

# Photomatix Pro

Version 5.1



## User Manual

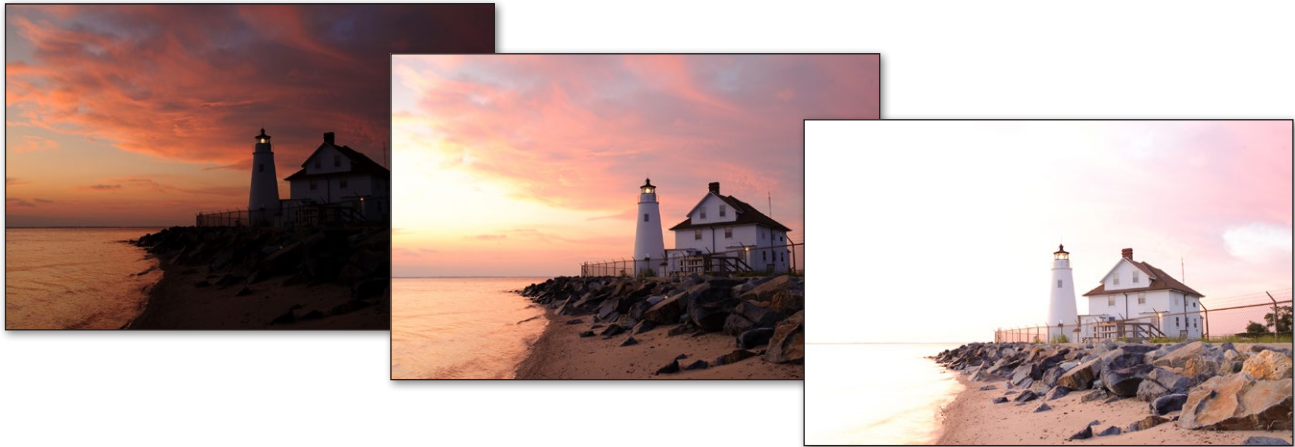
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## Introduction

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 Tone Mapping or Exposure Fusion 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, Rendering Images Using Tone Mapping or Exposure Fusion** for detailed information about the different settings that are available.

# 1 Taking Photos for HDR

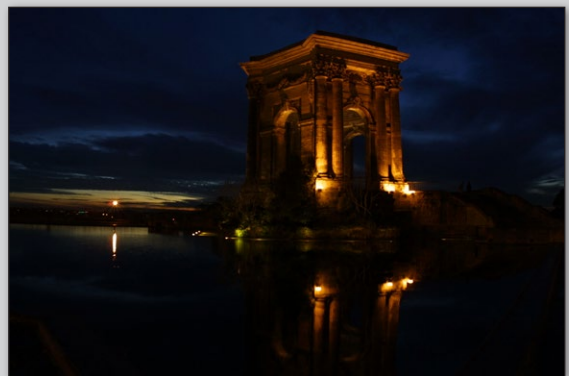
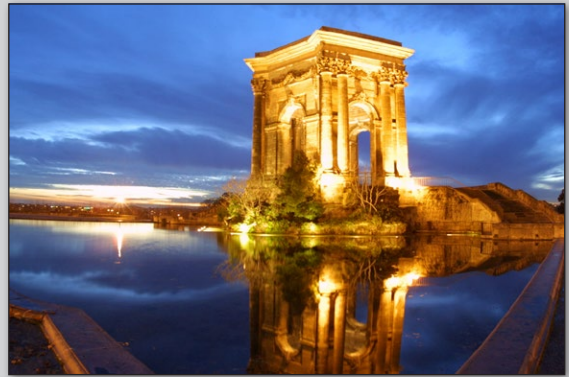
The shooting phase is essential for getting good results with Photomatix Pro. To photograph a high contrast scene, you need to take several exposures in order to capture information in both the highlights and the shadows of the scene. The exposures taken must properly cover the dynamic range of the scene, 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  $\pm 2$  for optimal exposure range. If your camera does not offer  $\pm 2$  exposure increments, select the maximum possible. Consult the camera manual for model-specific instructions for choosing this setting.

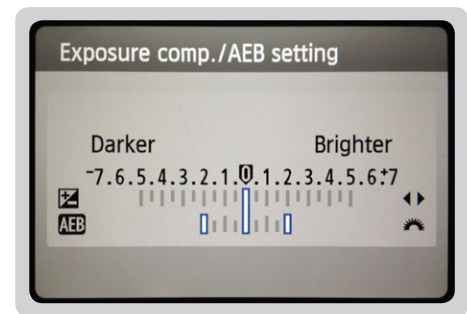
## 1.2 Selecting the Exposures

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  $\pm 2$  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  $\pm 2$ , or nine images taken with an exposure increment of  $\pm 1$ .

To help determining the exposures to take in scenes with extreme differences between light and dark details, you can use the HDR Exposure Calculator tool offered in [this tutorial](#) on the HDRsoft.com website.



Canon Rebel T2i/550D LCD showing AEB with  $\pm 2$  EV increments selected



AEB settings on a Nikon D7000 (3 frames, at  $\pm 2$  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.

## 1.3 Using Film-Based Cameras

- Follow the camera setup listed at the top of **Section 1.1** and the tips on selecting exposures in **Section 1.2**. 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.

### 2.1 Merging Bracketed Photos

Photomatix Pro merges 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).

#### 2.1.1 Loading Bracketed Images

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

- Drag and drop the files into Photomatix Pro
- Use the Workflow Shortcuts panel to load the files

#### Dragging and Dropping Bracketed Photos

To drag and drop a group of image files to Photomatix Pro:

- **Windows:** Drag the files from Windows Explorer and drop them on the open Photomatix Pro program.
- **Mac:** Drag the files from the Finder and drop them on the Photomatix Pro icon on your Dock.



#### Note

The term "**bracketed images**" refers to images of the same scene taken under different exposure settings. This manual uses the term "bracketed images" to simplify how these images are defined. It also applies to the case when you have not used the Automatic Exposure Bracketing function of the camera to take the exposures.



#### Note

Drag the image files for the exposure sequence at the same time, so the files are properly processed by the merge.



#### Note

If you have Lightroom, you can use the **Photomatix Plug-in for Lightroom** to load images into Photomatix Pro. Refer to **Section 5** for more information.

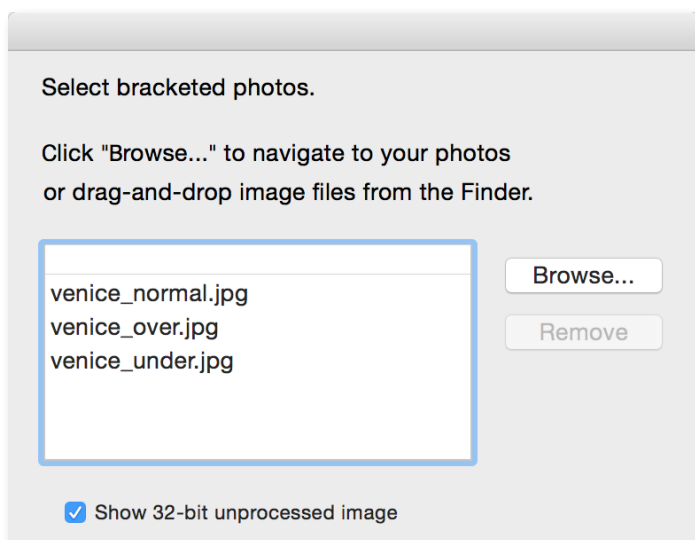
## Using the Workflow Area or the File Menu

To load images using the Workflow Shortcuts panel or the File menu:

1. Click **Load Bracketed Photos** in the **Workflow Shortcuts** panel  
OR  
Select **Load Bracketed Photos** from the **File** menu.

The **Loading bracketed photos** dialog displays.

2. Drag and drop the files into the **Loading bracketed photos** dialog  
OR  
Click **Browse**.  
A dialog prompts you to locate and load the files.



Selecting bracketed photos to load

3. Select the files to load, using one of the following methods:
  - Click the first file, then press and hold the **Control key** (Windows) or **Command key** (Mac). While holding down the Control key or Command key, click each of the other files you wish to select.
  - 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.
4. Click **Open** (Windows) or **Select** (Mac).
5. Click **OK**.

## Entering Exposure Values

If the exposure information cannot be located in the metadata of the image files, you will get a dialog showing the relative **Exposure Values** that Photomatix Pro estimated for your images. You will also see this dialog if two or more source images have the same exposure metadata. If the estimated Exposure Values listed are incorrect, you can either adjust each one of them individually, or set global EV Spacing for that bracketed set.



### Note

If you check the **Show 32-bit unprocessed image** box, you will be able to save the unprocessed merged image 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 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 **Tone Map / Fuse** button, in the Workflow Shortcuts window, to continue to the next step.



### 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.



## 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 sections for a description of the options when merging bracketed photos:

### 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.

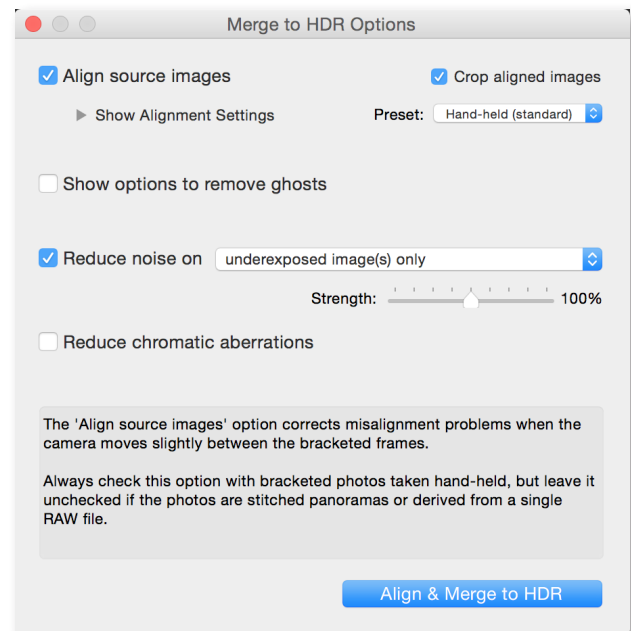
The **Crop aligned images** option removes unneeded borders resulting from alignment adjustments. Without this, the merged image will have white areas around the edges. You should disable this option when you need the resulting image to have exactly the same width and height as the source images.

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

- **Include perspective correction:** This option requests that the alignment 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.

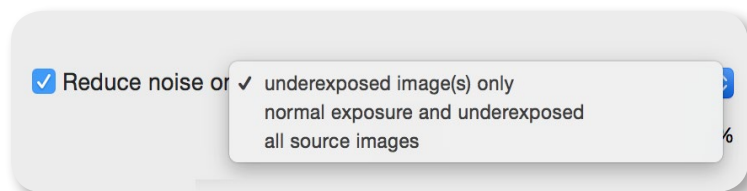


### Note

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

## 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 options

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.

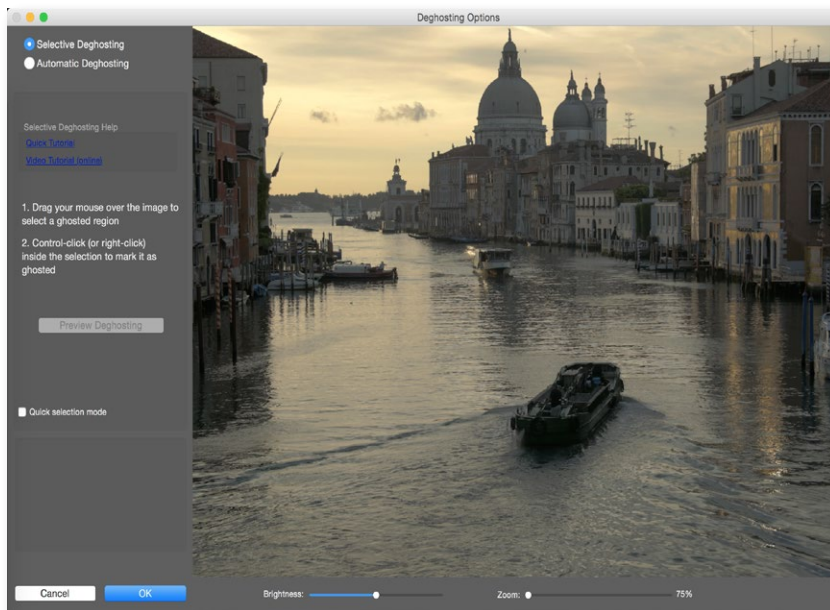
**Strength** increases or decreases noise reduction strength relative to the automatically determined default strength value, which is based on the noise level in the image. Values range from 50% to 150%.

## 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.

## 2.1.3 The Deghosting Options Window

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



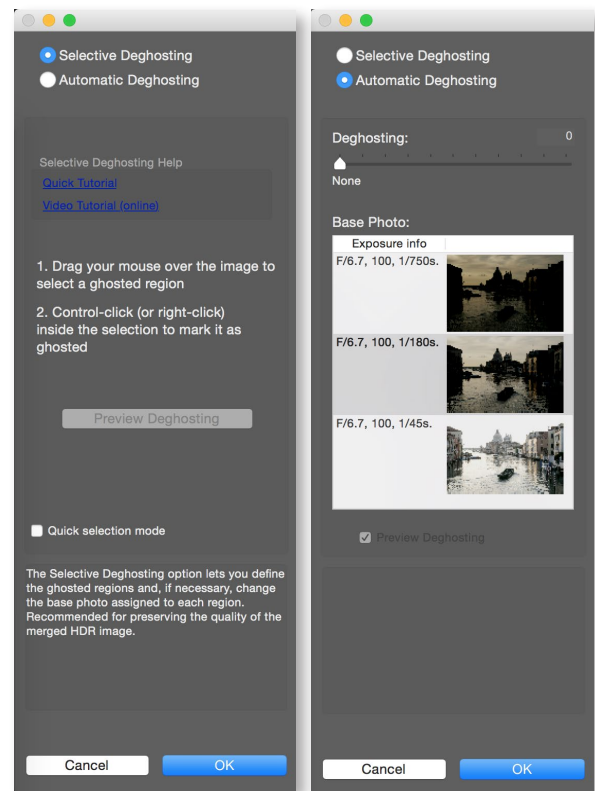
The Deghosting Options window

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.



The two alternate Deghosting method panels

### 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.

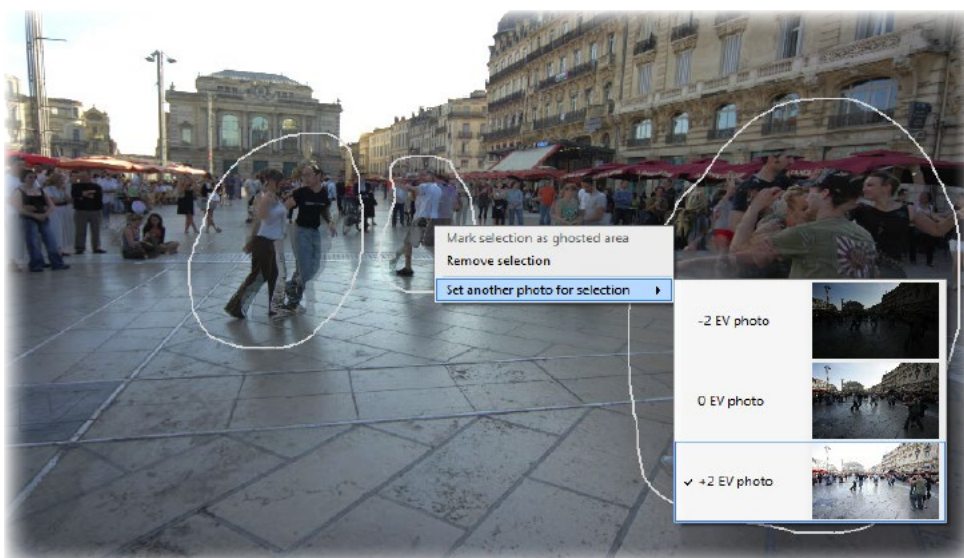
If necessary, you can remove a region from the deghosting selection. Control click or right click inside an already marked region and click **Remove selection** from the pop-up menu.

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.

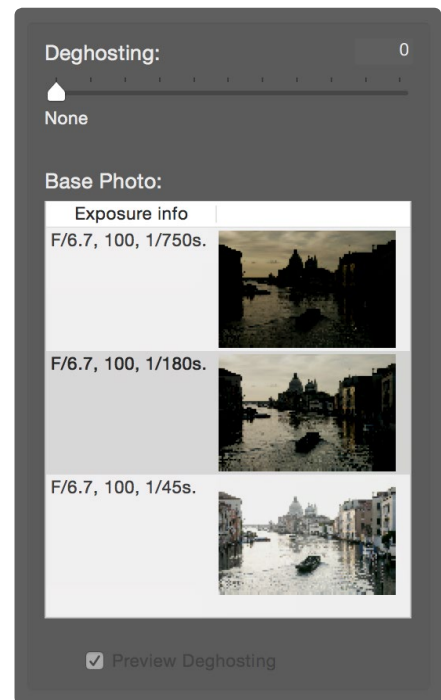
Aggressive Deghosting setting removes more ghosting artifacts, but increases the possibility and severity of unwanted artifacts. Use a setting as low as possible, to maximize the quality of the merged HDR image.

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



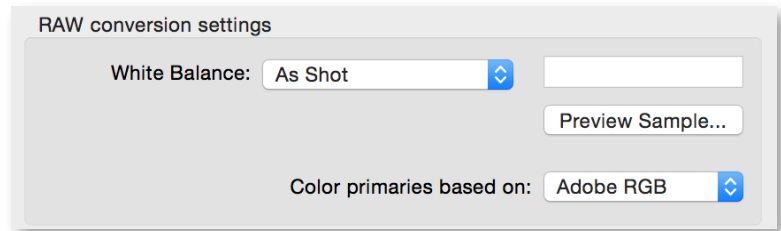
## 2.1.6 Options for Raw Files

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

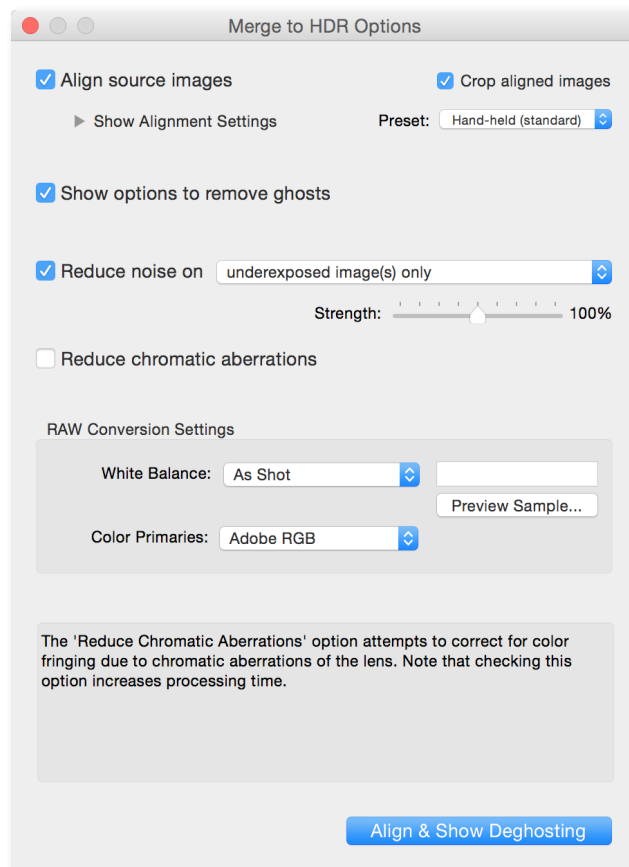
The **White Balance** option lets you change the white balance if desired, and preview the effect of changing it. The default value is "As Shot", which reads the white balance setting from the EXIF metadata. To adjust the white balance, either select a pre-defined value from the White Balance drop-down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



Raw conversion settings, in Merge to HDR Options



Merge to HDR Options window, for Raw files

## 2.2 Working with Single Image Files

Photomatix Pro supports Tone Mapping of single image files. To load a single image file:

1. Drag the image file to the Photomatix Pro application icon on your Taskbar (Windows) or Dock (Mac).

OR

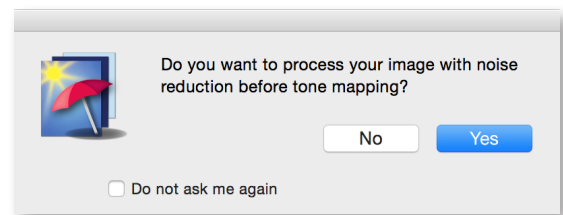
Select **Open** from the File menu. A file browser window displays. Navigate to the file and open it.

OR

Click **Load Single Photo** in the Workflow Shortcuts window.

2. To process the image using Tone Mapping, click **Tone Mapping** from the Workflow Shortcuts panel.

If the file is a JPEG, a dialog will show to let you decide whether to reduce the noise on your image before tone mapping. If desired, check **Do not ask me again** to skip this dialog and use your **Yes** or **No** selection for all single JPEGs that you process with Tone Mapping. If you need to re-enable the dialog later, access the Photomatix Pro Preferences to change the setting. The Preferences are available from the View menu (Windows) or Photomatix Pro menu (Mac).



Reducing noise on a single image JPEG file



### Note

Tone mapping with the Details Enhancer method makes any noise present in the image much more visible, so it is a good idea to pre-process your image with noise reduction before tone mapping.

### 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** 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%.

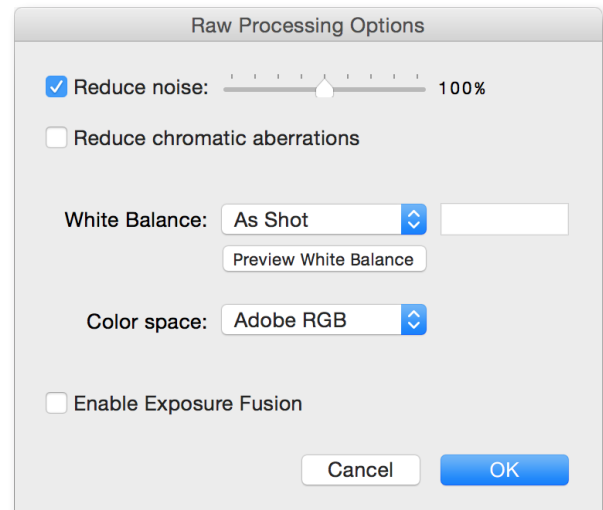
The **Reduce chromatic aberrations** option automatically corrects color fringing due to lens chromatic aberrations.

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.

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**.

Enable Exposure Fusion allows the 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 a darker and a lighter image, which can then be rendered using Exposure Fusion-based presets, such as the '**Natural**' preset, for instance.



Raw Processing Options dialog box

## 3 Rendering Images using Tone Mapping or Exposure Fusion

The heart of Photomatix Pro is where you adjust the image with HDR Tone Mapping and Exposure Fusion 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 Image 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 you selected by adjusting the settings in the **Adjustments Panel**.

For descriptions of each setting, see **Appendix A: Settings**.



#### Note



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

#### 3. Apply the Adjustments

When you are satisfied with the preview result, click on the **Apply** 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, or adjust the saturation of individual colors.

#### 5. Save the Image

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

Refer to section 3.1.2 on the next 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 Tone Map** 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

Exposure Fusion is only available for bracketed photo sets, unless you select **"Enable Exposure Fusion"** when loading and pre-processing a single Raw image file.

### 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 reimport into Lightroom, the rendering workflow described above stops at step 3. Additionally, the button that applies the selected preset and adjustments will be named **Reimport & Save** instead of **Apply**.

However it is still possible, while using the Plugin for Lightroom, to access the Finishing Touch feature or try other adjustments without reloading and merging again. To do so, leave the

**Automatically re-import into Lightroom library** option unchecked in the Plugin's dialog. This will allow you to continue with steps 4 and 5 in the workflow described above. After you save your image in step 5, you can then manually reimport the image into your Lightroom library via the **Open Saved Images with** option.



#### 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 either 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.

## 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**.

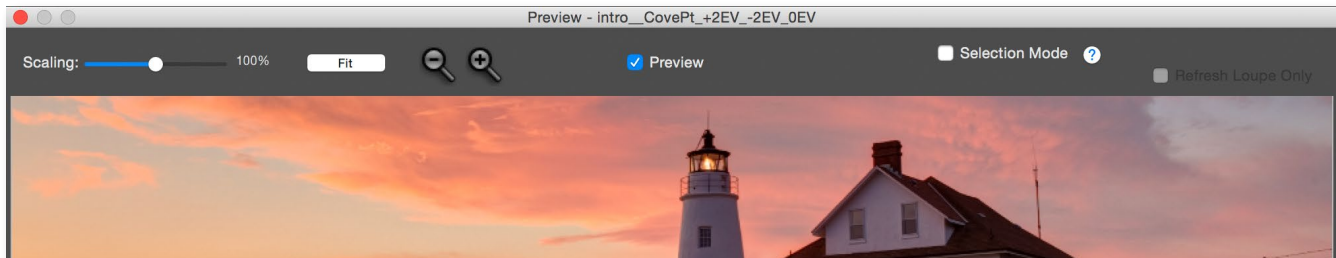


Image adjustment Preview panel controls

#### 3.2.1 Preview

The image **Preview** displays the result of your current Preset and settings, and is updated immediately after a Preset or setting has been changed.

The Preview panel provides the following controls.

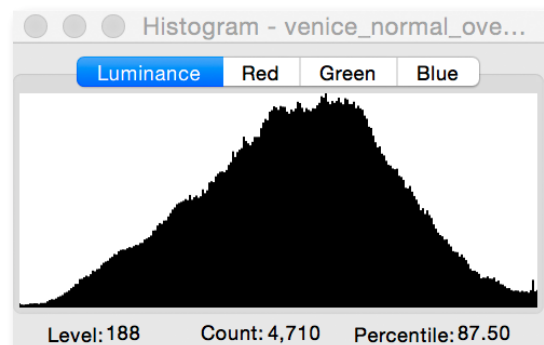
- **Scaling Slider:** Zooms in or out the refreshed preview from 50% to 150%. The preview is not recalculated but quickly scaled. Each time **Fit** or one of the **Magnifier** icons is clicked the preview is recalculated and the **Zoom Slider** resets to 100%
- **Fit:** Resizes the preview to fill the available space on the program's main window.
- **Magnifier icons +/-:** Increases or decreases the preview image by 20% and recalculates it at the new size.
- **Preview:** The Preview checkbox quickly toggles between a preview of the image and the “normal” exposure (0EV) of the set. This is helpful to compare the effects of the image adjustments.
- **Selection Mode:** Checking the selection mode checkbox enables you to select an area of the preview and replace it with one of the source images. See section 3.4 for details.
- **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.

#### Note

When using the **Details Enhancer** or **Contrast Optimizer** methods, the **Preview** is not always an accurate representation of the final tone mapped image.

#### Note

As an option selectable in **Preferences**, the **Preview** will update continuously as you move a slider handle. This option may require that you work with your image zoomed out to a small **Preview**, or that you have a powerful computer that is able to quickly reprocess the **Preview**. This option is not available if you are running on a 32-bit OS. You can access **Preferences** from the View menu (Windows) or Photomatix Pro menu (Mac).



8-bit Histogram



## 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 the preset on your image. When you click on a preset thumbnail, the Preview image is refreshed to show the result of applying 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**” user-saved custom presets:

### 3.3.2 Built-in Presets

Built-in or “factory” presets are those provided with the software. Photomatix Pro offers 36 built-in presets when you are working with bracketed photo sets, and 27 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 Compressor* and *Fusion*).

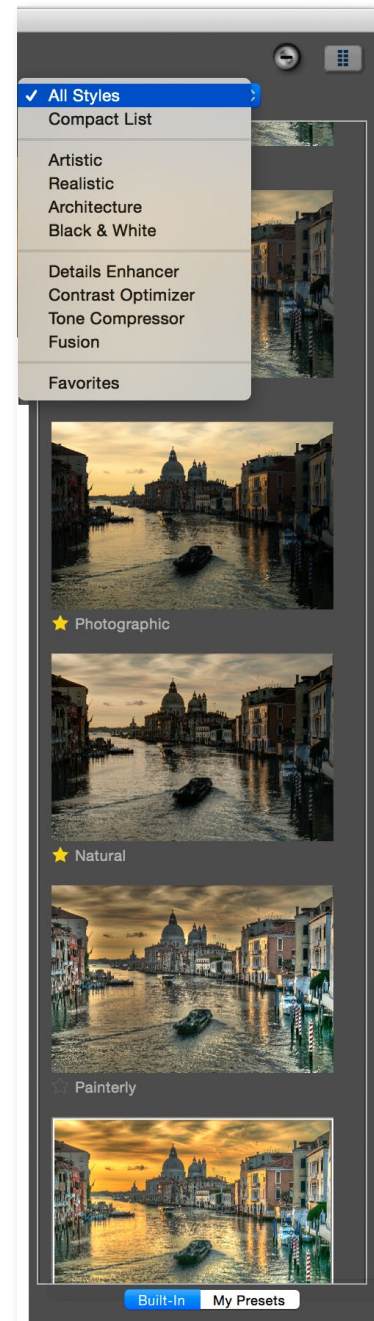
The **Compact List** item displays a selected subset of presets from all categories. The **Favorites** item displays only presets you have marked as favorite. See more details on Favorite presets at the end of this section.

### 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 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**  
Single column, large thumb view

### 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 Tone Mapping or Exposure Fusion is complete.

To save custom presets during image adjustment:

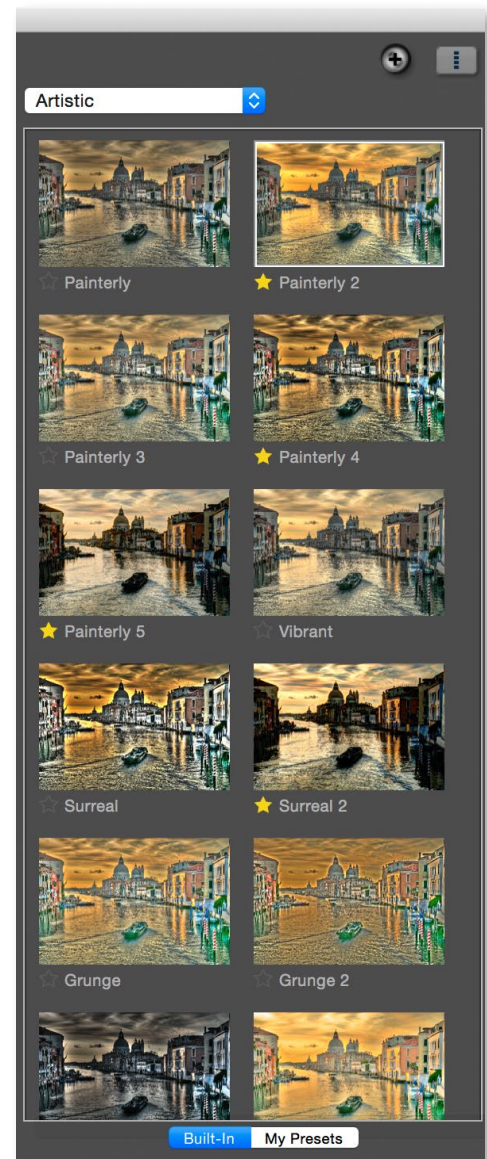
1. In the Adjustments panel, click the **Presets** drop-down list.
2. Select **Save Preset** from the list.
3. Enter a name for the preset in the File name field and click **Save**.

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 built-in Presets**  
Two column, small thumb view



#### 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.

## 3.4 Replace Selection with Source

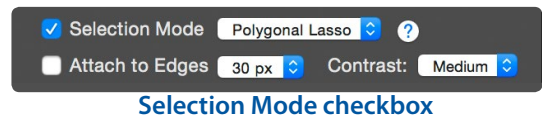
An HDR-processed image might look exactly the way you want, except for one area. For example, the sky might have more contrast or be darker than desired. The **Replace selection with source** feature lets you replace that area with the same area from any one of the source images, to bring the tonemapped or fused image closer to what you want.

### 3.4.1 Selecting the Area to be Replaced

To enable this feature, click the **Selection Mode** checkbox.

The Polygonal Lasso is the default tool. We recommend using the **Polygonal Lasso**, but you may prefer to use the **Normal** or the **Magnetic Lasso**.

Selection works differently depending on the tool:



#### Polygonal lasso

1. Click to set the selection line's starting point.
2. Move the mouse and click to create a straight segment, attached to the previous point. Repeat to create additional segments.
3. To close the selection: double-click, or single-click on the starting point.

#### Normal lasso

1. Click and drag the mouse to draw a freehand selection.
2. Release the mouse button to close the selection.

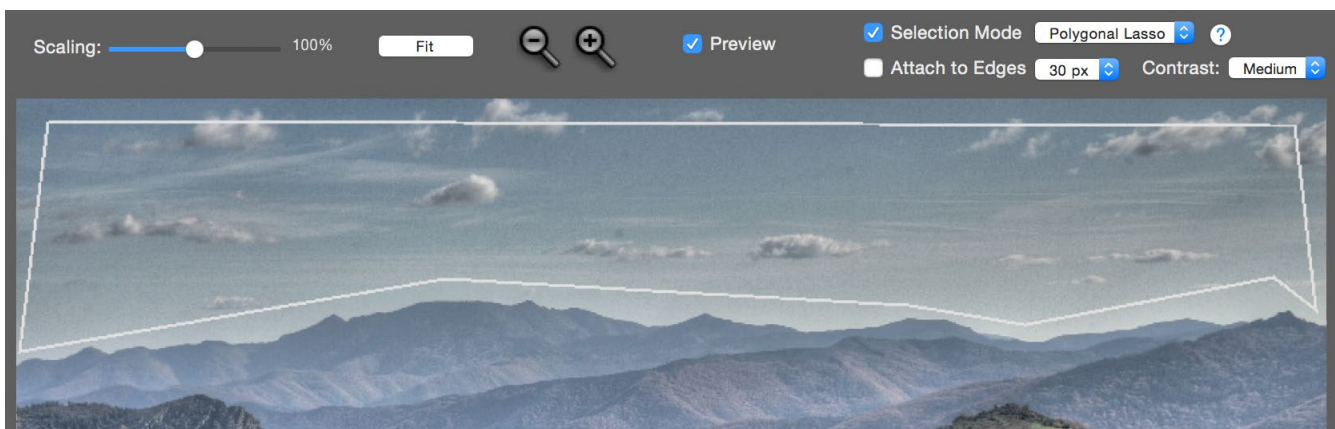
#### Magnetic lasso

1. Click and drag the mouse as with the Normal Lasso. If an edge is within the Width setting, the selection path snaps to the edge.
2. To close the selection: double-click, or single-click on the starting point.

### Selecting Which Lasso to Use

The **Polygonal Lasso** is ideal for areas with straight sides, and good for large areas, because you don't have to hold down the mouse button.

The **Normal Lasso** is good for areas with curved sides. It's not the best choice for large areas, because you have to hold down the mouse button as you drag.



A selection drawn with the Polygonal Lasso

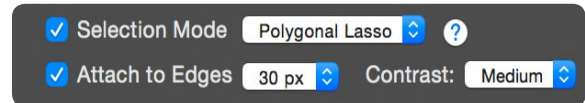
### 3.4.2 Fitting the Selection to the Area's Edges

The area to be replaced usually has at least one irregular border (such as the mountains in this sample photograph). It's difficult to draw irregular borders exactly, and you don't have to. You can draw approximate borders and Photomatix Pro will fit them for you by "finding the edges".

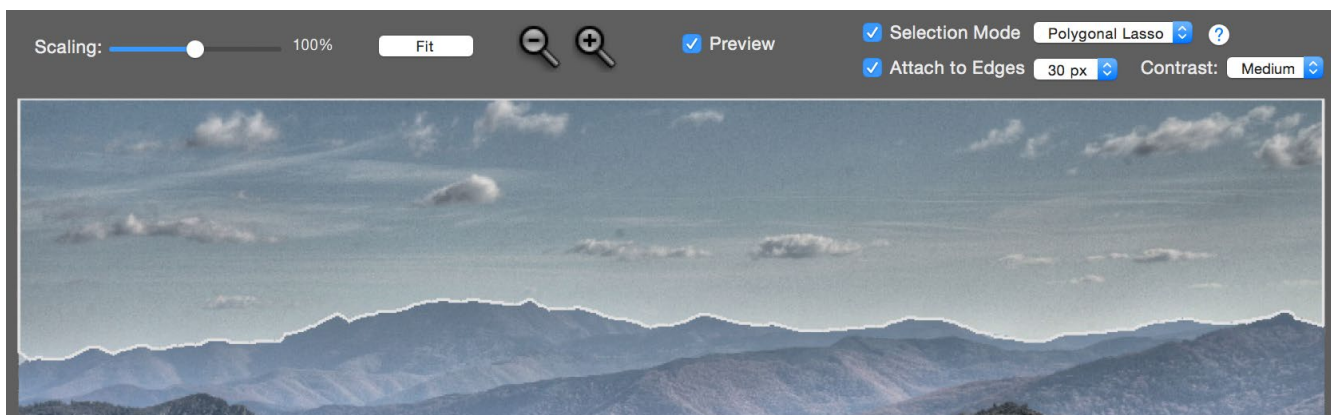
#### Finding the Edges

The borders of the area you want to replace are almost always at edges — large changes in brightness between adjacent pixels. In the sample photo, the transition between the light sky and the darker mountains is an edge.

Selecting the **Attach to Edges** checkbox causes Photomatix Pro to search for an edge near the selection path you drew. The selection path is then redrawn along the edge — in this case the mountainous horizon line.



Attach to Edges checkbox



Polygonal selection after clicking "Attach to Edges"

The **Contrast** setting (*Low*, *Medium* or *High*) determines whether a difference in brightness is large enough to be detected as an edge. The higher the setting, the greater the brightness difference has to be.

The **Width** box (next to the Attach to Edges box) sets the maximum distance Photomatix Pro searches (in pixels) from the original selection path. If Photomatix Pro finds an edge within the Width setting, the selection is redrawn to fit the edge. If Photomatix Pro finds a border of the image, the selection is redrawn along the border.

Changing the Width or Contrast setting immediately redraws the selection path to reflect the new value.

To undo the edge fit, deselect the **Attach to Edges** checkbox.



#### Important Note

The **Loupe** may not properly show the effect of the **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.



### 3.4.3 Replacing the Selected Area

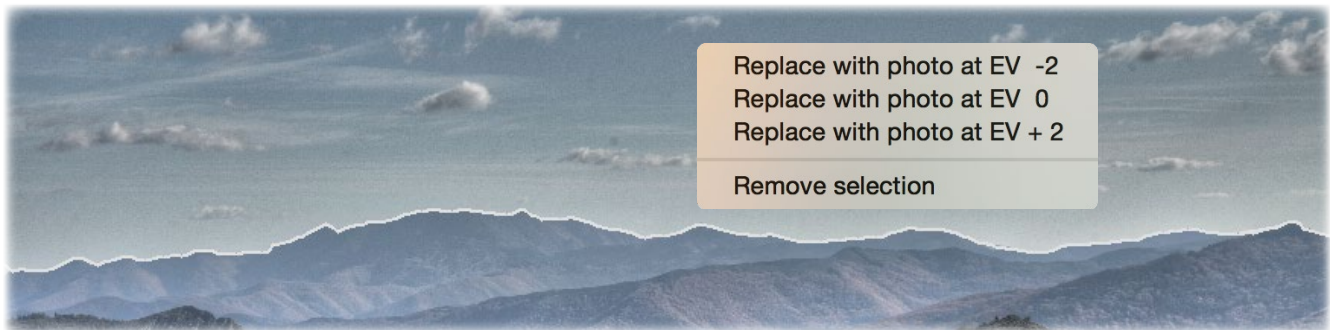
Right-click anywhere within the selection.

A contextual menu appears.

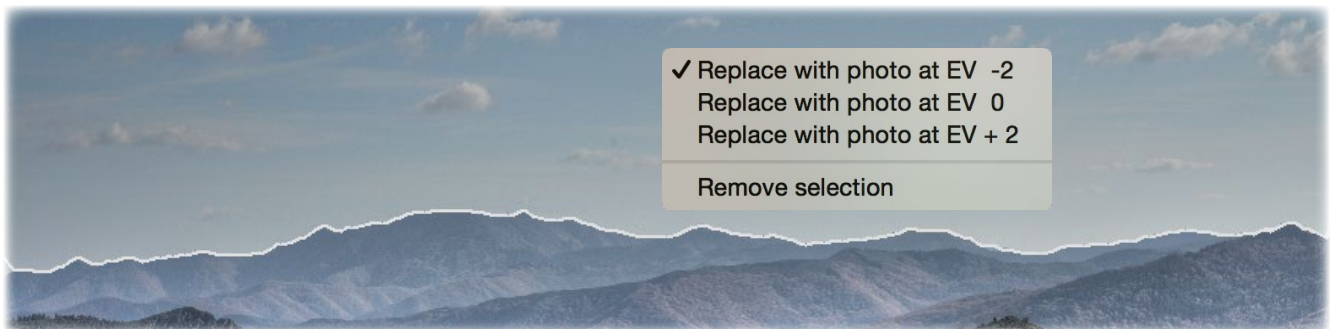
- If you loaded bracketed photos, the menu identifies them by their exposure difference, relative to the *"normal"* exposure. Click the photo at the EV you want.
- If you loaded a single image, click **"Replace with source"**.

If you prefer not to see the lines marking your selection, deselect the **Selection Mode** checkbox.

To discard the replacement and return to the initial preview, right-click within the selection and select the checkmarked item in the contextual menu.



Replacing the selected area



Returning to the initial preview



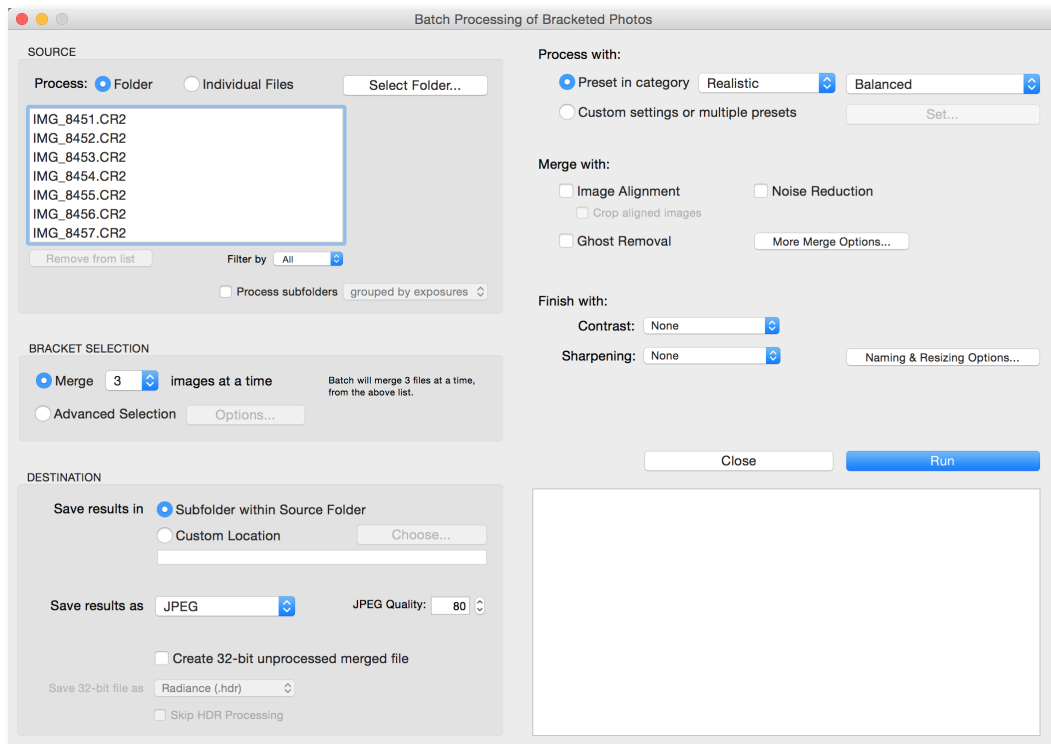
## 4 Automating with Batch Processing

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 bracketed sets using HDR Tone Mapping and/or Exposure Fusion all in one step, which can save you a lot of time when you have many bracketed sets to process.
- **Batch Single Photos:** Processes multiple single image files using Tone Mapping.

### 4.1 Batch Processing Bracketed Photos

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



Batch processing of bracketed photos

#### 4.1.1 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

## 4.1.2 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.

Process with:

☐ Preset in category Realistic ⇅ Balanced ⇅  
☒ Custom settings or multiple presets Set...

Click **Set...**, to set up preset batches

Batch Processing of Bracketed Photos

Preset: Photographic ⇅ Add

Filter: Realistic ⇅

Custom Settings: Details Enhancer ⇅ Set...

Settings Type	Preset/Settings Name
Built-in Preset	Monochrome
Built-in Preset	Monochrome 2
Built-in Preset	B&W Photographic
Built-in Preset	Monochrome 3
Built-in Preset	Painterly
Built-in Preset	Vibrant
Built-in Preset	Balanced
Built-in Preset	Natural

Update... Remove Clear List OK

☐ Save custom settings in XMP file

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:

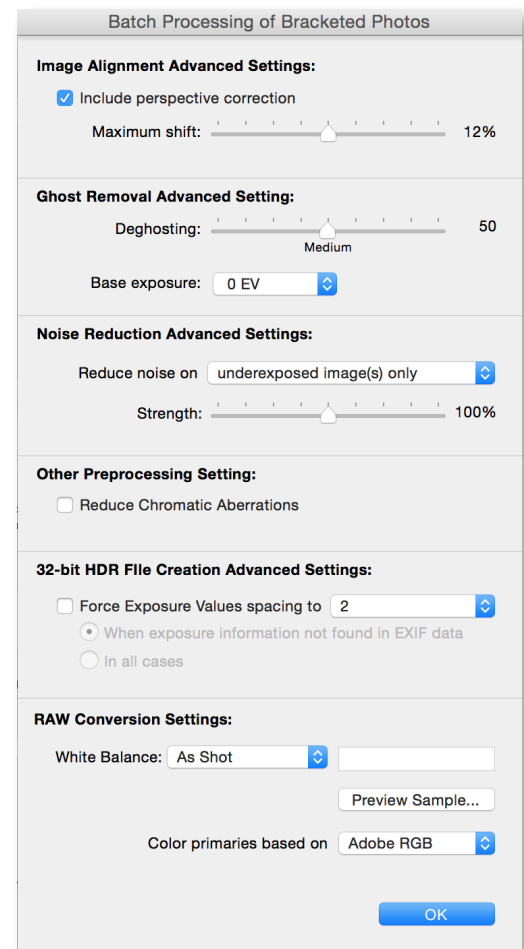
1. Select a method from the **Custom Settings** menu, and then click **Set...**  
The Settings Adjustments window for the selected method will open.
2. Select a method preset from the Presets: menu, and modify as desired.  
OR  
Modify the existing settings. The existing settings are the default for 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.

#### 4.1.3 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.



More Merge Options window

#### 4.1.4 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**

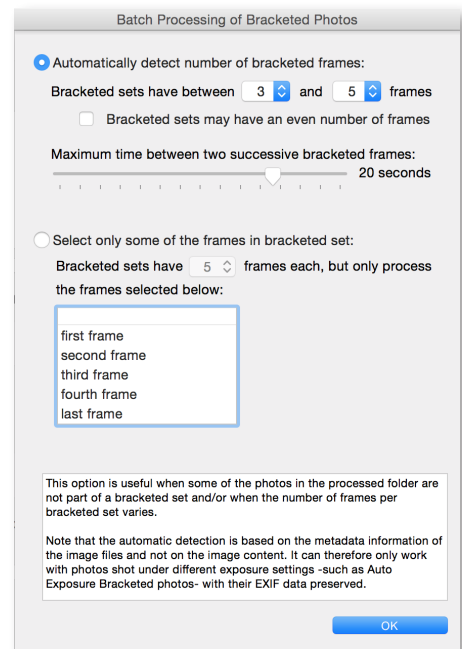
If you check **Process subfolders** and select **grouped by exposures**, the batch will combine the first file of **Subfolder-1** with the first file of **Subfolder-2** and the first file of **Subfolder-3**. The batch will then combine the second file of **Subfolder-1** with the second file of **Subfolder-2**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

#### 4.1.5 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 frames or when the number of 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 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.



Advanced Selection options

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

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

## 4.2 Batch Processing Single Images

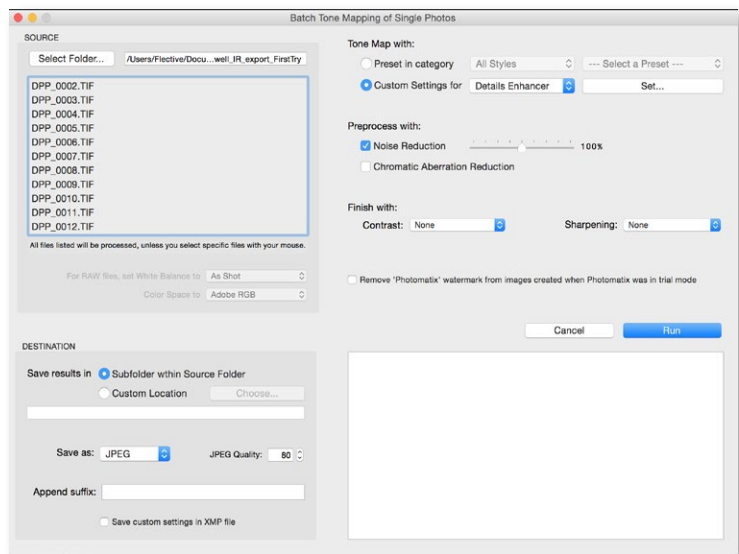
To process a batch of single image files, follow these steps:

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 tone map 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 custom tone mapping 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 checkboxes 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 Tone Mapping 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 watermark, Photomatix Pro requires that the image was not retouched after the watermark was added. If the brightness or contrast of the image was changed, or the image was double tone mapped, cropped or resized, then Photomatix Pro will not be able to remove the watermark.



## 5 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](http://www.hdrsoft.com/support/faq_photomatix.html).

### 5.1 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.

### 5.2 Processing Raw files in Third-Party Raw Converters

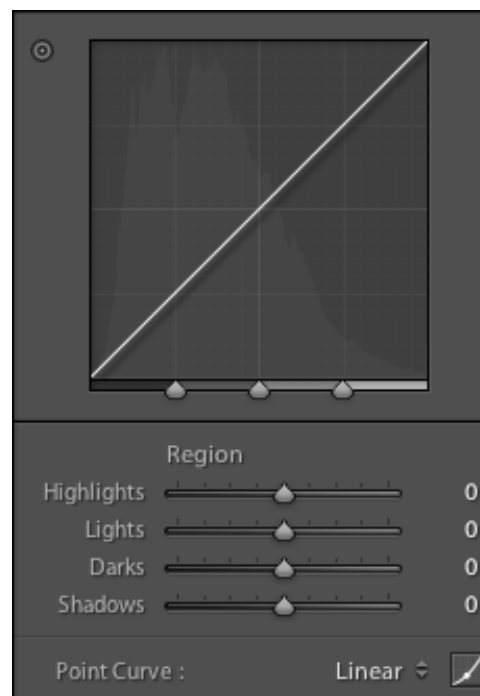
When using a third-party Raw converter, develop the Raw images with the following settings.

- **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

## 5.3 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.

## 5.4 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.

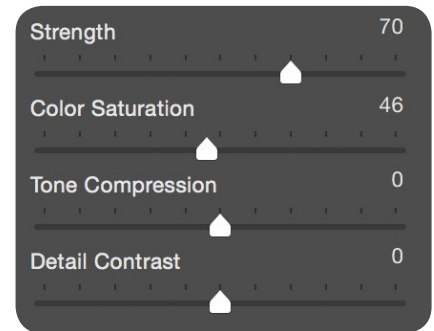
For all JPEG and TIFF files, Photomatix Pro preserves the color spaces of the source files.

## Appendix A: Settings

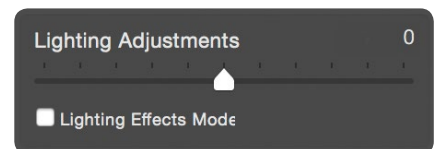
### Details Enhancer Tone Mapping Settings

#### General Settings

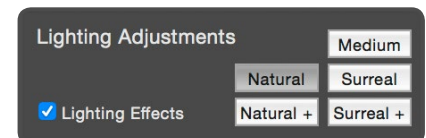
- **Strength:** Affects the amount of enhancement given to contrast and detail in the image. A value of 100 gives the greatest enhancement. Moving the slider to the left gives a more natural effect. The default value is 70.
- **Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (0) produces a grayscale image. The default value is 46.
- **Tone Compression:** Adjusts the dynamic range of the tone mapped 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 checkbox:** 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.



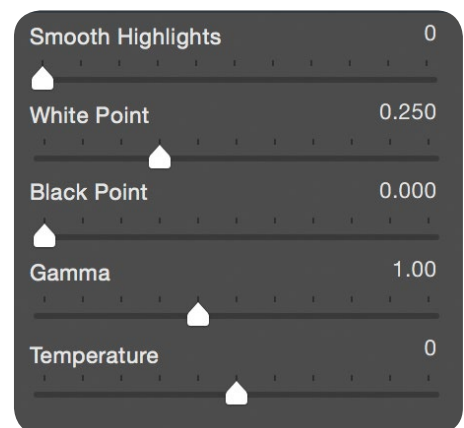
Details Enhancer – General settings



Details Enhancer – Lighting Adjustment settings



Details Enhancer – Lighting Effects Mode



Details Enhancer – More Options

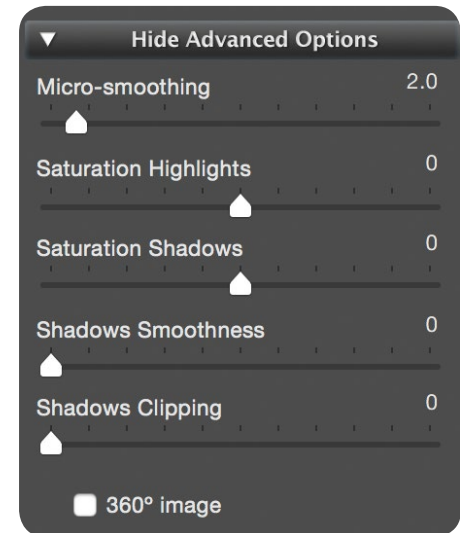
#### More Options

- **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 tone mapped 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 tone mapped 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.
- **Gamma:** 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 the contrast. Moving to the left darkens the midtones and increases the contrast. The default value is 1.0.
- **Temperature:** Adjusts the color temperature of the tone mapped image relative to the temperature of the HDR source image. Moving the slider to the right gives a "warmer", more yellow-orange colored look. Moving it to the left gives a "colder" more bluish look. A value of 0 (default) preserves the original color temperature of the HDR source image.

## Advanced Options

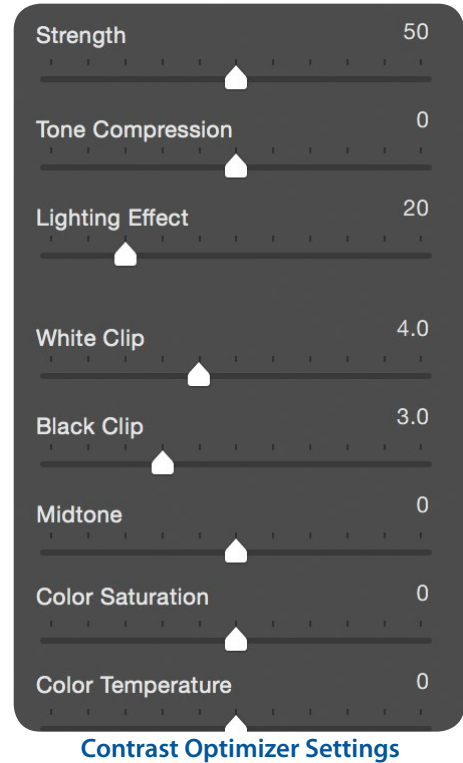
- **Micro-smoothing:** Smooths out the enhancement of small details, which has the effect of reducing noise in the sky for instance, and tends to give a "cleaner" look to the result
- **Saturation Highlights:** Adjusts the color saturation of the highlights relative to the color saturation set with the 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° image:** 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 – Advanced Options

## Contrast Optimizer Tone Mapping Settings

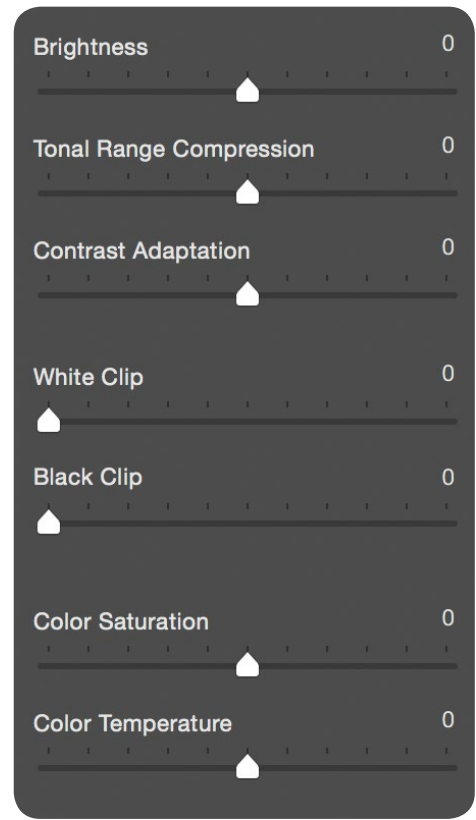
- **Strength:** Affects the amount of enhancement given to contrast and detail in the image. A value of 100 gives the greatest enhancement. Moving the slider to the left gives a more natural effect. The default value is 50.
- **Tone Compression:** Alters the dynamic range of the tone mapped image. Moving 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.
- **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.
- **Color Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (-10) produces a grayscale image.
- **Color Temperature:** Adjusts the color temperature of the tone mapped image relative to the temperature of the HDR source image. Moving the slider to the right gives a "warmer", more yellow-orange colored look. Moving it to the left gives a "colder" more bluish look. A value of 0 (default) preserves the original color temperature of the HDR source image.
- **360° Image:** 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.





### 3.5 Tone Compressor Tone Mapping Settings

- **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.
- **Color Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (-10) produces a grayscale image.
- **Color Temperature:** Adjusts the color temperature of the tone mapped image relative to the temperature of the HDR source image. Move the slider to the right for a warmer, more yellow-orange colored look. Move it to the left for a colder, more bluish look. A value of 0 (default) preserves the original color temperature of the HDR source image.

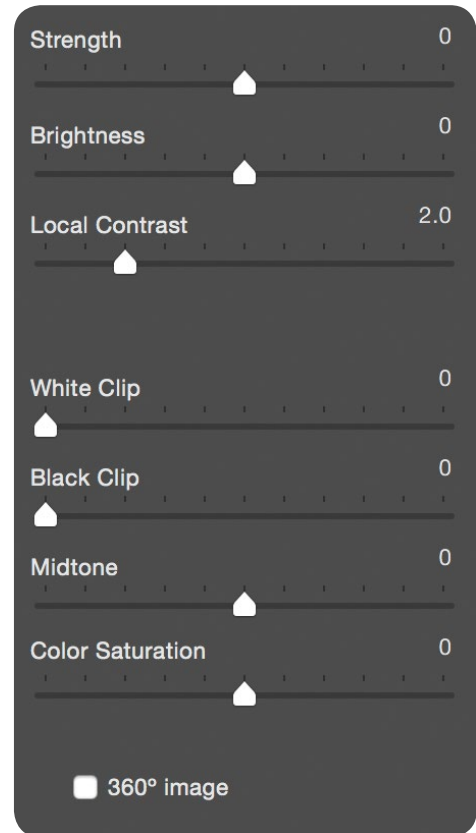


Tone Compressor Settings

## 3.6 Fusion Settings

### 3.6.1 Fusion/Natural Settings

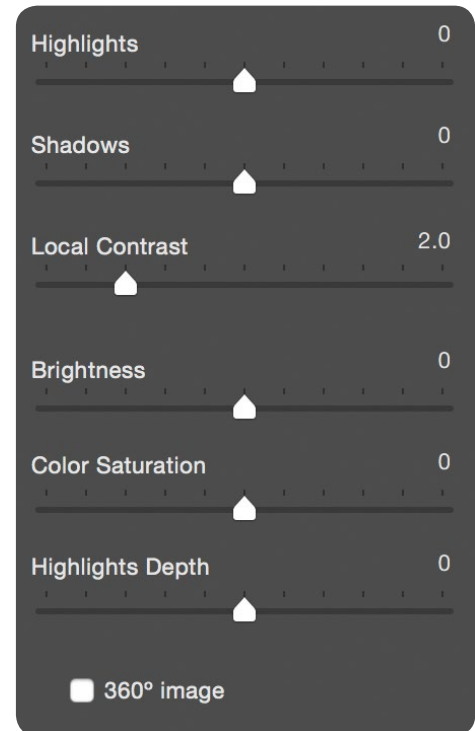
- **Strength:** Sets by how much local contrast is accentuated. Moving the slider to the right tends to brighten the shadows and to show more details in the highlights. Moving to the left produces a more "natural" effect.
- **Brightness:** Controls the brightness of the fused image by adjusting the influence 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.
- **Shadows Contrast:** Increases the contrast of shadows in the image by darkening the areas of heaviest shadow and brightening the midtones, giving a more realistic effect.
- **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.
- **Color Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (-10) produces a grayscale image.
- **360° Image:** 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

### 3.6.2 Fusion/Interior Settings

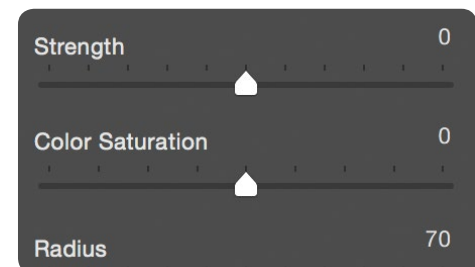
- **Highlights:** Adjusts bright areas in the image. Moving the slider to the right brightens the highlights. Moving to the left darkens highlights and recovers more highlight details.
- **Shadows:** Adjusts dark areas in the image. Moving the slider to the right brightens shadows and recovers more shadows 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.
- **Color Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (-10) produces a grayscale image.
- **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° Image:** 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

### 3.6.3 Fusion/Intensive Settings

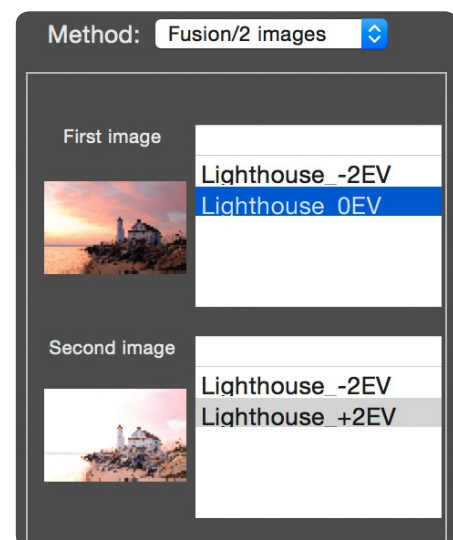
- **Strength:** Adjusts the strength of local contrast enhancements.
- **Color Saturation:** Adjusts the color saturation of the image. The greater the saturation, the more intense the color. Setting the slider to its lowest value (-10) produces a grayscale image.
- **Radius:** Controls the area used to calculate the weighting of the source images. A higher radius reduces halos, but increases processing times significantly. The default value is 70.



Fusion/Intensive Settings

### 3.6.4 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

<b>AEB Mode</b>	Automatic Exposure Bracketing. 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.
<b>Aperture Priority</b>	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).
<b>Bit</b>	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).
<b>Bit Depth</b>	The number of bits a file type uses to represent a pixel's color at a given location in an image.
<b>Bracketed images</b>	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.
<b>Chromatic Aberration</b>	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).
<b>Contrast Ratio</b>	Another way to describe the dynamic range of a scene. The ratio between the darkest and brightest areas.
<b>DSLR</b>	Digital Single Lens Reflex camera.
<b>Dynamic Range</b>	In the context of photography, the total range of light intensity in a scene, from the deepest shadows to the brightest highlights.
<b>EXIF</b>	The Exchangeable Image File header contains information about the image, the camera, location, date and time and camera settings.
<b>Exposure</b>	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).
<b>Exposure Fusion</b>	Combination of bracketed photos in such a way that highlight details are taken from the underexposed photos and shadow details from the overexposed ones.
<b>EV (Exposure Value)</b>	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.
<b>HDR</b>	High Dynamic Range.

<b>HDR Image</b>	Strictly speaking, an HDR image is an intermediary image with 32 bits per color channel (96 bits per pixel). An HDR image is the result of merging photos of the same scene taken under different exposure settings and stored in special HDR image format. The 32-bit intermediary HDR image must be processed with tone mapping for proper display on standard monitors and prints. It has become very common to define "HDR image" as the result of processing the 32-bit HDR image with tone mapping (i.e. the tone mapped output) but this is not technically correct.
<b>Histogram</b>	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.
<b>JPEG</b>	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.
<b>Noise</b>	Statistical variations inherent in the sensor system cause noise. Noise is always present, but higher sensitivities and smaller sensors usually generate more noise.
<b>Pixel</b>	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).
<b>PPI</b>	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.
<b>Raw File</b>	A file containing the raw data from the camera sensor. Raw files do not have a color profile or other stylistic preferences permanently applied.
<b>TIFF</b>	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.
<b>Tone Mapping</b>	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](http://www.hdrsoft.com/resources) lists Internet tutorials, books and DVDs on the subject of HDR photography.

[www.HDRsoft.com](http://www.HDRsoft.com)