

Photomatix Pro 6



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 – <https://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 adjust images using different HDR styles and presets. Refer to Section 2, **Loading and Merging Photos** 1 Section 3, **HDR Adjustment** for detailed information on how to use Photomatix Pro with your photos.

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**).



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 and mirrorless cameras, as well as some compact digital cameras, offer **Automatic Exposure Bracketing** (AEB). This feature 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:

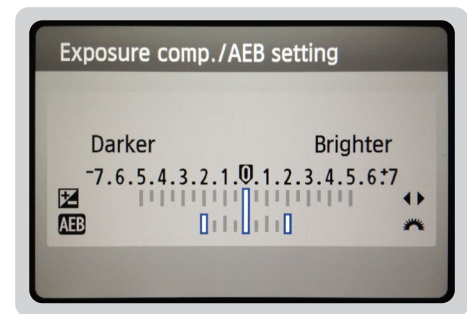
- Select the **Continuous shooting** mode on the camera's drive setting. Consult your camera manual for model-specific instructions for using this setting.
- Set the camera to **Auto Exposure Bracketing** (AEB).
- If possible, use the camera's self-timer setting, a cable release or a wireless shutter 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

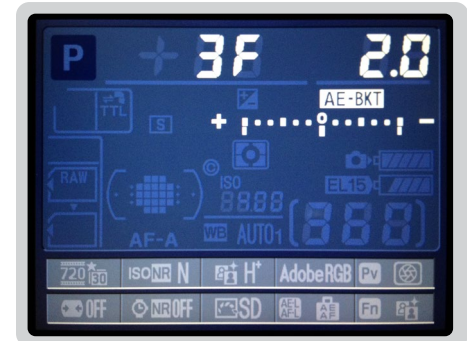
To get good results with HDR processing, your bracketed sequence must include photos that correctly expose highlights as well as photos that correctly expose shadows. The latter is especially important to prevent noise in the processed HDR image.

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 adjustment.

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).

2.1 Merging a Bracketed Photo Set

2.1.1 Loading a Bracketed Photo Set

To load bracketed image files, either simply **Drag and drop** them onto the app or app icon, or **Browse** for and **Load** them using the **Open** dialog.

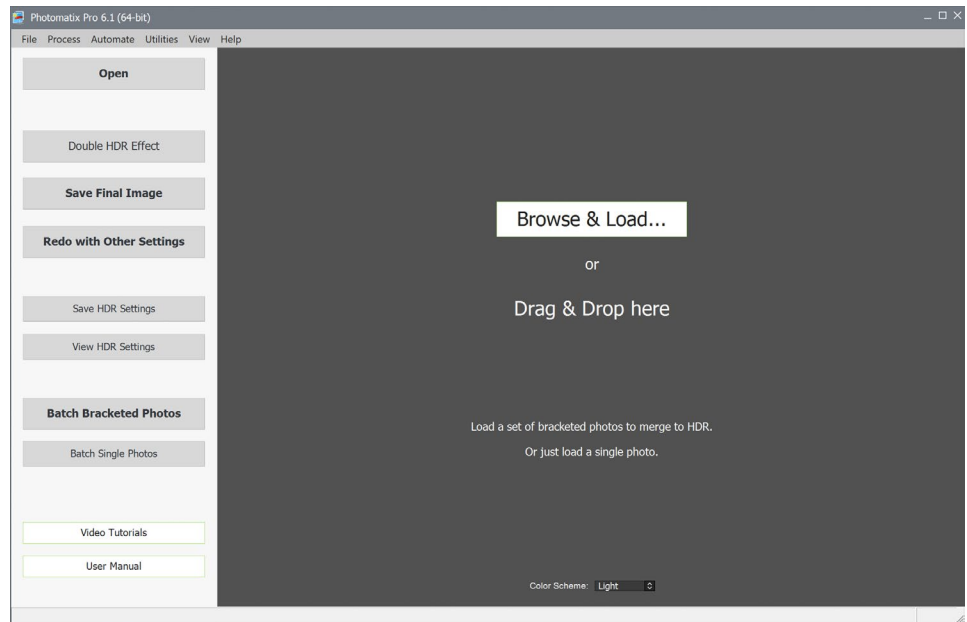
The **Open** dialog is accessed using the **Browse & Load** button (see screen shot above), or using the **File** menu. Once you are in the **Open** dialog, use the **CTRL / Command key** method, or the **Shift key** method, to select an image set:

The **CTRL / Command** key method:

- Click any image in the bracketed set
- Press and hold the **Ctrl [PC] / Command [Mac]** key
- Click the other images in the set
- Click **Load**

The **Shift key** method:

- Click the **first** image in the bracketed set
- Press and hold the **Shift** key
- Click the **last** image in the set (to select all between)
- Click **Load**



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



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

If you have Lightroom Classic, you can use the **Export to Photomatix Pro plugin for Lightroom** to load images into Photomatix Pro.

If you have Capture One, you can use the **Merge to HDR in Photomatix Pro plugin for Capture One**.

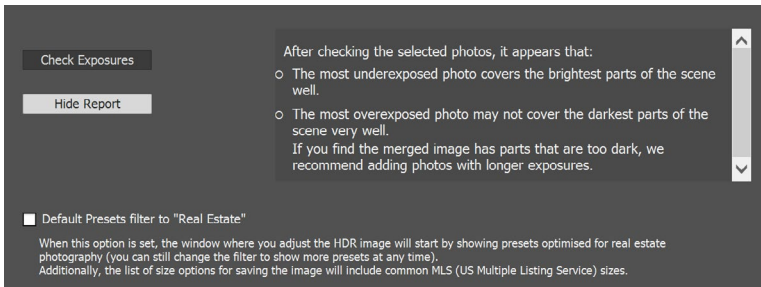
Refer to Section 7.1 or the [FAQ](#) on the Photomatix website for more information.

The Selected Photos Window

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

The **Check Exposures** button displays a dynamic range coverage evaluation of the selected photo

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



Entering Missing Exposure Values

If exposure information is not present 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 adjustment.

2.1.2 Merge to HDR Options

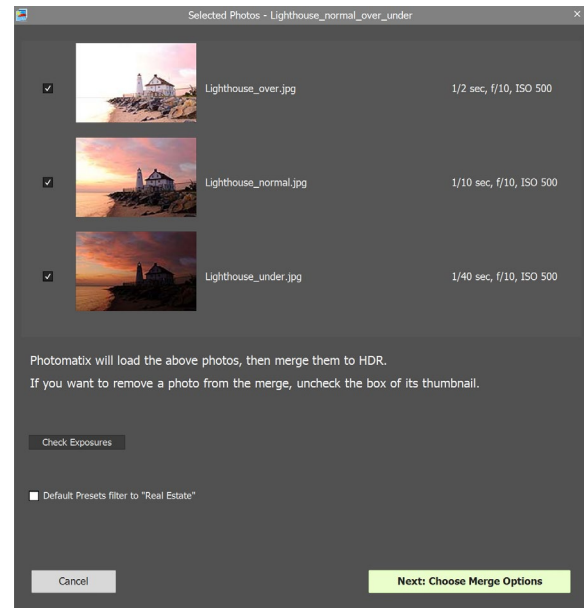
After the bracketed photos are selected, you can customize the steps performed before merging the images, such as aligning the images or removing "ghosts".

- 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 adjustment.

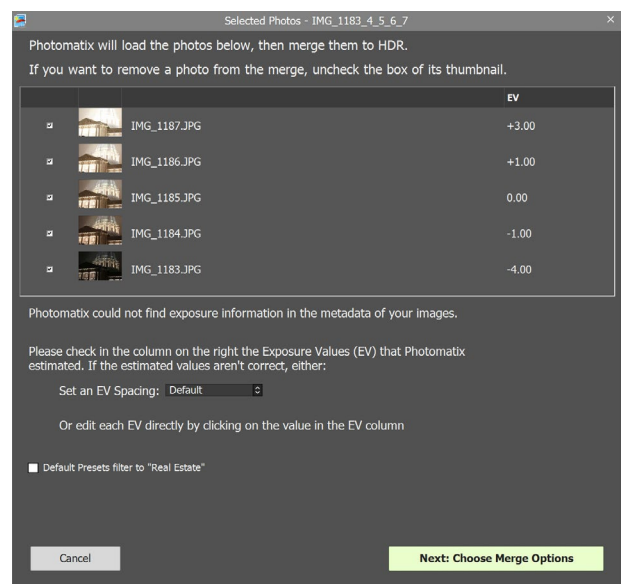


Note

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

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.

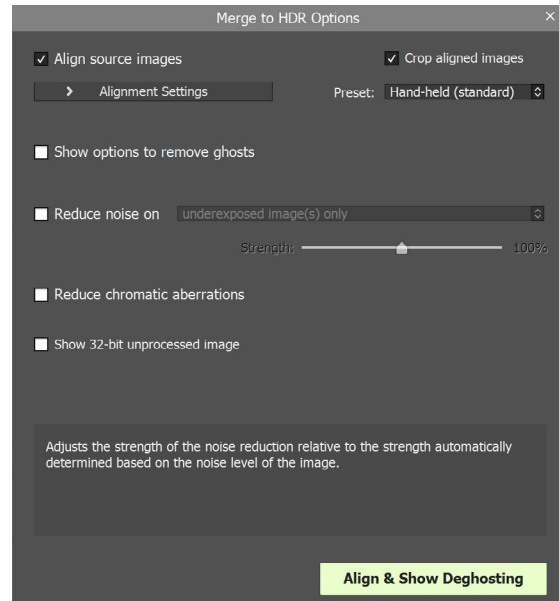
The alignment **Preset** drop-down menu lets you select pre-defined alignment settings that are appropriate for particular shooting situations. The four presets offered are *On Tripod*, *Hand-held (minimal movement)*, *Hand-held (standard)* and *Hand-held (large shifts)*.

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.

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.



Selecting options to merge to HDR

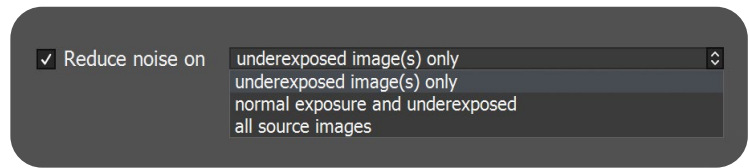


Note

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.

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.

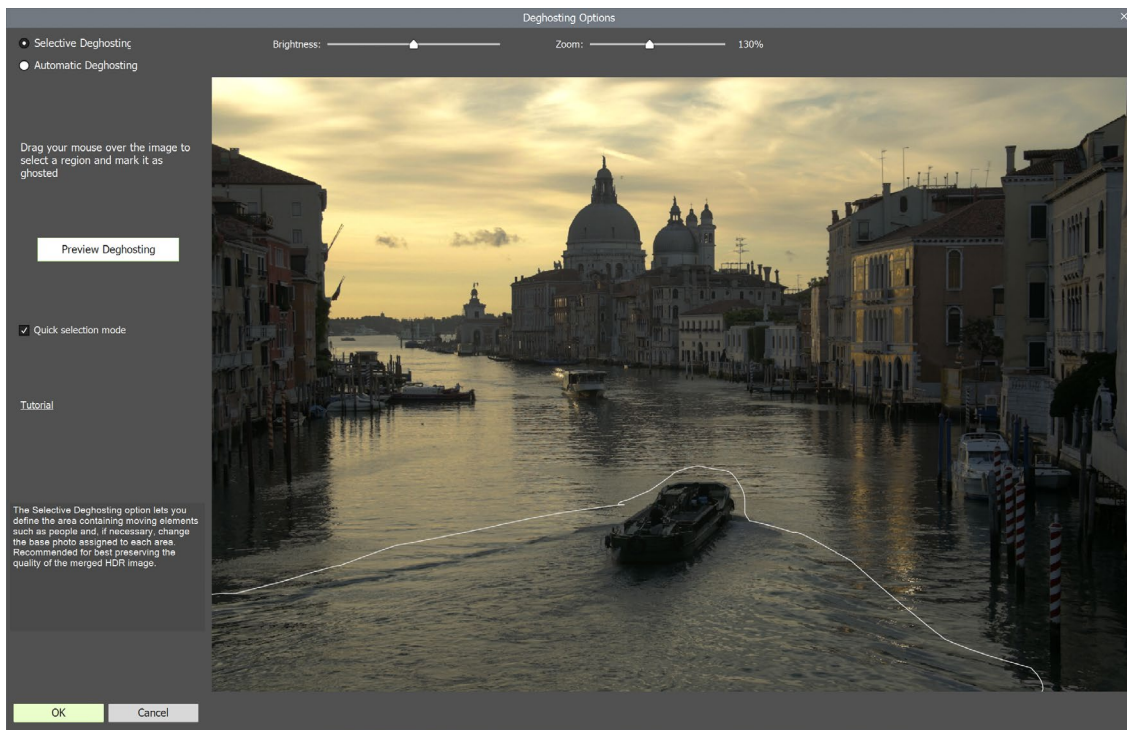
Show 32-bit Unprocessed Image

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 **Adjust HDR Image** button, in the Workflow Shortcuts window, to continue to the next step.



2.1.3 The Deghosting Options Window

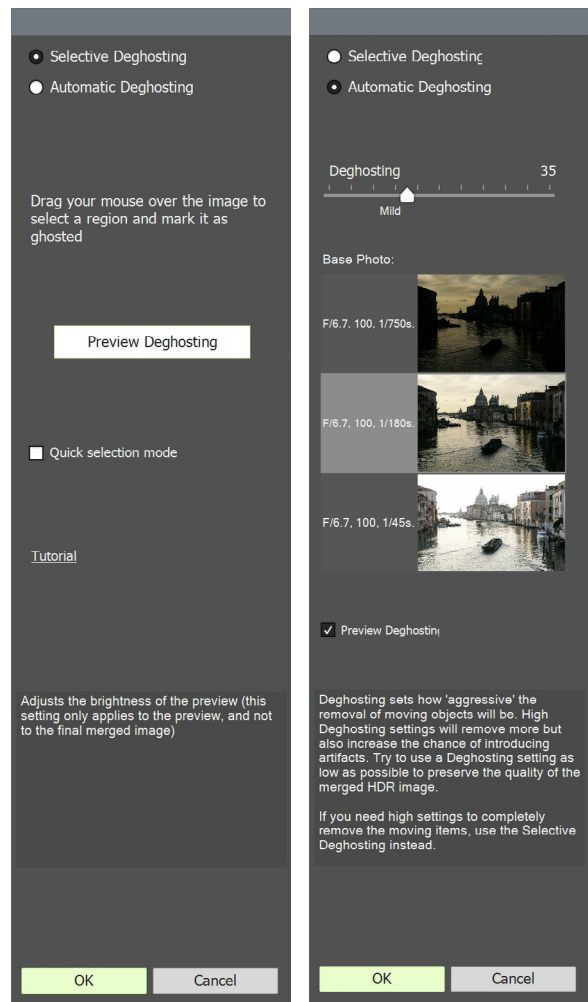
Select **Show options to remove ghosts** in the Preprocessing Options window, to subsequently access the Deghosting Options window.

The Deghosting Options window 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.

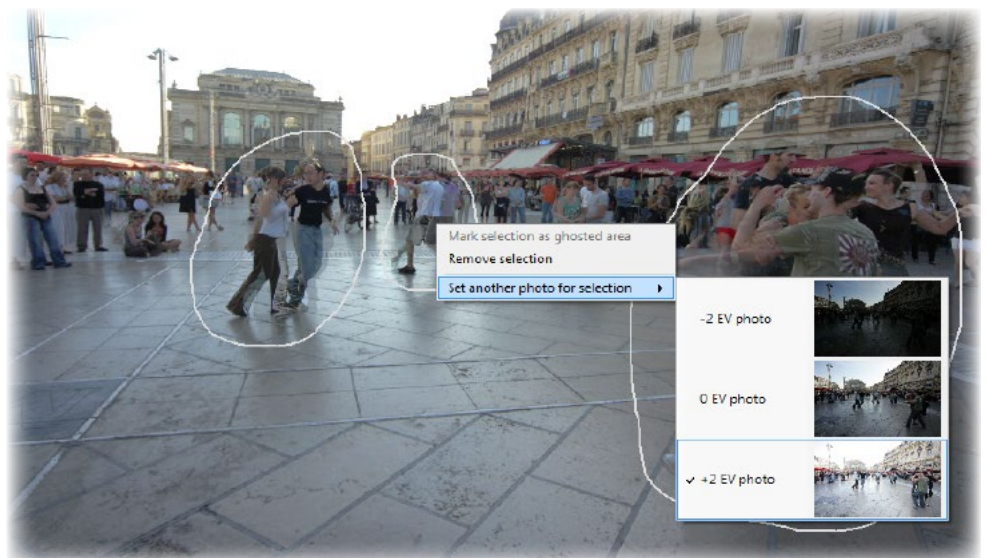
If necessary, you can remove a region from the deghosting selection. Control click or right click inside an already marked region and click **Remove selection** from the pop-up menu.

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 as low a setting 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.

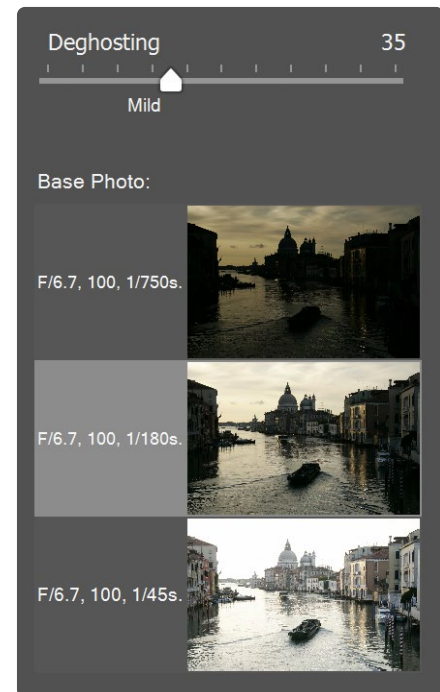
If you wish to continue working with the current bracketed set without deghosting applied, then set the **Automatic Deghosting** amount to "0", or make no **Selective Deghosting Tool** selections, and simply click **OK** to proceed.

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 global white balance, either select a pre-defined value from the White Balance drop-down list, or select **Custom** and then type a Kelvin color temperature value in the text box.

The **Apply per photo...** button loads the median image of your bracketed set for White Balance preview, so you can see the effect of different settings applied to your image set. It also offers controls that allow you to apply two different White Balance settings to the brighter vs. the darker images in your bracketed set, before it is merged into a single HDR image. The purpose of this feature is to help avoid the color cast differences in a merged image, sometimes caused when the dark vs. the light areas of a scene are lit by two different temperature light sources.

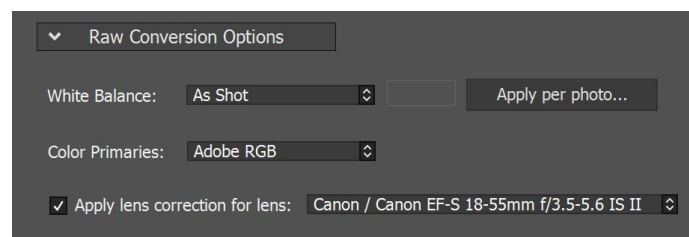


Automatic Deghosting controls



Note

Deghosting works with all HDR adjustment 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.



Merge to HDR Options window for Raw files

Dual White Balance settings are useful, for example, when an artificially lit interior scene has a view to the outdoors. The ideal dual White Balance for an image set that captures this type of dual light source scene, might be the "**Fluorescent**" (3800K) setting for the longer exposures that capture primarily the interior artificially lit elements of the scene, and "**Daylight**" (5500K) for the shorter exposures that capture primarily the sunlit elements of the scene. This dual WB technique can help minimize unwanted color cast differences between sections of a scene that are lit by different temperature light sources.

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.

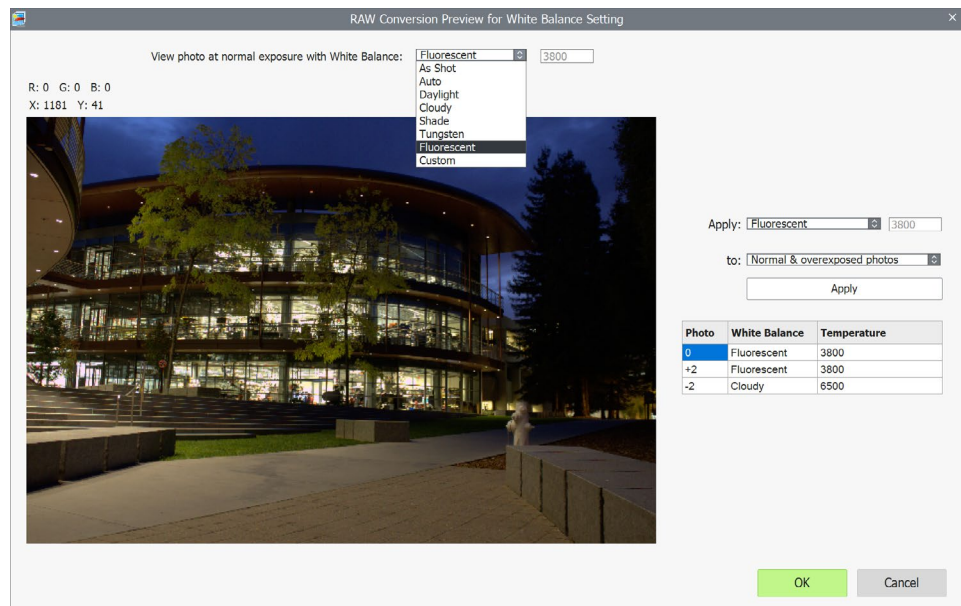
The **Apply lens correction for lens** option will be displayed if the lens used to take the photos is recognized. This option applies lens correction that help compensate for pincushion and barrel distortion, and other typical lens defects that are introduced to some degree by even the finest lenses. The combo-box lists lens profiles that match the lens information read in the image's EXIF data. If multiple correction options are shown, perhaps from a family of related lenses, choose the specific lens variation that you used for your photo.

2.1.7 Dual White Balance Selection Window

To preview a WB setting, select it from the menu at the top of the window. The setting will automatically apply. WB values from 2000K to 50000K are also available, by selecting Custom and typing the desired value. To preview a Custom WB, press Tab.

While previewing WB settings, check the resulting color cast in dark areas vs. in light areas, especially if the different areas are lit by different types of light source. If it appears that a different WB gives best results in dark areas vs. in light areas, then the dark vs. the light source photos in your bracketed set might benefit from dual WB, in order to produce a more tone-consistent image.

After previewing the effect of different WB values on the photo at median exposure, work with the controls at the right of this window to apply your preferred setting(s) to all photos in the bracketed set.



Dual White Balance Selection Window

- To apply a **single** overall White Balance setting:
 - Select it from the **Apply menu**, and click the **Apply button**.
- To apply a **dual** White Balance setting:
 - Select your WB choice for the **lighter** image areas, select **Normal & overexposed photos**, and click **Apply**.
 - Select your WB choice for the **darker** image areas, select **Underexposed photos**, and click **Apply**.

Click **OK** to confirm your WB changes, and close the window.

2.2 Working with Single Image Files

Photomatix Pro supports HDR adjustment of 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: Adjust**.



Note

Some Presets, particularly those in the "**Artistic**" style, make any noise present in the image much more visible. This is why it is a good idea to use **noise reduction** before adjusting the image, especially when processing a single image

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%.

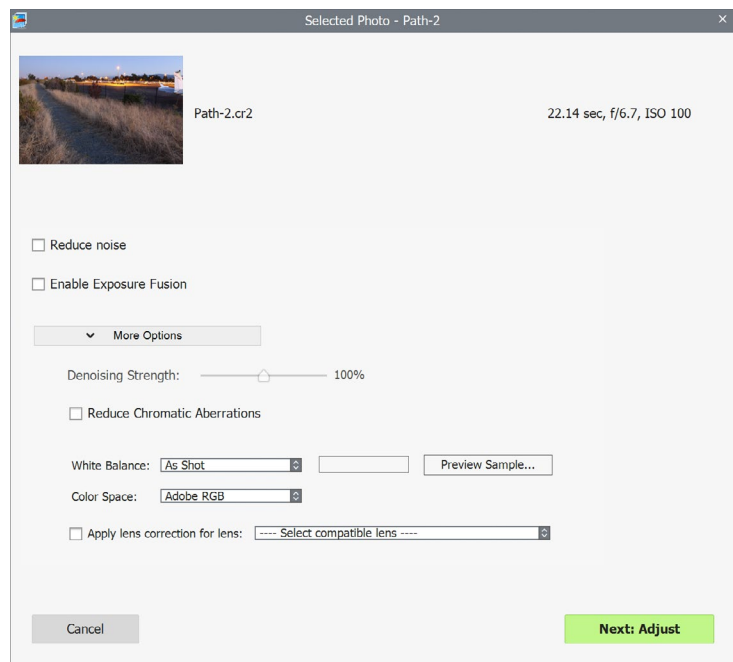
Enable Exposure Fusion allows a single image to be processed using Fusion methods. Normally, Fusion methods only apply to multiple image sets. This option will split the single Raw file into darker and lighter images, which can then be adjusted using Exposure Fusion-based presets, such as the '**Natural**'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

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**.



Single image Raw Processing Options

The **Apply lens correction for lens** option will be displayed if the lens used to take the photos is recognized. This option applies lens correction that help compensate for pincushion and barrel distortion, and other typical lens defects that are introduced to some degree by even the finest lenses. The combo-box lists lens profiles that match the lens information read in the image's EXIF data. If multiple correction options are shown, perhaps from a family of related lenses, choose the specific lens variation that you used for your photo.

3 HDR Adjustment

The heart of Photomatix Pro is where you adjust the image with various HDR styles. 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 Adjustment 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 have 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 / Lasso 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 Effect** allows you to add additional effects, using your already-processed image as a starting point for additional adjustment.



Note

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



Note

Presets from **Fusion** HDR 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 or the Capture One Plugin

If you are using the **Export to Photomatix Pro** plugin for Lightroom Classic or the **Merge to HDR in Photomatix Pro** plugin for Capture One, the image adjustment workflow described above stops at step 4. Additionally, the button that returns the adjusted image to Lightroom or Capture One will be named **Save & Reimport** instead of **Done**

In the case of the plugin for Lightroom, note that you will have to make sure the **Automatically reimport into Lightroom library** option is checked to get the saved HDR image automatically reimported into Lightroom.

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.



Note

By default, the file name of the adjusted 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.

3.2 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**.

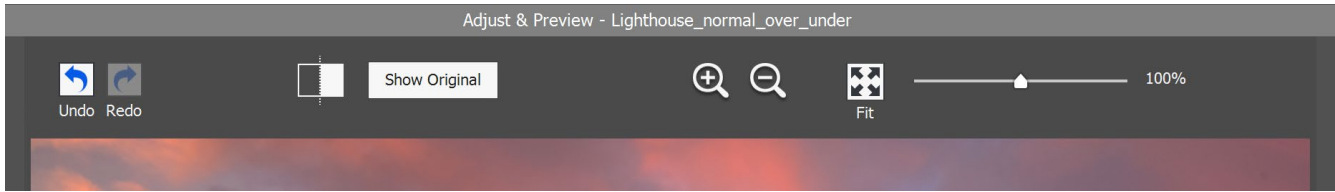


Image adjustment Preview panel controls

3.2.1 Preview

The **Preview** displays the image adjusted 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.



Note

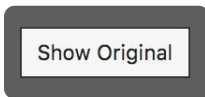
When using the **Details Enhancer** or **Contrast Optimizer** methods, the **Preview** is not always an accurate representation of the final HDR image.



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 adjusted preview from the left half of the image. This allows you to compare your original unprocessed image to the **adjusted 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-processes it at the new size.



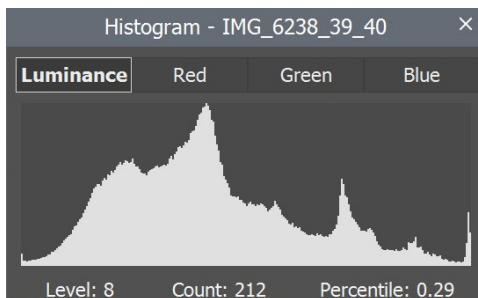
Fit: Resizes the preview to fill the available space in the Preview panel.



Scaling Slider: Zooms in or out the refreshed preview from 50% to 150%. The preview is not re-processed but is simply scaled. When **Fit** or one of the **Magnify** icons is clicked, the Preview is not simply scaled but is re-processed, 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 adjusting it according to 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 five categories which correspond to HDR styles (*Details Enhancer*, *Contrast Optimizer*, *Tone Balancer*, *Tone Compressor* and *Fusion*).

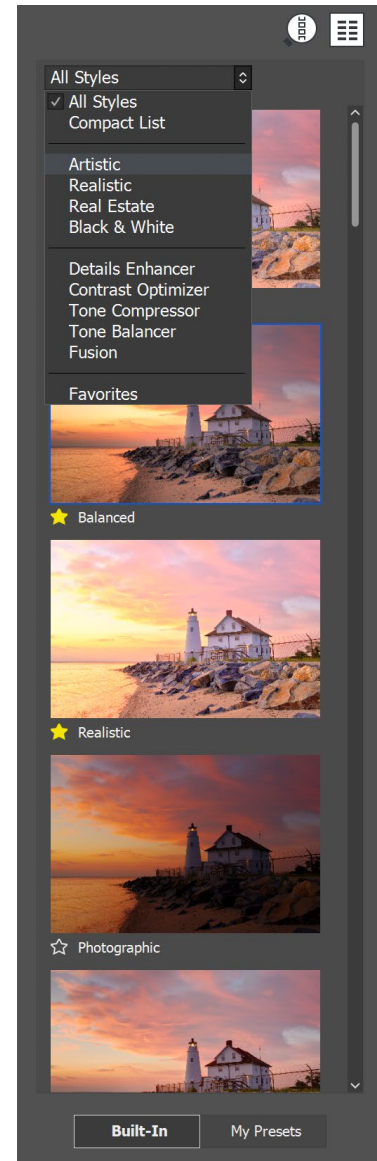
The **Compact List** item displays a selected subset of presets from all categories. The **Favorites** item displays only presets you have marked as favorite. See more details on Favorite presets at the end of this section.

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 saved 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.



Presets 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 processing is complete. To save custom presets during image adjustment:

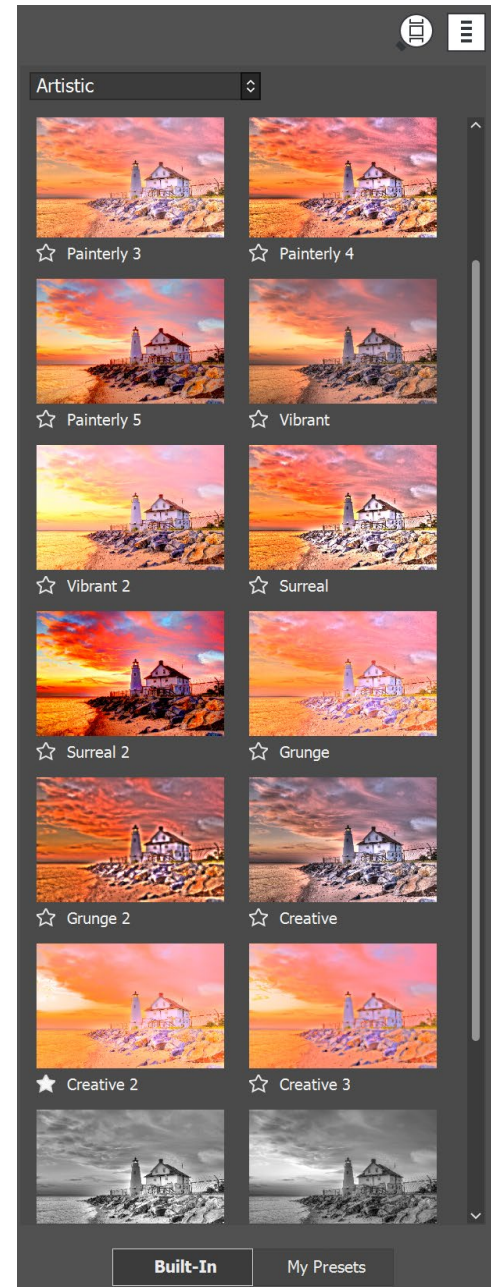
1. In the Adjustments panel, at the left side of the Preview window, click the **Presets** drop-down list.
2. Select **Save Preset** from the list.
3. Enter a name for the preset in the File name field, and click **Save**.

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

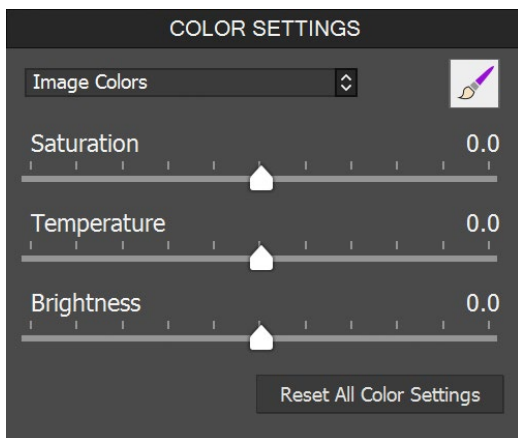
3.4 Color Adjustments

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

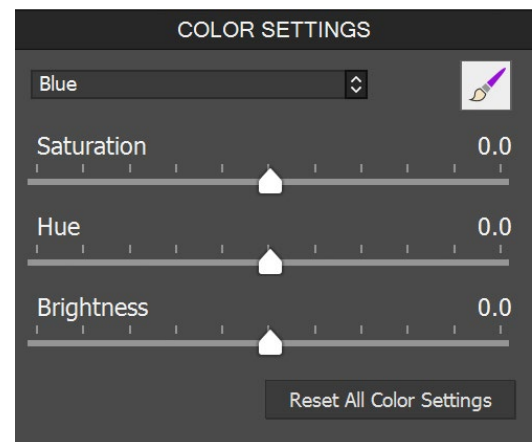
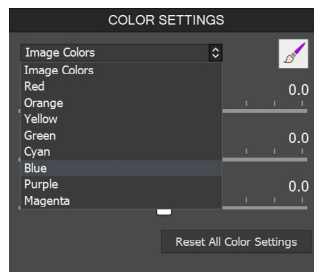
When adjusting an individual image color, the Hue setting is available. It allows you to push a given color towards either of its neighboring colors in the spectrum. For example, Orange colors can be pushed towards either Yellow or Red. When you are not constraining your color adjustment to a single 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 selecting that color 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 the specific sky in your image.

As described next in the **Brush / Lasso Tool** section, you not only are able to constrain your color adjustments to specific *colors* of 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 The Brush and Lasso Selection Tools

You may sometimes wish to limit your image adjustments to just one part of your image. This is possible using **Selective Adjustments**, in Photomatix Pro, and there are two types:

1. **Selective Color adjustments:** For changing saturation, hue, temperature, and/or brightness – in the image areas you select. The opacity of a color effect can be set, from one to 100%.
2. **Selective Blending adjustments:** For blending a source photo, with no adjustments applied, into the merged bracketed set – in the image areas you select. Any source photo can be blended in, from one to 100% (If you opened just one photo, the blend will be between the adjusted Preview, vs. the unadjusted original).

You can apply color or blending adjustments multiple times across an image, with different settings area-by-area, as needed. There are two alternative **Selection** tools for specifying the where in your image a given Color or Blending adjustment will apply:

1. **The Brush:** Lets you select image areas using an additive "paint-on" method, with a variable sized brush.
2. **The Lasso:** Lets you select image areas by outlining them, using a polygonal or a free form "lasso".

Both tools have an edge Softness setting. Use the "Brush" icons in the Color and the Blending sections, to access the Brush and the Lasso.

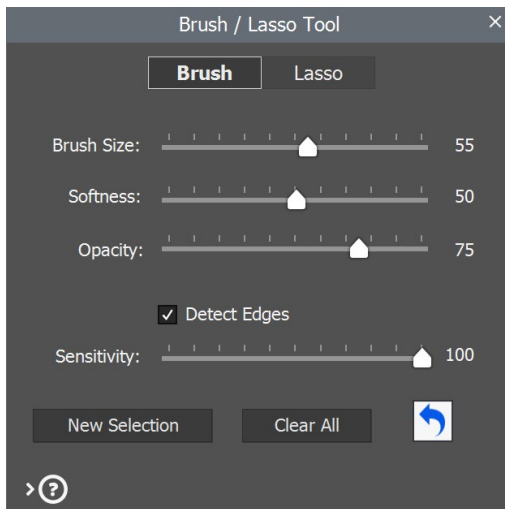
In **Section 4.1** below, learn how to use the Brush and Lasso to make **Selections**, and how to apply color and blending adjustments to those **Selections**.

Section 4.2 describes the various controls and buttons in the Brush and Lasso Tool windows, related to making and working with Selections.

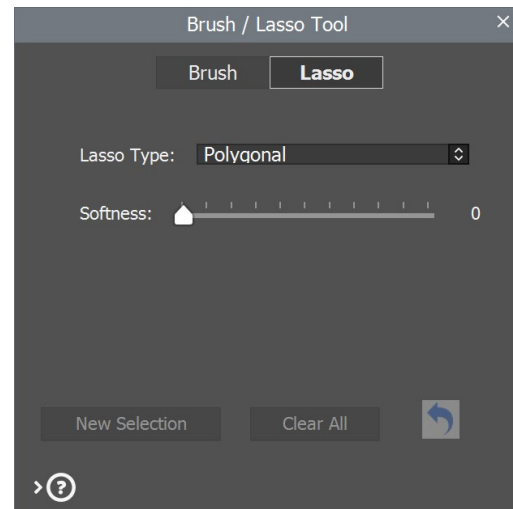
Section 4.3 provides examples of the Brush and Lasso tools in use.



Brush / Lasso Tool icon



Brush / Lasso Tool – Brush tab



Brush / Lasso Tool – Lasso tab

4.1 Selective Adjustment Workflow

The **Selective Adjustment Mode** begins when you click the Brush icon, in the Color Settings section or the Blending section. The **Brush / Lasso Tool** window will then open.

For **Blending adjustments**, **Selections** made using the tool work in tandem with the Blending section's **Opacity** slider and **Source Photo** menu.

For **Color adjustments**, the **Selections** made using the tool work in tandem with the sliders in the **Color Settings** section.

4.1.1 Making Selections

In **Selective Adjustment** mode the entire image is masked and protected from adjustment, until you use the **Brush** or **Lasso** to define where in the image your adjustment will **selectively** apply. A "Selection" is thus like a window or a keyhole through the mask, allowing adjustments which would normally affect the entire image, to instead affect just the areas of the image that you've selected, with Brush or Lasso.

A "Selection" is a free-form sub-section of your image, the shape, edge softness and opacity of which you define. You define a **Selection** by painting with the Brush or outlining with the Lasso, in separate areas of the image. These defined areas will apply the current color or blending adjustment settings.

Adjust your settings and refine your **Selections** until you are happy with the effect. Then either close the Brush / Lasso Tool, or keep it open in order to apply additional adjustments to other areas of your image.

If you want to apply different color or blending adjustments to other areas of the image, click **Add Selection** to start a new **Selection**. Color or Blending settings will revert to their default, allowing you to set up a new adjustment, for your new **Selection**. An image can have (essentially) an unlimited number of **Selections**, each with its own independent color or blending settings.



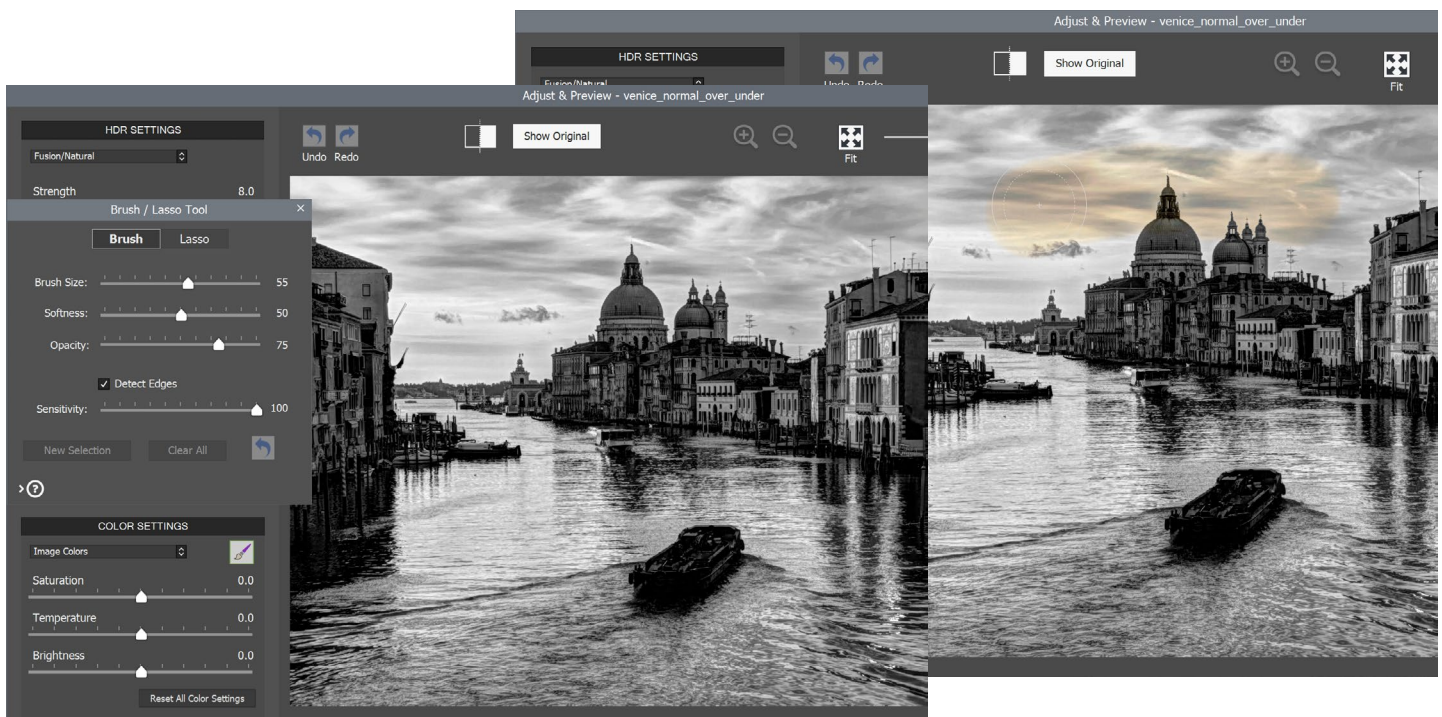
Note

While making selections, the Preview window's **Zoom Slider** and the **Show/Hide Original** and **Split View** buttons are still available.



Note

Color and Blending adjustments applied within a Selection do not affect color or blending outside of the selection.



A Brush selection with "Detect Edges" on, will limit the selection to contiguous areas (the sky).
(Selective Adjustments for this example are continued on page 26)

4.1.2 Making a Selection using the **Brush** Tool

The settings in the Color or Blending section define the specific adjustment that will be applied to your **Selection**. After opening the Brush / Lasso Tool, make at least one color or blending settings change before you start, so that your Selection-in-progress will be immediately apparent upon your first brush stroke. You can continue to extend your **Selection** with additional brush strokes, and adjust and refine the color adjustments for this particular **Selection** before, optionally, making additional **Selections**.

To make a brush selection, click the brush icon in the Color Settings section. The Brush / Lasso Tool window 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" onto the image - will select that portion of the image, and apply the current selective adjustments to it.



Note

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

You define the shape of your **Selection** with brush strokes over the areas of the image that you want to adjust. Brush **Size, Transparency** and **Softness** settings let you to customize your Brush strokes.

To begin working on a new brush selection, click the "**Add Selection**" button. The Color or Blending settings will revert to their defaults, allowing you to specify new color or blending settings for your new Selective Adjustment.

The "Undo" button removes the most recent Brush stroke.

If you want to remove all brush strokes of a **Selection** with their associated adjustments, right click inside the **Selection**, and select Remove from the contextual menu.

4.1.3 Making a Selection using the **Lasso** Tool

Polygonal lasso:

1. Click on the image to set the starting point.
2. Move the mouse to draw the first line segment and click to set its end point.
3. Repeat to create additional segments.
4. Double-click to complete the polygon.

Normal lasso:

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

The Polygonal Lasso is good for areas with straight edges, and for large areas because you don't have to hold down the mouse button while you are working (as you do when painting a large area with the Brush tool).

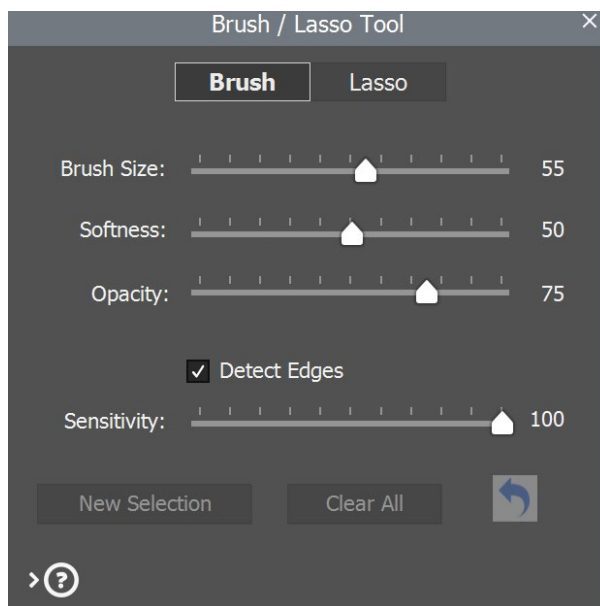
The Normal Lasso is good for areas with irregular shapes.

4.2 Brush / Lasso Tool Window Elements

The Brush Tool tab

The Brush Tool tab provides a customizable round-shaped brush, attached to the mouse, which you use to "paint" a *Selection* onto an image. This brush, and the *Selections* it makes, are subject to these controls.

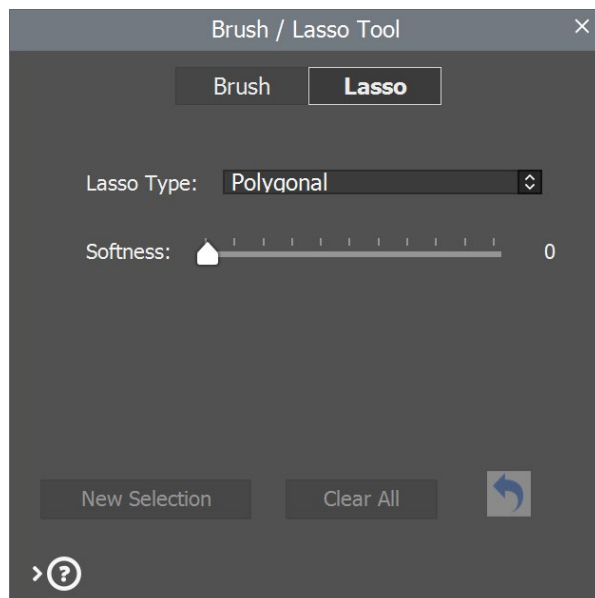
- **Brush Size** slider:
From 1 to 100, with 50 as the default. This brush size scale varies proportionally with the image size.
- **Softness** slider:
From 0 to 100. Gives the Brush a softened edge. A soft-edged brush is helpful for making a subtle transition, when applying a color adjustment to one area but not to an adjacent area.
- **Opacity** slider (Color mode only):
From 0 to 1, in 100 steps. Fades the brush's shape, 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.
- **Shape** menu (Blending mode only):
Lets you choose a round or a square brush. A square brush may be useful when painting over areas with straight edges such as windows.
- **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.
- **Sensitivity** slider:
Works in conjunction with Detect Edges. Sets the amount of contrast required to trigger edge detection.
- **New Selection** button:
Adds a new *Selection*. Multiple *Selections* are allowed, each with its own color or blending adjustment setting.
- **Clear All** button:
Clears all *Selections*, and the brush strokes that created them.
- **Undo** (**arrow** icon) button:
Removes the most recent brush stroke.



The Brush / Lasso Tool – Brush tab

The Lasso Tool tab

- **Lasso Type** menu:
Choose between **Polygonal** and **Normal** Lasso.
- **Softness** slider:
Sets the edge softness of the *Selection*.



The Brush / Lasso Tool – Lasso tab

4.3 Examples of Selective Adjustments

4.3.1 Example 1: Adjusting **Color** – using the **Brush** Tool

1. Follow these steps, to see an example of using the Brush Tool to make a Selective Color adjustment:
2. **Click the Color Settings section brush icon**, to open the Brush / Lasso Tool in color mode.
Select the Brush Tool tab.
3. **In the Color Settings section, set Saturation to -10.**
Set Color Saturation to -10.
Image result: Nothing yet, as you've not yet made a **Selection**.
4. Now, **click and drag your mouse over the image**.
Image result: The image areas you painted with the brush become desaturated.

Additional options to try:

- **Adjust the size of the brush**, in conjunction with zooming in the Preview, to make precise adjustments.
- **Click on "Add Selection"**; change the Saturation, Temperature and Brightness settings, then use the Brush to paint another area with the new color settings.
- **Change the brush Opacity setting**, to adjust the strength of the color adjustment that is applied to the image.

When you close the Brush / Lasso tool window, you leave **Selective Adjustment mode**. Further color adjustments will apply to the whole image.

4.3.2 Example 2: **Blending** Source Photos – using the **Lasso** Tool

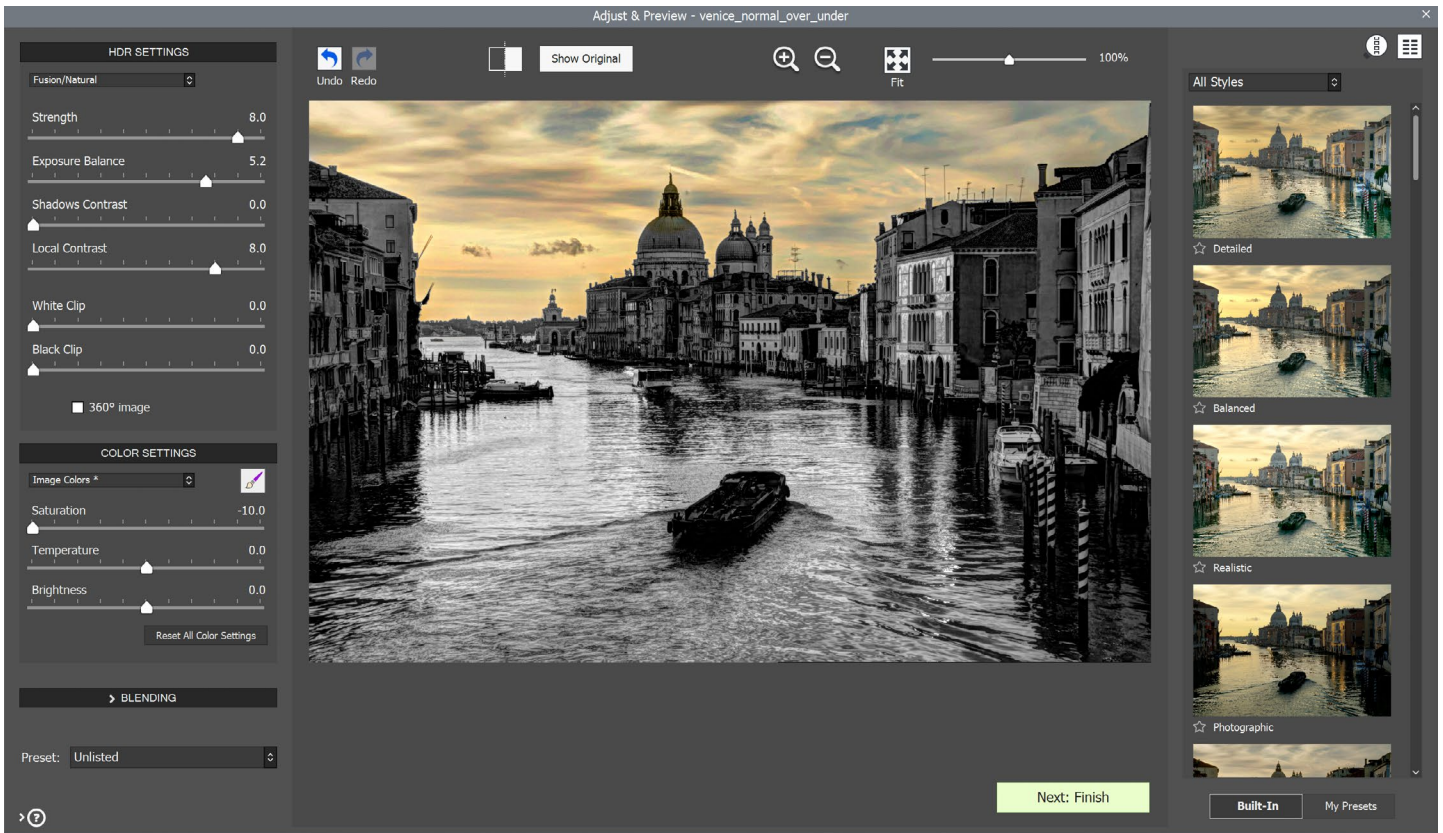
The **Blending** tool allows you to select areas of your image, and use the lassoed area as a "key" to display just one of the source photos, in place of the HDR image. The chosen source photo can be blended at any fade level, from 100% to just a slight hint of accentuation, using a setting near zero.

Follow these steps, to see an example of using the Lasso Tool to make a Selective Blending adjustment:

1. Load and merge a set of bracketed photos
2. **Click the Blending section brush icon**, to open the Brush / Lasso Tool in blending mode.
Select the Lasso tab.
3. In the "**Blend with**" menu, choose the photo you wish to use for the lassoed area, either to replace it with the chosen source photo (when Opacity is set to 100), or blend it more or less strongly depending on the Opacity setting .
4. **Select the Normal Lasso**, and then lasso a section of the Preview image. The source photo selected in step 2 now shows through in your lassoed area. How strongly does it show through? Set this in step 4.
5. Use the Opacity slider to set the blending strength of the source photo you selected.

Additional options to try:

- Compare different source photos and different Opacity settings for your lassoed area.
- Make multiple **Selections**, to try different source photos in different areas.



(Final Selective Adjustments to the sky, continued from page 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.

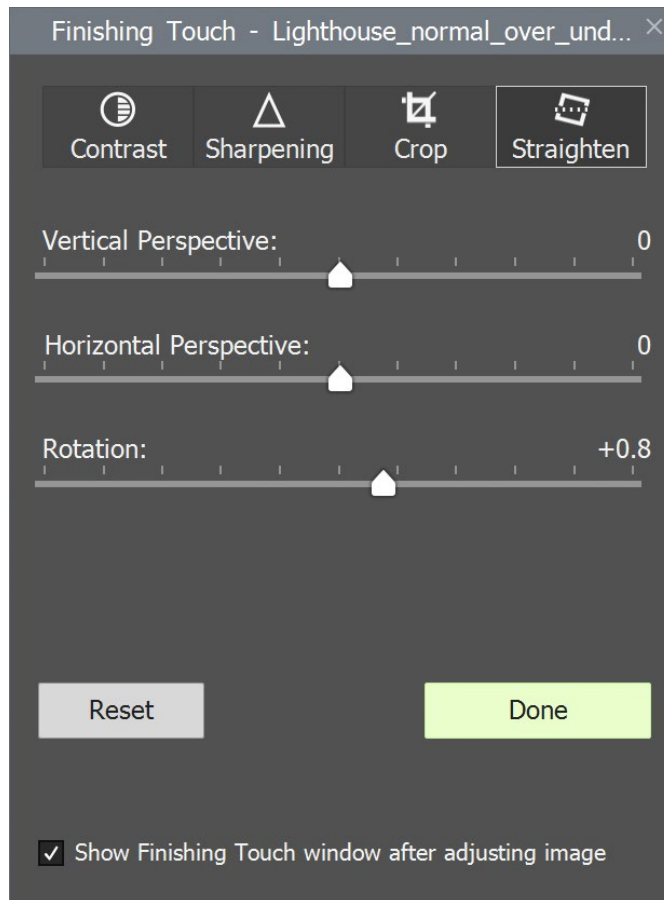
5.1 Contrast and Sharpen

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

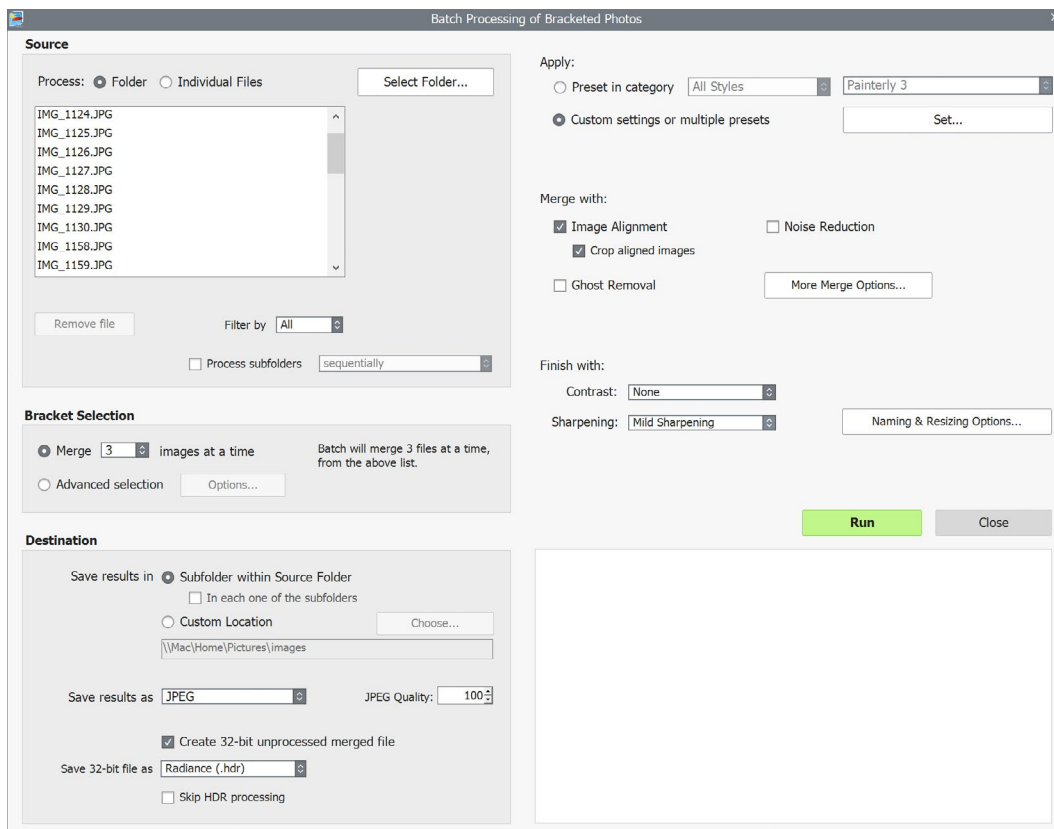
6 Automating with Batch Processing

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 merge.
- **Batch Single Photos:** Processes multiple single image files using HDR Tone Mapping.

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 merge 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 6.1.5 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.

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

Settings Type	Preset / Settings Name
Built-in Preset	Detailed
Built-in Preset	Balanced
Custom Settings	Tone Balancer Custom Settings 01
Custom Settings	Tone Balancer Custom Settings 02

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:

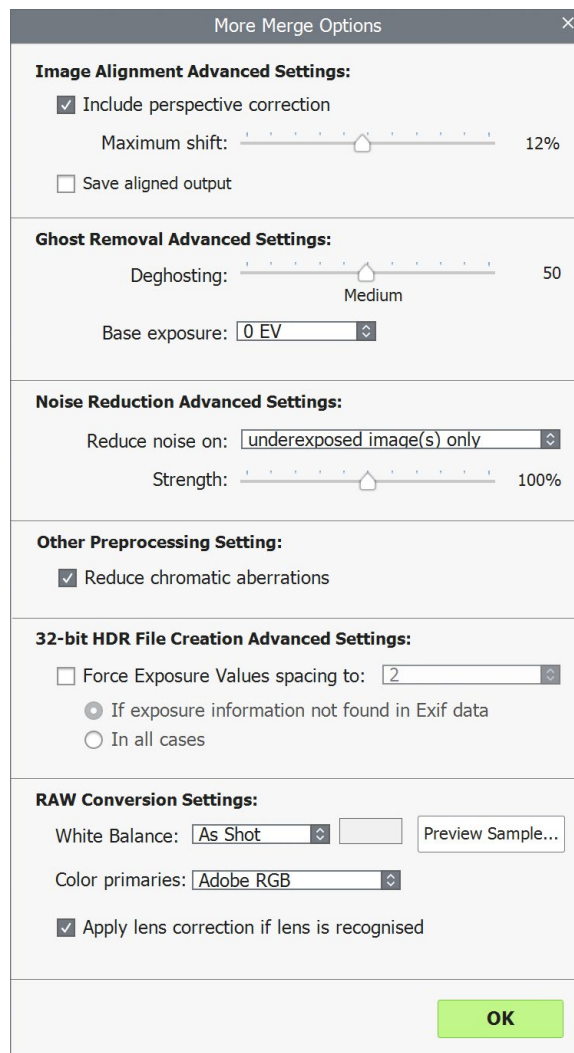
1. Select an hdr Style/Method from the **Custom Settings** menu, and then click **Set...**
The Settings Adjustments window for the selected method will open.
2. Select a preset from the **Preset** menu, and modify as desired.
OR
Modify the existing settings. The existing settings are the default for 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, deghosting 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

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**

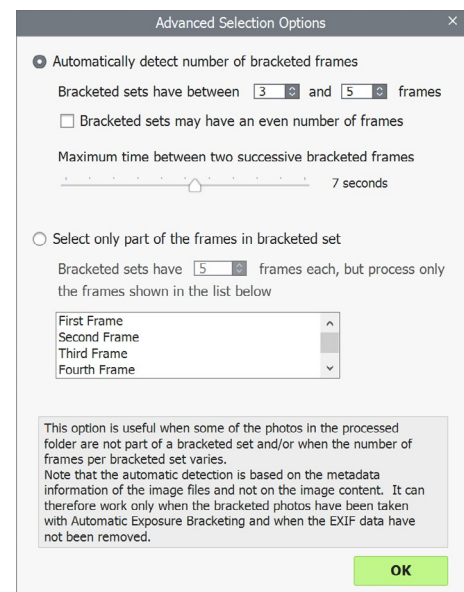
If you check **Process subfolders** and select **grouped by exposures**, the batch will combine the first file of **Subfolder-1** with the first file of **Subfolder-2** and the first file of **Subfolder-3**. The batch will then combine the second file of **Subfolder-1** with the second file of **Subfolder-2**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



Advanced Selection options

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

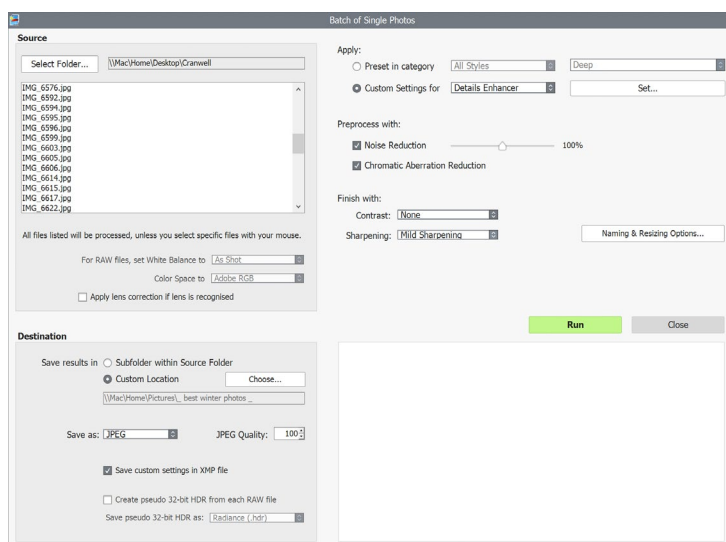
- Specify the total number of photos/frames in each set using the drop-down list.
- Select the specific photos/frames to process from the list. Select more than one file by holding down the Control key and clicking on the desired frames.

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 the images that are listed in the source section. First, select 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 HDR settings, select an HDR method from the **Custom Settings for** 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 Processing 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 processed, 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 https://www.hdrsoft.com/support/faq_photomatix.html.

7.1 Integrating Lightroom Classic and Capture One with Photomatix Pro

You can export photos for processing in Photomatix Pro directly from Lightroom Classic and Capture One, and reimport them back. Plugins for both applications are free, and included with the Photomatix Pro package.

For installation instructions and a short tutorial showing how to use each plugin, please refer to the HDRsoft website here:

Lightroom **Export to Photomatix Pro** plug-in:

<https://www.hdrsoft.com/download/lrplugin.html>

Capture One **Merge to HDR in Photomatix Pro** plug-in:

<https://www.hdrsoft.com/download/c1plugin.html>

7.2 Processing Raw files in Third-Party Raw Converters

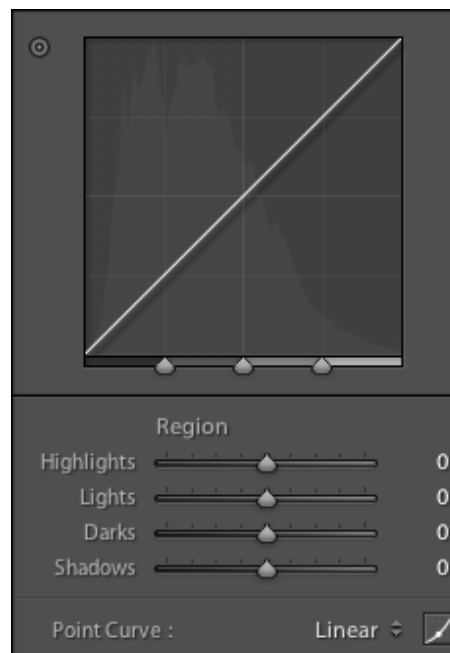
When using a third-party Raw converter, develop the Raw images with the following settings.

- **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 Classic:



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: HDR Settings

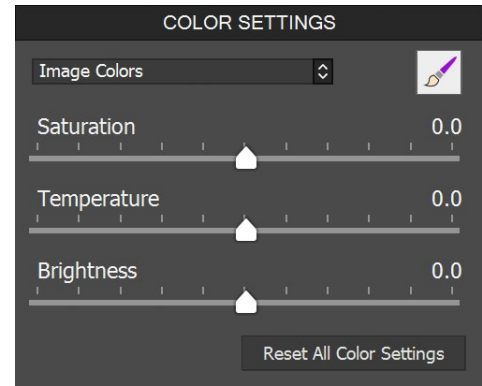
8.1 Color and Blending Settings

8.1.1 Color Settings

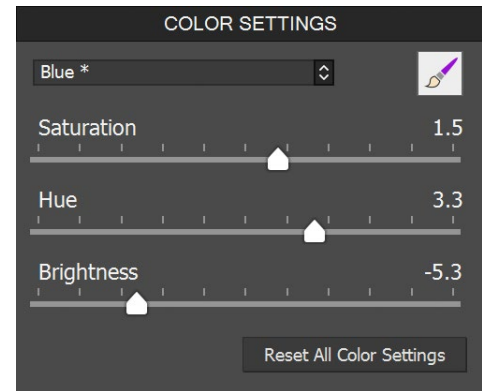
- **Saturation (*image colors*):** Adjusts the color saturation of the overall image. The greater the saturation, the more intense the color. Setting Saturation to its lowest value (-10) produces a grayscale image. The default value (0) leaves saturation unchanged.
- **Saturation (*individual color*):** 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

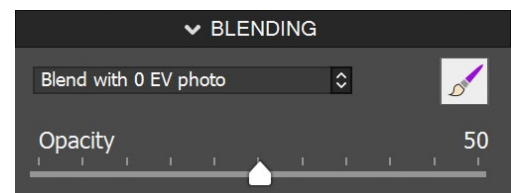
- **Blend with [selected frame]:** Sets which exposure from the bracketed source files will be blended with the merged HDR image. The "0 EV" image, or the median image of the bracketed set, is selected by default. When working with a single image, the blending source will be the original image.
Note: 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 merged image. An Opacity of 50, for instance, means that half of a pixel's color comes from the original photo and half from the merged image.



Color Settings
"Image Colors" (all colors) selected



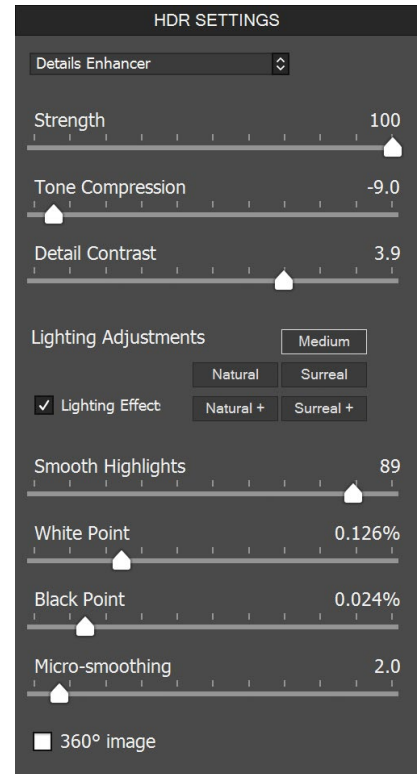
Color Settings
An individual color ("Blue") selected



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 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 panel:** 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.

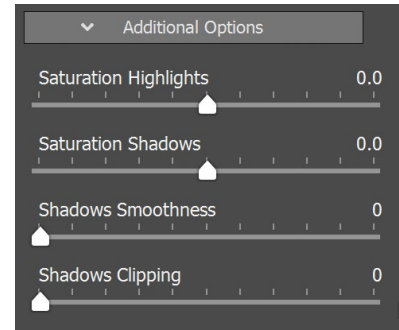


Details Enhancer settings

- **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 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 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

8.2.1 Additional Options for Details Enhancer

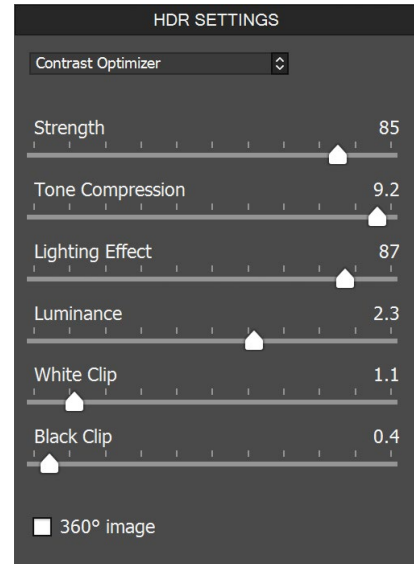
- **Saturation Highlights:** Adjusts the color saturation of the highlights relative to the color saturation set with the Color Saturation slider. Values higher than 0 increase the color saturation in the highlights. Values lower than 0 decrease it. The default value is 0.
- **Saturation Shadows:** Adjusts 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

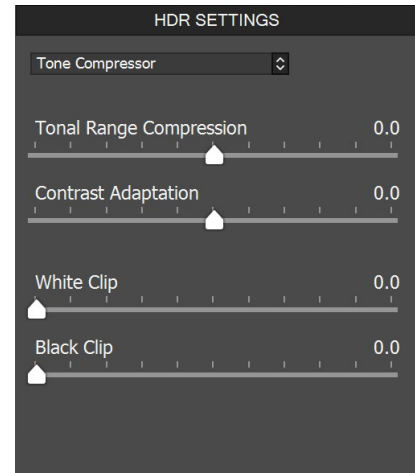
- **Strength:** Affects the amount of enhancement given to contrast and detail in the image. A value of 100 gives the greatest enhancement. Moving the slider to the left gives a more natural effect. The default value is 50.
- **Tone Compression:** Alters the dynamic range of the merged image. Moving 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.
- **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

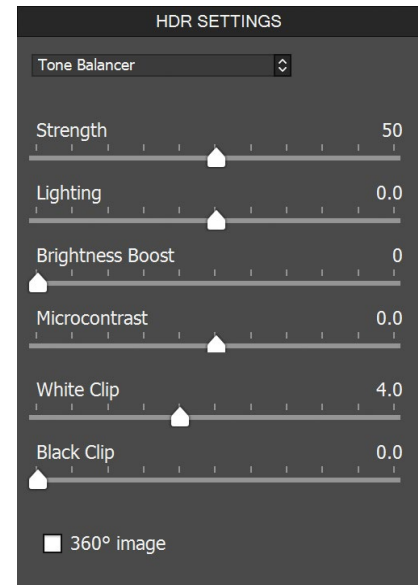
- **Tonal Range Compression:** Controls the compression of the tonal range. Moving the slider to the right has the effect of shifting both shadows and highlights toward the midtones.
- **Contrast Adaptation:** Adjusts the contrast in relation to the average brightness. Moving the slider to the right 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.

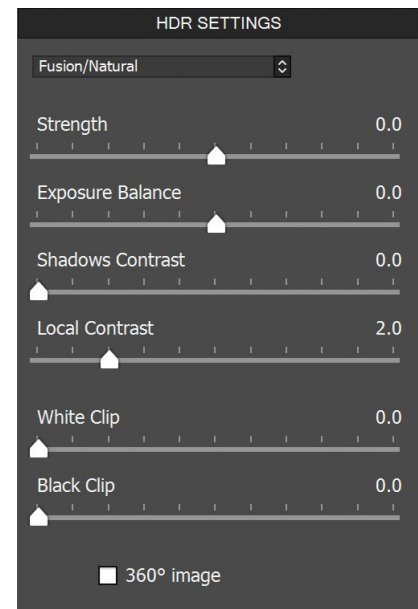


Tone Balancer Settings

8.6 HDR Settings - Fusion

8.6.1 Fusion/Natural Settings

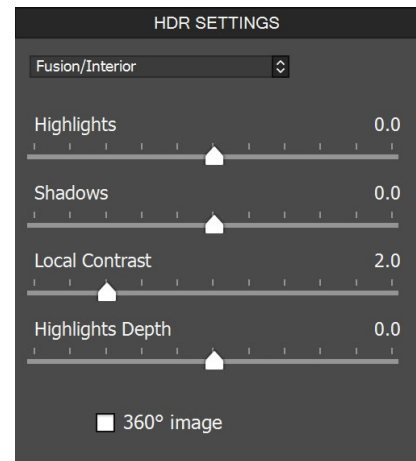
- **Strength:** Sets by how much local contrast is accentuated. Moving the slider to the right tends to brighten the shadows and to show more details in the highlights. Moving to the left produces a more "natural" effect.
- **Exposure Balance:** Controls the brightness of the fused image by adjusting 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.
- **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

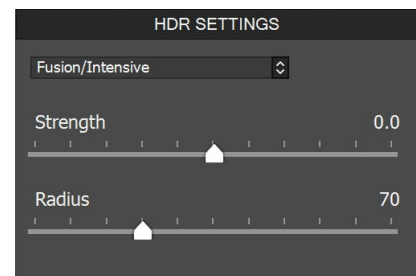
- **Highlights:** Adjusts bright areas in the image. Moving the slider to the right brightens the highlights. Moving to the left darkens highlights and recovers more highlight details.
- **Shadows:** Adjusts dark areas in the image. Moving the slider to the right brightens shadows and recovers more shadows 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.
- **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

8.6.3 Fusion/Intensive Settings

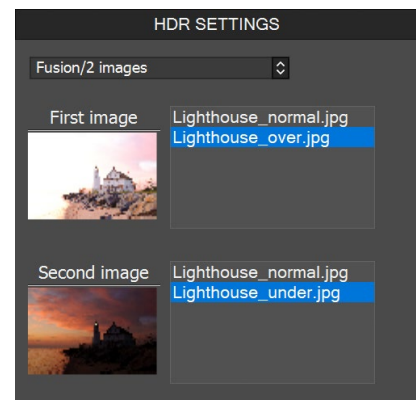
- **Strength:** Adjusts the strength of local contrast enhancements.
- **Radius:** Controls the area used to calculate the weighting of the source images. A higher radius reduces halos, but increases processing times significantly. The default value is 70.



Fusion/Intensive Settings

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	DSLR and mirrorless cameras, as well as some compact digital cameras, offer Automatic Exposure Bracketing. This feature 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	A family of HDR Styles / Methods, based on combining 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 adjusted using an HDR Tone Mapping method, to enable proper display on standard monitors, or when printed. It has become very common to speak of an "HDR image" as the image file that results from HDR Tone Mapping 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 formal terminology of an HDR processing work flow.
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	A family of HDR Styles / Methods for adjusting a 32-bit merged HDR image into an image that can be properly viewed on monitors and when printed.

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