to affect the darkest areas in the image more. The default, 0, is the minimum value.
- **Microcontrast:** Controls the prominence of the finer details in the image. Moving the slider to the left decreases the detail, giving a smoother looking result. Moving the slider to the right highlights the details, increasing the clarity of the image. The default value is 0.
- **White Clip:** Adjusts the amount of highlights clipping. Moving the slider to the right brightens the image and increases global contrast. Moving to the left decreases global contrast and reduces highlights clipping.
- **Black Clip:** Adjusts the amount of shadows clipping. Moving the slider to the right darkens the image and increases global contrast. Moving to the left decreases global contrast and reduces shadows clipping.
- **360° panorama:** Checking this option eliminates the seam between the left and right sides of a panorama viewed in a 360 degree panoramic viewer. This option is intended for a stitched panorama. It should not be used for individual frames of a panorama that have not yet been stitched.

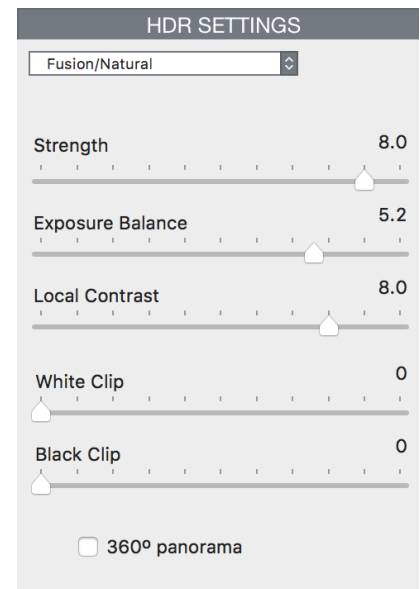


Tone Balancer Settings

8.6 HDR Settings - Fusion

8.6.1 Fusion/Natural Settings

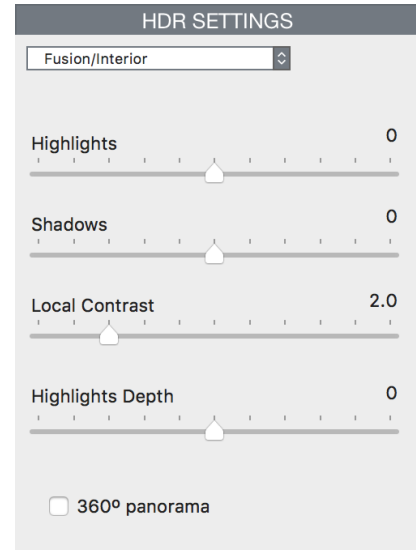
- **Strength:** Sets by how much local contrast is accentuated. Moving the slider to the right tends to brighten the shadows and to show more details in the highlights. Moving to the left produces a more "natural" effect.
- **Exposure Balance:** Controls the brightness of the fused image by adjusting the influence each of the input photos has on the final result. Moving the slider to the right gives the overexposed photos more influence, resulting in a brighter result. Moving to the left darkens the result by giving the underexposed photos more influence.
- **Local Contrast:** Increases the contrast and sharpness of details in the image. Increasing local contrast may have the side effect of making noise more visible and of creating thin halo effects around strong luminosity edges. Values near the maximum tend to give a surreal look to the image. The default value is 2.
- **White Clip:** Adjusts the amount of highlights clipping. Moving the slider to the right brightens the image and increases global contrast. Moving to the left decreases global contrast and reduces highlights clipping.
- **Black Clip:** Adjusts the amount of shadows clipping. Moving the slider to the right darkens the image and increases global contrast. Moving to the left decreases global contrast and reduces shadows clipping.
- **Midtone:** Adjusts the brightness of the midtones, which also has an impact on the overall contrast. Moving the slider to the right brightens the midtones and decreases contrast. Moving to the left darkens the midtones and increases contrast.
- **360° panorama:** Checking this option eliminates the seam between the left and right sides of a panorama viewed in a 360 degree panoramic viewer. This option is intended for a stitched panorama - it should not be used for individual frames of a panorama that have not yet been stitched.



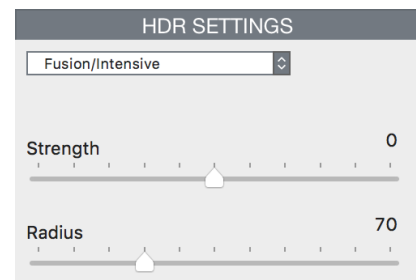
Fusion/Natural Settings

8.6.2 Fusion/Interior Settings

- **Highlights:** Adjusts bright areas in the image. Moving the slider to the right brightens the highlights. Moving to the left darkens highlights and recovers more highlight details.
- **Shadows:** Adjusts dark areas in the image. Moving the slider to the right brightens shadows and recovers more shadows details. Moving to the left darkens shadows.
- **Local Contrast:** Increases the contrast and sharpness of details in the image. Increasing local contrast may have the side effect of making noise more visible and of creating thin halo effects around strong luminosity edges. Values near the maximum tend to give a surreal look to the image. The default value is 2.
- **Brightness:** Adjusts the brightness of the midtones, which also has an impact on the overall contrast. Moving the slider to the right brightens the midtones and decreases contrast. Moving to the left darkens the midtones and increases contrast.
- **Highlights Depth:** Affects the colors of the highlights in the image. Moving the slider to the right adds depth to the highlights, darkening the highlights and increasing their colorfulness.
- **360° panorama:** Checking this option eliminates the seam between the left and right sides of a panorama viewed in a 360 degree panoramic viewer. This option is intended for a stitched panorama - it should not be used for individual frames of a panorama that have not yet been stitched.



Fusion/Interior Settings



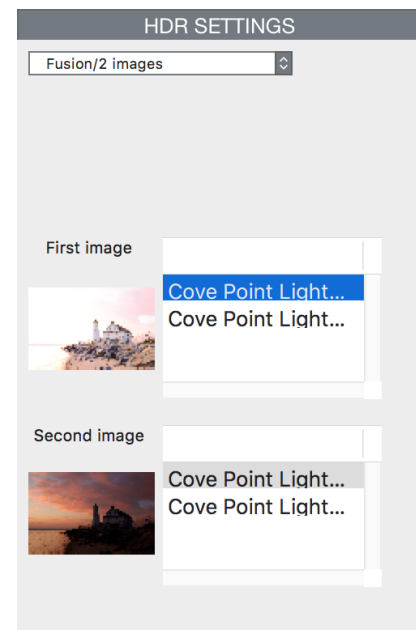
Fusion/Intensive Settings

8.6.3 Fusion/Intensive Settings

- **Strength:** Adjusts the strength of local contrast enhancements.
- **Radius:** Controls the area used to calculate the weighting of the source images. A higher radius reduces halos, but increases processing times significantly. The default value is 70.

8.6.4 Fusion/2 Images Settings

This method allows you to choose to fuse any two selected images from among a bracketed set of 3 or more frames.



Fusion/2 Images Settings

Glossary

AEB Mode	Automatic Exposure Bracketing mode. DSLR cameras and some compact digital cameras offer this feature. It enables you to automatically take three or more exposures in a row: one at the proper exposure, one or more underexposed, and one or more overexposed.
Aperture Priority	In Aperture Priority mode, you select the aperture and the camera determines the correct shutter speed for the available light. The shutter speed also depends on ISO sensitivity. This is the correct mode for shooting bracketed shots for HDR (refer to Section 1 for more information).
Bit	Bits represent digital data in computers. Digital Images are made of bits. A bit depth corresponds to $2^{(\text{Bit Depth})}$ levels (e.g. 256 for 8-bit).
Bit Depth	The number of bits a file type uses to represent a pixel's color at a given location in an image.
Bracketed images	A group of photos taken with the Automatic Exposure Bracketing function of a camera, resulting in photos of the same scene taken with different exposures.
Chromatic Aberration	As the lens focuses different wavelengths slightly differently, chromatic aberration occurs. For example, the purple fringing you often find around edges (as with leaves in front of a bright sky).
Contrast Ratio	Another way to describe the dynamic range of a scene. The ratio between the darkest and brightest areas.
DSLR	Digital Single Lens Reflex camera.
Dynamic Range	In the context of photography, the total range of light intensity in a scene, from the deepest shadows to the brightest highlights.
EXIF	The Exchangeable Image File header contains information about the image, the camera, location, date and time and camera settings.
Exposure	The amount of light that enters a camera for the length of time the shutter is open. Exposure depends on aperture and shutter speed, as well as the camera's sensitivity to light (controlled by the ISO). "Exposure" is also shorthand for a photograph or frame (a frame of film).
Exposure Fusion	Combination of bracketed photos in such a way that highlight details are taken from the underexposed photos and shadow details from the overexposed ones.
EV (Exposure Value)	A measure of exposure which is the equivalent of a stop. In the absolute sense, EV is defined as the exposure from a photo taken at 1 second, f/1, and ISO 100. In the relative sense, the correct exposure is normally 0 EV and any deviation is measured in positive or negative EV from that mark.

HDR	High Dynamic Range. A scene has High Dynamic Range when the lighting intensity differences in the scene are large.
HDR Image	Strictly speaking, an HDR image is an intermediary image with 32 bits per color channel (96 bits per pixel). Such an HDR image is the result of merging photos of the same scene taken under different exposure settings, and storing the high dynamic range output in a special HDR image format. This 32-bit intermediary HDR image must be HDR rendered, for proper display on standard monitors or when printed. It has become very common to speak of an "HDR image" as the result of HDR rendering the intermediary 32-bit HDR image but this is not technically correct, as the "HDR image" is in fact the 32-bit input file, in the HDR rendering work flow.
HDR Rendering	HDR Rendering refers to enhancing images with techniques developed for rendering photos of a High Dynamic Range scene. These techniques involve merging photos at varying exposure levels and rendering the merged image to reveal the whole lighting range of the scene from its darkest shadows to its brightest highlights. While HDR rendering typically requires bracketed exposures, it can also be used on a single image to boost its shadows and enhance its highlights. The HDR Rendering term encompasses both the concept of Tone Mapping and Exposure Fusion.
Histogram	Histograms represent brightness distribution in digital images. They help evaluate correct exposure. The y-axis represents the amount of pixels and the x-axis represents the brightness value.
JPEG	A common image file format with two primary strengths – a relatively small file size and universal compatibility. JPEGs use a lossy compression scheme and should not be edited and re-saved.
Noise	Statistical variations inherent in the sensor system cause noise. Noise is always present, but higher sensitivities and smaller sensors usually generate more noise.
Pixel	Digital pictures consist of pixels, the smallest units. Each pixel has a color that can be represented by 8 or 16 bits or as a floating-point number (32bit HDR).
PPI	Pixels per Inch. Can be used to describe the actual pixels per inch of a print. Often confused with DPI (Dots per Inch), used by color printers to print an image.
Raw File	A file containing the raw data from the camera sensor. Raw files do not have a color profile or other stylistic preferences permanently applied.
TIFF	A comprehensive image format that offers lossless compression schemes for smaller file sizes with higher quality. This format is suitable for editing and printing but not publishing on the Web.
Tone Mapping	Processing a 32-bit HDR image into an image that can be properly viewed on monitors and in prints.

Getting More Information and Help

The [Photomatix FAQ](#) on the HDRsoft website offers more tips, techniques, as well as general information.

If you cannot find the answer to your question in the FAQs, you are welcome to contact us. Please refer to the [Photomatix Support page](#) for contact information.

Additionally, the resources page at www.hdrsoft.com/resources lists Internet tutorials, books and DVDs on the subject of HDR photography.

www.HDRsoft.com