DxO Optics Pro v5

Reference Manual

Table of Contents

DXO Image Science

▼ Histogram

DXO Image Science

Introduction to DxO Optics Pro v5

Welcome to the exciting world of DxO Optics Pro digital image enhancement! This powerful, groundbreaking software will improve the quality of your digital images in a way you would never have believed possible.

DxO Optics Pro's precise, calibrated corrections are based on unique algorithms derived from actual measurements made on real camera bodies and lenses. Thousands of test measurements are made on each body and lens combination, using every combination and permutation of shooting parameters.

The entire DxO Optics Pro system utilizes what are called 'Correction Modules'. Each module is unique and specific to a particular camera body and lens combination. For this reason, you need to make sure you have the right module(s) for the camera bodies and lenses you use to take your pictures. When you do, DxO Optics Pro reads the EXIF information embedded in your photos, and produces extremely accurate corrections of measured optical flaws. This is not just subjective (and often time-consuming) manual approximations.

In addition, version 5 of DxO Optics Pro also includes a number of corrections that are not camera-specific. You can automatically obtain image improvements going beyond simple corrections, which you can also manually adapt for creative effect.

A quick session overview

The way the DxO Optics Pro workflow is organized deserves a few words of explanation. The first point to understand is that, contrary to traditional image editors, DxO Optics Pro works on projects, not directly on images. This means that any setting you modify (in the Prepare tab) is applied to the preview of the image. But your original image remains unmodified: it's only during the final process (activated in the Process tab) that DxO Optics Pro will apply corrections in order to create a new file, your corrected image. So, a session with DxO Optics Pro means two steps: first, import the images in the Project window; second, automatically process the images. In between, there may be a third one: manually modifiy the settings of one or more images. And another last (optional) step comes finally: review the processed images.

When opening DxO Optics Pro, you notice four tabs on the top left of the main window, labeled "Select", "Prepare", "Process" and "Review". You start in the "Select" tab, where you load the photos you want to process in the current project. If you would like to immediately process your images, without making any changes to the default settings, you can click on the "Process Now" button to start the automatic routine. Alternatively, you can check the preview images in the "Prepare" tab, and eventually define your own corrections or adjustments. It's important to understand that corrections are NOT applied to the image at this point. You just modify some settings, and the chain of corrections will be applied during the final processing of the image (in the "Process" tab).

It is also important to remember that DxO Optics Pro treats each of your images uniquely. The default settings for one image will be different from the default settings of another image. Default settings are determined by the EXIF information in each picture file, as well as the contents of the picture.

What makes DxO Optics Pro even more powerful is that some or all of your personal adjustment settings can be saved as one or more "Presets". These can then be applied to any number of images in this or other projects. And while you can easily apply your presets to images, you can still make further manual adjustments, as needed!

Finally, processing your images is as easy as a single mouse click in the "Process" tab. All processing for each image file is handled using a "hands off" procedure. You simply designate your output file format(s) and destination(s) and click the "Start processing" button, and DxO Optics Pro does the rest. We should also note that you have the choice of three output file formats. They are covered in more detail in the 'Process' chapter of this document.

First in your workflow!

Another very important point to remember is that DxO Optics Pro is designed to be the first program in your post-production workflow, immediately after your images have been copied from the card reader or camera. Please note that if your images have been previously processed using any other software (including reader or cataloguing programs), or are missing important EXIF data DxO Optics Pro needs, certain DxO corrections you want to use may be limited in their use or not available.

> *Note: Please check the on-line FAQ at www.dxo.com/en/photo/support for the most recent updates regarding this requirement.*

DxO Optics Pro also strives to leave as much of the metadata (EXIF, MakerNote, IPTC, XMP) as possible untouched. This means that you should still be able to use your other image processing/editing software, even after your images have been processed by DxO Optics Pro. And, DxO Optics Pro automatically rotates your images if you use the auto-rotate facility of your camera, therefore eliminating the need for additional software for this particular step.

As you can see, DxO Optics Pro is a powerful first step in your post-production process enabling you to dramatically improve your images in a standalone or highly integrated workflow. The following chapters will offer you valuable information to help get you quickly started implementing a more effective image improvement process. We recommend that you take the time to read this User Guide carefully. Doing so will answer many of your questions regarding the proper operation of the program.

Chapter 1 A typical image enhancement session

The Photographic Workflow

The entire DxO Optics Pro system has been designed to be straightforward and efficient. This is particularly important for any photographer with a lot of pictures to process. In this chapter, we go through a typical photo correction session. Further information regarding each of these steps can be found in the corresponding chapter located later in this document.

Step 1: Select your images to create a project

(For further information, please see Chapter 2 regarding the "Select" tab)

In order to make it easy to process large numbers of images, DxO Optics Pro is designed around the concept of "projects". The first step of the workflow consists in loading a batch of images, as many or as few as you wish, into a project that will be processed. You do this by "adding images" to the **"Project" window**, in the lower part of your "Select" tab workspace. Click on the System icon, on the top right of the main window: the left column will show you a browser of your hard disk. Select the folder containing your images, and you will see their thumbnails or file names appearing in the right pane of the main window.

To import one or many images, simply drag and drop your files to the Project Windows. When you add images, you are not creating additional copies of your images, but merely recording references to them in a file that keeps track of all the details of your project. In this way, valuable hard disk space is not wasted and is used efficiently.

Above the Project window, you will see a drop down box labeled "Preset applied to images:". The default choice is "DxO Default settings." If left at this selection, each of your images added to the project pane will have the default correction settings applied to them, as determined by the program (but taking into account the embedded information inside each of them). However, if you click on the down arrow, additional options will give you the ability to choose any standard or custom preset and will adjust your images based on specific presets that come with the program, or are created by you.

You can then either click the "Process Now" button, that takes you to the "Process" Tab where the processing of your images will start immediately; or go through the optional "Prepare" Tab, to control and adjust the specific settings of some (or all) of your images.

Step 2: Prepare your project

(For further information, please see Chapter 3 regarding the "Prepare" stage)

In the "Prepare" tab, you can see, in the lower part of the screen, the same Project window you just filled with images; but above it, a "preview" pane allows you to visualize any image you

select in the Project. When you click on a thumbnail, you will see first a non-corrected version of your image; then, after a few seconds, the preview of the corrected version appears.

In case you're not satisfied by the default correction, you have the choice to adjust manually your pictures by using the Correction Palettes. In version 5, all available settings have been organized into four "photo-palettes" that logically group corrections, according to four successive ways to consider the image. These photo-palettes are: Light (where you can control Exposure, Lighting, the Tone Curve…), Color (White balance, Color profile, SmartVibrancy…), Geometry (for Distorsion, Anamorphosis, Keystoning…), and Detail (Sharpness, Denoise, Anti-dust…). You can access them by clicking on their icons on the top right part of the main window. You can also access the more traditional Navigation, Histogram, Exif and Presets palettes.

When checking and correcting your images, you may find that some of them do not deserve any further processing. This may be because you chose one among many almost identical images of a sequence; or simply because you don't want to process them now. Click the little Red light above the thumbnail, and the image, even if it remains inside your project, will be ignored during the final Process. Note that while the Orange light means "Process status to be defined", it will still be processed by default. The green light, obviously enough, means "Process this image".

Step 3: Process a batch of images

(For further information, please see Chapter 4 regarding the "Process" tab)

As soon as you are satisfied with the settings you have applied to your images, you can move on to process them. In the Process tab, check the proposed output formats, and eventually add or remove some of them. After clicking the Start button, feedback from the program will keep you continually informed as to your project's progress. Once underway, this processing stage is self-directed and "hands-off".

Step 4: Review the results

(For further information, please see Chapter 5 regarding the "Review" tab)

When processing is finished, you may want to control your final images, which you can do in the "Review" tab. If you think one or more of your images needs additional work, you can easily re-process your original images to apply additional or different settings as needed.

Ultimate flexibility and ease of use

Thus far, we have briefly described a logical workflow for a typical image enhancement session. But, DxO Optics Pro has been designed so that in actual practice you can move around more or less at will between workflow steps in any order you like. Let's take a look at each of these steps in more detail.

When you first launch the application, the "Select" tab is the active (highlighted) tab. Make sure the "System" icon (on the top right of the main window) is selected. When this is done, your workspace will display a familiar Explorer-style browser where the top two panes (which are resizable) allow you to navigate around the files on your hard drive or external media.

Adding images

This initial 'Select' stage involves adding the photos you want to process to the Project window, which will remain in the lower part of your screen throughout all four stages (from Select to Review). In DxO Optics Pro v5, a preset is always applied to the imported image; but you can choose to go beyond the "DxO Default" and choose another preset from the list. We will see later how you can create your own fine-tuned presets.

As you drag thumbnails from the Content folder to your project, or click on the « Import » button after selecting them (the two actions are identical), the selected preset is applied to the images, and they appear in the Project window, which you can resize to fit a useful number of images. Besides using the mouse to drag the dividers to resize these panes, each window pane has a ● ● ● button to regain mouse control and make custom sizing adjustments.

Of course, if you have a different set of corrections and adjustments to be applied to various images in a project, you can import your first set of pictures with one set of adjustments, and then highlight and apply a different set of settings to the second set. Remember, each image in your project is treated individually, so your flexibility in processing possibilities is virtually unlimited.

Import plug-ins

Let's now return to the group of icons sitting on the top right of the main window. Next to the System icon, you will see the Project Database icon. When you click on it, the left pane updates to display a chronological list of all the projects you already processed (it may be empty the very first time you work with DxO Optics Pro v5). If you click one of your previous projects, you will see the thumbnails of all images belonging in this project. You can then import one (or many) of them into the current project. DxO Optics Pro v5 will re-create the full configuration you had used for this image, including the settings used in the previous project. This allows you to easily modify some settings in order to get a different version of the image.

Another useful feature in version 5 is the ability of the program to use plug-ins that allow you to access photo collections of other software packages. The installed plug-ins will appear in the upper right of your screen, next to the System and Project Database icons.

These plug-ins control the importing "collections" of your images from other software packages. This feature allows you take full advantage of the organizational and sorting capabilities of various professional programs you may be using, such as Apple's Aperture, Adobe's Lightroom, Iview Media Pro, etc. When you click on a plug-in icon, a list of libraries (collections) associated with the corresponding program will be displayed in the left-hand pane. Click on a collection and you will be able to access your original images in those collections. Please check on www.dxo.com for future availability of these plug-ins.

The Project window

This is the place where all your images are referenced; the path to the original and corrected images is recorded in the Project, along with all specific settings applied to the corrected image.

The header strip for the project pane has two buttons at the far right. These two buttons let you change between viewing your image files as thumbnails or as a classic 'details' file list. The same buttons appear at the top right of the right-hand 'files' pane, where they perform the same functions.

On the left of the Project window title bar you can see buttons for managing your project (The project name is displayed just to the left of them.) The button lets you create a new project. After processing the images, every project is automatically saved in the internal DxO Optics Pro database; but you can save a project before completion, for instance if you want to start a new one while keeping the current project to finish it later.

Star-ranking and Stacking

Also on the content pane, at the bottom right, is a small slider, with a button at each end. Dragging the slider to the right, or clicking the right-hand button, increases the thumbnail size displayed. Dragging the slider to the left or clicking the left-hand button reduces the size of the thumbnails. To the right of each thumbnail image, you can also choose to 'rank' your images, with a one-five star system (on the contrary of DxO Optics Pro v4, these stars have no effect on the status of the images, in the Process tab: see below the Red/Orange/Green light system).

The thumbnails and their buttons

On the top left of every thumbnail imported in your project, you see a three spots group (which show by default an orange middle "light"). This group describes the Process status of the image: Green light means that you do want to process the concerned image, Red light that you reject it (but since it remains in your project, you can change your mind later), and Orange light that you don't have decided yet.

This system is designed to make more easy the selection of your best pictures among a huge number of images. When you come back from a shoot, simply drag the whole content of your images folder inside the project window; place a red light on the discarded images and a green one to the one you need to process. When no more orange lights are visible, it means you made your choice… but since the rejected photos are still inside the project window (with a red light), you can still change your mind.

To remove one or more images from your project, you simply click on the orange icon displayed in the upper right of each thumbnail; if multiple images are selected, clicking the on any one of them will delete the entire selection in one action. You can select a group of adjacent images by dragging a 'rubber-band' box around them with the mouse, or by holding down the 'Shift' key as you click on the first and last images in a series. Multiple non-adjacent images can be selected by holding down the 'Ctrl' key while you click on them.

The buttons associated with each thumbnail offer the following functions:

- removes the image from the current project

 rotates the image for correct viewing orientation

 creates a **stack** (active on the last-selected image of a multiple selection)

 un-stacks a stack of images (active when a stack is selected)

To the right of each image, only visible on mouse-over, is a vertical line of stars ★★★★★ (greyed out at start-up) to indicate the selected **ranking** of this image. You can click these any number of these stars on or off at any time.

In addition to these buttons, certain **icons** may appear above each thumbnail indicating the status of the image for correction. These icons give important information about each image. The **color** of the frame surrounding the thumbnail also has meaning that should be understood for the effective use of the program.

Fully automatic mode

Once you have selected and added pictures to your project, if you don't need to make any manual adjustments to any of your images, you can simply click on the 'Process now' button to the right of the Project pane, and processing will take place. You will only be asked for output file type and image destination information and to intervene manually to input data in the event DxO does not have enough information to process certain images correctly.

A new look and a more powerful workflow

One of the exciting new changes in DxO Optics Pro version 5 is the new 'Prepare' tab. For users who wish to go beyond the automatic settings for some of their images, and need greater control over how their pictures are adjusted and processed, the Prepare tab is the heart of their workflow.

Once you have established a project (either by re-opening an existing one, or by creating a new one), you can use the 'Prepare' workspace to organize your images and specify any special corrections or adjustments that need to be made. In this workspace, the top half of the screen is resizable and is available as a type of 'light table' to display the image you select for preview. Once you left-click on a thumbnail in the Project window, the corresponding image will appear in the Preview pane, first without corrections; and then, after a few seconds, with all corrections active.

A gradual complexity

An important change between DxO Optics Pro v5 and its previous versions is that there is now only one user mode for DxO Optics Pro. In fact, in v5, you always work in full 'Automatic' mode.

But even in this mode, you can access all the presets of the previous 'Guided' mode, or all the correction palettes that were available in the 'Expert' mode.

It's worth noting that the complexity of the software appears gradually based on how you use the program. The first time you select the Prepare tab, no correction palette is visible. To access the Presets for instance, click on the corresponding icon on the top right of the main window. The Preset palette will then appear allowing you to select from a list the presets you want to apply.

If you want to modify a particular aspect of the image, such as Light, Color, Geometry, or Detail, you simply click on the appropriate icon to open the corresponding palette. All palettes open with a simplified design, showing only the basic controls. However, you can click on the "More Options" button to access the full complexity of all available settings.

Control and corrections palettes

All corrections you make to your images are coordinated using Correction Palettes. In version 5, these palettes now float and are independent of each other. Each palette can be made to appear or disappear as needed by clicking its icon in the upper right toolbar at the top of the screen. Tip: Can't remember which icon goes with which palette? Just hover your mouse pointer over an icon and a tool tip will appear.

From left to right, you'll find the first four control palettes:

- The Navigation palette helps you quickly zoom or pan in the image.
- The Histogram palette shows the histogram of the image. This graph presenting the number of pixels for each color value.
- The EXIF palette gives you access to the information embedded in the header of the image.
- The Presets palette, which we have already mentioned.

Next you will find the four correction palettes:

- 'Light' shows the Exposure, Lighting and Vignetting controls, plus the Tone Curve.
- 'Color' brings together the Color Rendition Profile, SmartVibrancy, and the White balance and Multi-point Color balances controls.
- 'Geometry' gives access to the distortion, anamorphosis correction, keystoning and crop settings.
- 'Detail' shows the pixel level controls, such as Noise, Sharpening, Chromatic aberrations, and the new anti-dust tool.

And finally you will find a very specific palette:

- 'MyPalette' can be customized with the controls you use frequently. Just drag any control from Light, Color, Geometry or Detail on MyPalette to "duplicate" it.

Not sure if the setting you applied to a specific image will do what you want? To assist you with determining if the correction selections you have made meet your requirements, DxO Optics Pro v5 has a 'Proof this' feature. This allows you to immediately automatically start processing the picture you have chosen with the settings you currently have picked for the image. This way you can quickly and easily process a single image and verify the results.

On the left-hand side of the header tool bar is another series of icons to help you easily access often used tools that will assist you in visualizing and adjusting your pictures. For example, the second icon from the left is a magnifying glass  tool that lets you zoom in to any part of the previewed image by successively clicking on it. Holding down the 'Shift' key as you click turns it into a zoom out tool. In all cases, the minimum zoom size is 'Zoom to fit' (determined by the current size of the preview pane), and the maximum is 600%. Please note that some corrections cannot be observed with zoom factors smaller than 75%. This is the case for the 'Chromatic Aberration', 'DxO Lens softness', 'DxO Noise' and 'Unsharp Mask' corrections.

Alternatively, over on the right-hand side of the header bar, a drop-down box lets you choose the zoom ratio of the preview image as well as zoom in and zoom out buttons.

Adapting your workflow

In the 'Preview' workspace, you will find two buttons that specify the way your preview image is displayed:

 displays both 'before' and 'after' images in preview window

 displays only the 'after' (processed) image in preview window. Note: When you click on the 'after' image with the left mouse button, it will be replaced with the 'before' image.

The Correction Palettes

We have briefly mentioned the Correction Palettes earlier in this Guide, but now let's take a closer look at what these powerful tools can do to help you get the most from DxO Optics Pro. Here is a quick list of correction palettes for your use.

Zoom has a small window that indicates the visible part of the image : a green box represents the assigned size of the preview area. The more you 'zoom in', the smaller the green box appears because you are looking more closely at a smaller part of the image. You can also grab the box with the mouse pointer and drag it around the screen in order to examine specific parts of an image. The  button on the left-hand end of the header bar lets you grab the main preview image to move it around when zoomed in. There is the same zoom slider as before, together with small zoom in/out buttons at either end. Maximum zoom in all cases is 200%. The minimum zoom size still depends on the size you have set for the preview pane. The  button in the header bar is another way of zooming in and out.

Histogram gives you a graphical representation of the distribution of the relative brightness levels in the image, across the red, green, and blue color channels. This is a very useful tool that you will probably find yourself leaving open many times while you are adjusting color and exposure.

EXIF Editor brings up a list of valuable information about the current image. You will also find two text fields. In these fields, you can enter specific author and copyright information that will be added to the EXIF header of the chosen image. HINT: You can create a Preset with the EXIF information and easily apply this custom Preset to additional images.

Presets opens a window with a list of available presets you can apply to your image. A preset is a group of settings, fine-tuned for a specific photographic situation. You will find some DxO-crafted presets, but it's easy to create your own presets to complement your own vision and needs. Once a preset is applied, you can always adjust its parameters manually, in which case the preset values will be over-ridden for this particular image.

Light — In this palette you will find everything necessary to adjust the density of your image. Exposure control with highlight preservation allows post-shooting exposure adjustment, as well as offering the possibility of recovering apparently 'lost' highlight detail (available for RAW format images only). The famous 'DxO Lighting' process corrects image contrast in an intelligent, adaptive way, using global and local contrast adjustments. 'Vignetting' fixes the dark areas often visible in the angle of some images. And finally, the 'Tone' curve gives you very precise control to every level of luminance.

DxO Color is the place to go when you want to modify colors in your image. The first control concerns the familiar 'White Balance', which allows you to alter the light temperature and tint.

Another very important tool gives you a choice of 'Color Rendition Profiles'. These profiles let you apply a specific 'look' to your images, starting from various camera bodies, up to traditional film rendering. Style, contrast, saturation and HSL (Hue/Saturation/Luminance) controls are also available.

But you will also find DxO's exclusive 'Multi-point color balance' tool to be crucial when various colored light sources are active in the same scene. 'SmartVibrancy', on another hand, brings out more vivid colors in the image while preserving skin tones.

Geometry — In this palette you will find controls for Distortion, **Volume Anamorphosis Correction** and **Keystoning / Horizon**. The distortion correction is automatically applied by DxO Optics Pro, according to the type of lens used for the picture and the photographic settings (zoom, aperture, etc.). But you may want to adjust this correction in order to create a specific effect.

'Volume Anamorphosis Correction' is another exclusive tool. It takes care of ~~this~~ geometric distortion that stretches objects in the corners of wide-angle images. Being subject-matter dependent, this adjustment requires you to manually set the type and amount of correction.

The remaining corrections provide adjustments to compensate for keystoning in both vertical and horizontal planes, image **rotation** (horizon correction), **scaling** (image sizing) and **H/V ratio** (stretching / squeezing of horizontal / vertical proportions).

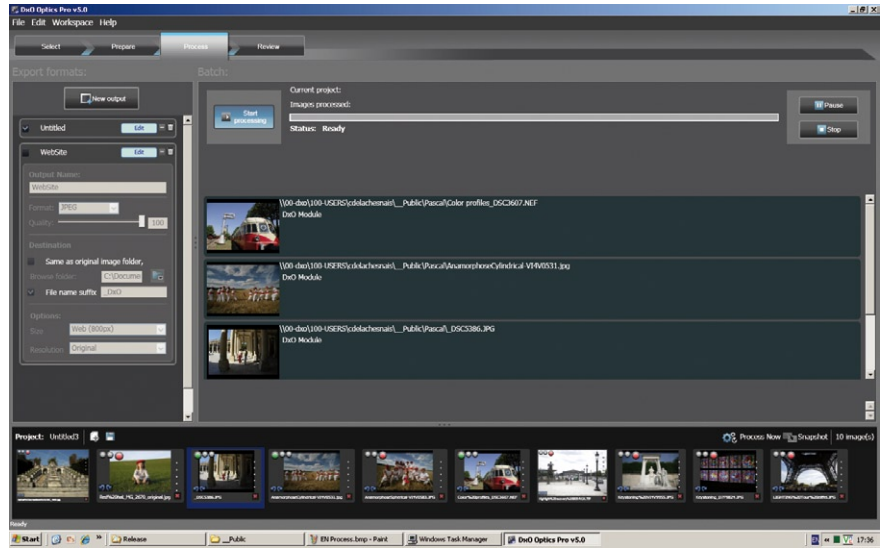
Finally you can crop your image (eventually constraining the proportions to specific formats). An original 'Auto-crop' process can do the job for you (following the keystoning adjustments you already performed).

Detail concentrates all parameters concerning the pixel level. 'Sharpness' applies DxO lens adapted sharpening, while 'Noise' minimizes both general and impulse noise. 'Chromatics Aberration' is removed either automatically or manually, with the option of deleting the 'Purple Fringing' introduced by some lenses. Finally, the new semi-automatic 'Dust removal' tool lets you specify the position of dust and blemishes on one image and then automatically remove them from a full batch of pictures.

Note: These corrections will not be visible in the main preview image below 75%, so you will need to use the **Zoom tool**.

It is important to understand that all of these manual adjustments are not immediately applied to your images. It's just a preparation, before you actually start processing your images. To do this, move to the next workflow tab by clicking on the 'Process' tab.

The Whole Batch



The 'Process' tab

The top part of 'Process' workspace is divided into three areas, while the familiar Project pane is located in the bottom section of your screen.

Output formats

In the left-hand area of the top section is where you can specify what output file formats you would like created during the processing phase of Optics Pro. Optics Pro supports three output formats: JPEG, TIFF, and DNG. (DNG formatted files can only be created from RAW input files.) A summary of all available formats is shown, and you can click on ✔ to enable them for this batch. You must have at least one output format active for processing to begin. Otherwise, you will see an error message when you press 'Start'.

The right side window at the top of the screen is divided into two smaller windows. The top window will give you information about both the overall processing status of your project as well as the status of each of the image files being processed. Your 'Start', 'Resume', and 'Stop' buttons are also located in this window.

Immediately below the currently processed images, you will see the next images in the batch list. Only the images you have marked with a "green" or a "yellow" light will appear in this list.

Start the process

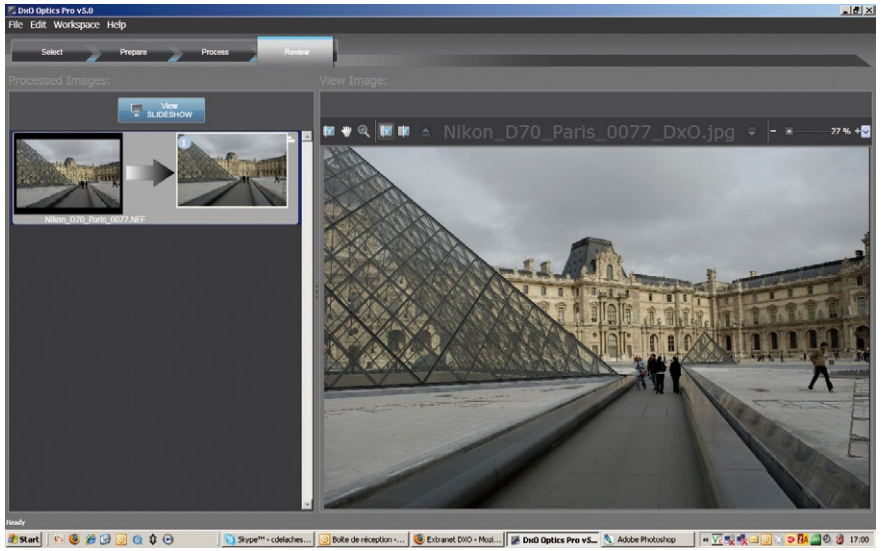
As noted above, you are kept informed of the progress in processing your project by means of two sets of progress bars. During processing, the upper 'Pause' and 'Stop' buttons will allow you to halt processing temporarily or abort it altogether. Lower buttons similarly allow you to 'Pause' processing of the current image, or 'Skip' it altogether.

Note: In DxO Optics Pro v5, you no longer have to save your projects to your system's hard drive to process your images. At Process time, all settings associated with your images are recorded automatically in a database composed of sidecar files.

While processing is under way, the thumbnails of all images being processed carry a 'two cogs' icon. Once processing is completed, this icon changes to a ✔ indicating that processing has been successful for that image.

Please note that DxO Optics Pro will automatically utilize the resources of your computer system in the most efficient way possible. If you have a computer system that has multiple cores, DxO Optics Pro will make every effort to utilize as many cores as possible. If you have other programs or processes running in the background that are also vying for system resources, then it is possible that not all of your cores will be utilized during that particular processing run. This is normal. You can control, to a certain degree, how DxO Optics Pro manages your system's resources by adjusting the performance controls in the program's Preferences window.

After processing your images, you may want to examine the results and compare them to the original images. DxO Optics Pro makes this workflow step easy as well. To do this, move to the next workflow tab by clicking on the 'Review' tab.



Check the before and after

In the Windows version, the 'Review' workspace has two resizable panes; the left-hand pane shows before and after pairings of thumbnails of all your processed images. The image pair being viewed in the right pane is highlighted with a blue background.

On the Macintosh version, it's a click on the thumbnails inside the Project window that allows the visualization of the full screen processed image.

On the header bar are arrow buttons, plus the usual group of **zoom controls**. Key controls are:

- and display previous / next image
- and display next / previous output image — if you have selected more than one output format, lets you view the JPEG / TIFF / DNG images in turn.

Chapter 6 How to go further

After going through a full typical session, you may want to explore more options. The power of DxO tools is the ability to bring under your direct control many correction and adjustment functions that can be fine-tuned to meet your specific needs and requirements. In the following chapters, you can discover the various settings that can be applied to your photos and how you can manipulate the corresponding palettes. Remember that your original picture is never changed, and you can always create a new project, along with different settings applied to the same image or group of images.

Your workflow & one final note

Another point of interest concerns the way you integrate DxO Optics Pro into your personal workflow. You may use image management software such as Adobe® Lightroom™ to download, index and preview your photographs. You may also invest in post-production software, such as Adobe® Photoshop™.

It is very important to remember that in all workflows, DxO Optics Pro should be used ahead of any image processing software. If not, the effectiveness of Optics Pro will be greatly reduced. In any case, you should always make sure that the original, out-of-the-camera, EXIF information stored in your image files remains untouched.

Thank you for using DxO Optics Pro V5! You will find more information in the downloadable pdf version of the Reference Guide, and in the Frequently Asked Questions available on DxO's website: http://help.dxo.com/en

Chapter 7 The Main Program Overview & Preferences

Three Basic Concepts

As DxO Optics Pro has evolved over the years, requests have been made to provide users with suggestions on specific settings and workflows that best use the capabilities of the program.

There are three underlying concepts to successfully using DxO Optics Pro. If you understand these concepts, you will find that achieving your post-production goals is greatly simplified.

Concept #1: DxO Optics Pro is part of a larger post-production workflow.

As anyone who has worked with photography over the years knows, every image is unique, even images from the same batch. There are almost an unlimited number of factors that must be considered when taking a picture. Factors such as type and model of camera and lens, image content, constantly changing weather and lighting conditions, manual and automatic settings, the photographer's personal taste, and for what purpose the images are being taken.

With film-based photography, unless the photographer developed his or her own film and prints, much of the post-production workflow was left to development houses or the local street-corner vendor. Digital photography has changed this and has moved control over all aspects of the picture creation process into the hands of the photographer. Understanding how Optics Pro works allows you to fully utilize each of the correction and adjustment tools it offers and properly use the program within a larger workflow.

This Reference Manual will give you an overview of each tool in the program. It will also offer recommendations, where appropriate, on how to best use these tools to achieve your desired photographic goals.

To insure that DxO Optics Pro fits within a larger workflow, the program outputs three popular file formats. They are:

- JPEG
- TIFF
- DNG

The DNG format produced by Optics Pro is fully compatible with the Adobe® specifications and can be easily used in Adobe® products such as Camera Raw, Photoshop™ and Lightroom™.

Concept #2: DxO Optics Pro is made up of correction modules and each image is treated as a unique file within a project.

There are several important, but related, points that make up this concept.

First, DxO Optics Pro does not work like any other post-production program you may use. Rather than presenting you with an uncorrected image to work on and expecting you to manually make the corrections and adjustments, Optics Pro automatically determines the best set of settings for each image you add to its Project window.

When you add an image to DxO Optics Pro, the program reads the camera and lens information that is stored in the EXIF data portion of your image as well as analyzes the subject matter content of the image. If the camera and lens information matches the information found in an installed correction module, the module is chosen and optical corrections are applied to the image. Taking the information from the image file, Optics Pro develops "default" correction settings that are custom tailored for each of your pictures. In most cases, these settings will provide you with the best possible results and clicking on 'Process Now' will start the procedure to process your images *immediately* without further adjustments.

> ***TIP:*** The image information read by DxO Optics Pro is not information that can be changed once it is written by the camera. If advanced correction tools such as volume anamorphosis, distortion, lens softness, etc. are greyed out, this is a good sign that either the correction module you need is not loaded on your system, or the EXIF data in the file has been changed or damaged.

You may occasionally find that you want to apply additional corrections to one or more images. By clicking on the Prepare tab, you will have access to the full suite of Optics Pro tools. When you manually make changes to these tool settings, you are making your changes based on the best default values computed for that image.

> ***TIP:*** Returning to these default values can be accomplished either by rechecking the auto-mode box to the right of the tool's input window or slider, or using the default Presets to reset the original settings.

Second, all images that are to be processed, either singly or as a group, are placed into a 'project' in Optics Pro. The Project window at the bottom of your screen allows you to specify what picture files you want to process at any given time. We will cover how to control this processing later in this Manual.

Third, correction modules are the heart of DxO Optics Pro. They are built upon hundreds, even thousands, of exacting measurements taken from actual photographs. These measurements are tailored for the originating camera and lens. It is therefore critical to remember that in order to get all of the benefits available in DxO Optics Pro, you must use the specific camera and lens combinations that are supported. *NOTE:* You can always find an up-to-date list of these combinations on the DxO Labs website.

By treating each image individually, DxO Optics Pro allows you to mix varied images into a project for processing. Each image can then benefit from the specific changes it needs to produce the best results for you. This includes the adjustments you make manually, as well as the automatic optical corrections produced by the modules.

Concept #3: There is no "one" right workflow. Do not be afraid to experiment and learn.

Whether you shoot portraits, landscapes, weddings, sporting events, people, wildlife, family pictures, a handful of images or hundreds of pictures at a time, using Optics Pro within a good workflow tailored to your individual needs will yield the best results and reduce the amount of time between an unfinished image and a finished product.

This Manual will help you develop your workflow(s), as well as assist you in understanding when they should be used. We, therefore, highly recommend that you read this Manual to better understand the program's features and keep it handy for future reference. DxO Labs will regularly update this Manual, as needed.

Suggested DxO Optics Pro Workflows

A common question that is often asked is "How do I best use DxO Optics Pro?"

There are many answers to this question, too varied in number to offer any one specific recommendation here. The suggestions and recommendations below are not meant to be a comprehensive list of all options, but instead offer you ideas on how to build your own set of workflows.

Always make DxO Optics Pro the first program in your post-production workflow.

Since DxO Optics Pro's correction modules are built on original images taken with the camera and lenses you use, if an image is pre-processed by another program so that either its EXIF or image data is changed, DxO Optics Pro will not be able to return the results you expect from the program.

This requirement includes reader and cataloguing programs commonly available in stores or on the Internet.

The best first step in your workflow is to use your operating system's copy command and copy/paste your images directly from the camera storage card to your hard drive. Again, do not use reader or cataloguing programs to move your pictures from the storage card to your computer.

Recommended workflow diagrams. Here are some high-level workflow diagrams to consider based on past feedback from DxO Optics Pro customers and recommendations from the DxO experts.

1. Standard stand-alone workflow:

   Camera Storage Card -> Hard disk -> DxO Optics Pro -> Other post-production programs (if necessary)

2. Archived originals workflow:

   Archived originals -> DxO Optics Pro -> Other post-production programs (if necessary)

3. Adobe Lightroom™ and DxO Optics Pro workflow:

   Camera Storage Card -> Hard disk -> Adobe® Lightroom™ -> DxO Optics Pro plug-in -> Adobe® Lightroom™ -> Other post-production programs (if necessary)

4. Adobe Photoshop™ and DxO Optics Pro workflow:

   Camera Storage Card -> Hard disk -> Adobe® Photoshop™ -> DxO Optics Pro plug-in -> Adobe® Photoshop™

When is it the best time to use the standalone version of DxO Optics Pro versus the plug-in version in your workflow?

There are several answers to this question. The answer that is right for you will depend on what your goal is for the particular project you are working on at the time.

- Option 1: Use the standalone version of DxO Optics Pro without any other program.

  Use this option if your end goal is to process your images, review them and remove the images that do not meet your requirements or expectations and archive the rest of the pictures. Remember that you will always need your original images to reprocess your pictures in Optics Pro.

- Option 2: Use the standalone version of DxO Optics Pro followed by Adobe® Lightroom™, or any other Image database.

  In this case, you will first process your images directly from your Camera into DxO Optics Pro. You will then store the processed version in your Image database, for archiving and referencing purposes.

- Option 3: Use the plug-in version of DxO Optics Pro with Adobe® Lightroom™.

  If you want to use Adobe® Lightroom™ to catalogue and review your original images prior to processing them in DxO Optics Pro, you have two options. First, use the plug-in version of Optics Pro. In that case, you will need to set up the plug-in as an external editor in Lightoom™. Second option, after you store your images in Lightroom collections, you can access them throuph the Lightroom plugin that is available directly in the Select Tab of DxO Optics Pro. See Chap. 14 for more details on these two workflows.

- Option 4: Use the standalone version of DxO Optics Pro followed by Adobe® Photoshop™.

  Use this option if you first want to process your images in DxO Optics Pro, examine them and choose the pictures you want to process further in Adobe® Photoshop™.

- Option 5: Use the plug-in version of DxO Optics Pro with Adobe® Photoshop™.

  If you want simplified access to processing your images by Optics Pro from within Photoshop™, then use this option. See Chap. 13 for more details on this workflow.

- Option 6: Use the standalone version of DxO Optics Pro with other programs.

  As with using DxO Optics Pro with Adobe® Photoshop™ in Option 4, if the other post-production programs you want to use can read and process JPEG, TIFF or Linear DNG file formats, you should be able to successfully use these programs after DxO Optics Pro.

- If you want to maintain an all-RAW post-production workflow, then either options 2, 4 or 6 above should meet your needs. The DNG file format produced by DxO Optics Pro is known as Linear DNG. This is a DNG format fully supported by Adobe® and is readable by Adobe Camera Raw, Lightroom™ and Photoshop™.

  TIP: There are two forms of DNG, RAW DNG and Linear DNG. In order to process de-mosaic information and include all of the data that is produced by Optics Pro, DxO utilizes the Linear DNG format. Please note that this format produces *significantly* larger output files than the RAW DNG format!

Output file formats

According to the file format of the images imported into DxO Optics Pro, the Output file formats available are:

Input file formats	Output file formats
JPEG	JPEG, TIFF (8 bits only)
TIFF	JPEG, TIFF (8 or 16 bits according to Input)
RAW (Camera RAW)	JPEG, TIFF (8 or 16 bits), DNG
DNG (Samsung GX20 / Pentax K10D only)	JPEG, TIFF (8 or 16 bits), DNG

Over the years, DxO Optics Pro customers have customized their workflows to successfully meet their continually changing needs. With a little time and experimentation, you too will be able to craft your own custom workflows.

Chapter 8 File / Edit / Workspace / Help Menus

When you open DxO Optics Pro, the top-most set of menus available to you is the Menu Bar and will contain drop down menus for 'File', 'Edit', 'Workspace' and 'Help'.

We will review each of these drop down menus so that you can familiarize yourself with the operation of each menu.

File Menu

The File drop down menu includes commands to:

- New Project – creates a new DxO Optics Pro project
- Open Project... – opens a project from the database of DxO Optics Pro projects.
- Save Project – saves the current project in the projects internal database.
- Recent Projects – direct access to the recently opened projects.
- Delete all projects – will remove all previous projects from the DxO Optics Pro database.
- Import v4 project – open a project previously created in DxO Optics Pro version 4.
- Export Image for ICC Profile – save images with standard "flat" corrections, that can be used by professional calibration programs for creating ICC profiles.
- Sidecars – export and import of the current project "sidecars" (the individual settings files for each image) with original images.
- Exit – Exit the DxO Optics Pro program.

  It is important to note that a 'project' saves all the specific settings of each imported image, along with the Output formats settings, but it does not save duplicate copies of your original images.

Edit menu

The Edit Menu contains many useful pairs of commands to assist you in your work.

- Undo [Ctrl+Z] and Redo [Ctrl+Y] apply to the last action you have performed.
- Cut [Ctrl+X], Copy [Ctrl+C], Paste [Ctrl+V] perform the usual clipboard functions.

- Copy image settings – will copy the settings applied to the selected image so that they can be applied to other images as needed. *Note:* When you copy the settings of an image with this command, the settings remain in the computer's memory until you do the next copy image settings (or you quit the software).
- Paste image settings – will apply the settings that you placed into memory with the `copy image settings' command to the currently selected image. This is a quick way to apply with settings for one image to one or more other images.
- Refresh – will update the content of the selected repertory.
- The 'Preferences' command allows you to make adjustments to certain overall program working parameters.

Program Preferences: The General tab

Here you can select:

- the working language,
- select if you want the camera shutter sound to play at startup,
- select and deselect automatic checks for software updates.

Another useful feature on the General tab is the ability to set the ICC display profile you will use when working with your pictures in DxO Optics Pro. Your choices are:

- Display device's profile –allows you to use the ICC profile used by your camera when taking each picture.
- sRGB – allows you to work with the smaller sRGB color profile when correcting and adjusting your pictures. This profile is very useful if you are processing your images for use on the Web or to send them as e-mail attachments. sRGB files generally produce smaller file sizes.
- Adobe RGB – allows you to work with this popular Adobe color profile. Many customers prefer this profile because it is commonly used by many commercial printer manufacturers and will provide an excellent match when printing your images on your personal photo printer. It is also supported by a number of popular post-production programs such as Adobe® Lightroom™ and Adobe® Photoshop™.

Two checkboxes activates the automatic creation of sidecars (the .dxo files that contain all settings used to process the image) next to each original image; and the automatic loading of the .dxo sidecar when opening the image. These fonctions allow to transfer processed images from a computer to another.

Finally, you can activate or deactivate the video GPU (graphics processor unit) code within the program. On many newer systems, this feature will help speed up the display of your images on your computer screen. However, it should be noted that not all video cards support this code, and this can result in less than optimal performance.

> ***TIP:*** If you experience any video related problems with the Optics Pro program, you will want to deactivate this feature first to see if this corrects the problem, before doing any other troubleshooting or contacting DxO technical support.

Note: Current users of DxO Optics Pro will notice that the selection of operating modes is no longer available. In version 5, each correction setting is always available. The interface has been designed to allow for easy access to the adjustment palettes, that can be hidden for a less cluttered screen.

Program Preferences: The Module ambiguity tab

Under certain circumstances, it may happen that an image's EXIF data doesn't contain enough lens information for DxO Optics Pro to properly determine the right Correction Module to use for this image. This will normally be detected at the time of adding images to your project. When this happens, you will be asked to pick the correct lens from a list of installed Correction Modules.

You can also resolve these ambiguities via this tab under Preferences. Where ambiguities exist, the conflicting modules will be listed, and you can choose the lens model you are actually using.

Of course, your choice will depend on the specific combinations of bodies and lenses that you regularly use and Optics Pro correction modules you have installed on your computer.

Workspace Menu

This menu presents you with a list of correction Palettes used on the Prepare tab workspace.

Your choices are:

- Move/Zoom
- Histogram
- Edit EXIF
- Preset Editor
- Lights
- Geometry
- Colors
- Details
- My Palette

By checking and un-checking each of these menu items, you can easily display and hide palettes you need and don't need for any specific project.

> ***TIP:*** You can also get the same effect by clicking on each of the palette icons that appear in the upper right part of your monitor while in the Prepare tab workspace.

Help menu

The Help menu offers a number of aids for assisting in your better use of DxO Optics Pro. Your choices are:

Check for updates – *[Active Internet connection required]* By clicking on this menu item, the program will contact the DxO server to determine if you have the most current version of the program installed on your system. If you do not, you will be given the option to download and install the latest update.

DxO Modules – This is one of the most helpful menu items available. Clicking on this item displays a window showing you all Correction Modules currently installed on your computer. By default, the 'Valid DxO Modules' window is displayed. Modules contained in this window are properly installed and working. Notice that modules are listed by camera model AND lens model.

If you have any modules listed when you click on the 'Update required' radio button, this means that there is a later version of these Correction Modules available that you should consider installing. Note: If the module you currently have installed is functioning to your satisfaction, you may not want to update the module at this time.

The final window is 'Not supported by this edition'. Correction modules that appear in this list are not compatible with the currently installed version of the program. These Correction Modules will not work on your system, and you should consider updating your program version at the earliest convenient time.

[Active Internet connection required] The 'Install' button at the bottom of the DxO Modules window will start the process to add new modules, or update currently installed modules, to the DxO Optics Pro program on your computer. *Important:* Once the modules have been downloaded to your computer, you must close and restart the program to finish their installation.

The 'Close' button will close the DxO Modules window. You can also click on the 'X' button in the top right corner of the window to return to the Optics Pro program screen.

DxO FilmPack activation... *[Active Internet connection recommended]* - If you have purchased this product, clicking on this menu item will start the process to activate DxO FilmPack. You will be able to enter in the activation code when prompted. *Note:* Though activation can be done without an Internet connection, it is highly recommended that you have your computer connected to an active Internet connection to simplify and speed up the program's activation.

Transfer license – [Active Internet connection required] Clicking on this item will bring up a short menu list that allows you to transfer your DxO Optics Pro and FilmPack licenses off of the current computer system. This will deactivate these products on this computer once the transfer process is complete. This feature is extremely useful when you are moving to another computer and want to free up the license on this computer for use on another computer.

Note: When moving to another computer, please make sure you transfer the license off of the previous computer first before formatting or removing the DxO programs. Under the DxO license, you are allowed a specific number of concurrent activations per license. Failure to properly deactivate a system may lead to delays in being able to activate your DxO product on another computer.

Local help – Clicking on this menu item will display the Reference Manual for DxO Optics Pro. *NOTE:* Your computer does not need to be connected to the Internet to use this menu item if the Reference Manual has previously been downloaded and installed on your computer. If you have not previously downloaded the Manual, you will need an active Internet connection to:

1. download the Manual from the Downloads page on the DxO Labs website, or
2. download the Manual the next time you download the program for an update making sure the User Guide box is checked.

Online help – *[Active Internet connection required]* Clicking on this menu item will start your default web browser and take you to the on-line support page of the DxO Labs website. There you will find links to Customer Service, Technical Support, Downloads and our FAQ (Frequently Asked Questions) section.

Tech support – *[Active Internet connection required]* Clicking on this menu item will start your default browser and take you directly to the DxO Technical Support web page.

Visit Web site – *[Active Internet connection required]* Clicking on this menu item will start your default browser and take you to the DxO Labs home page.

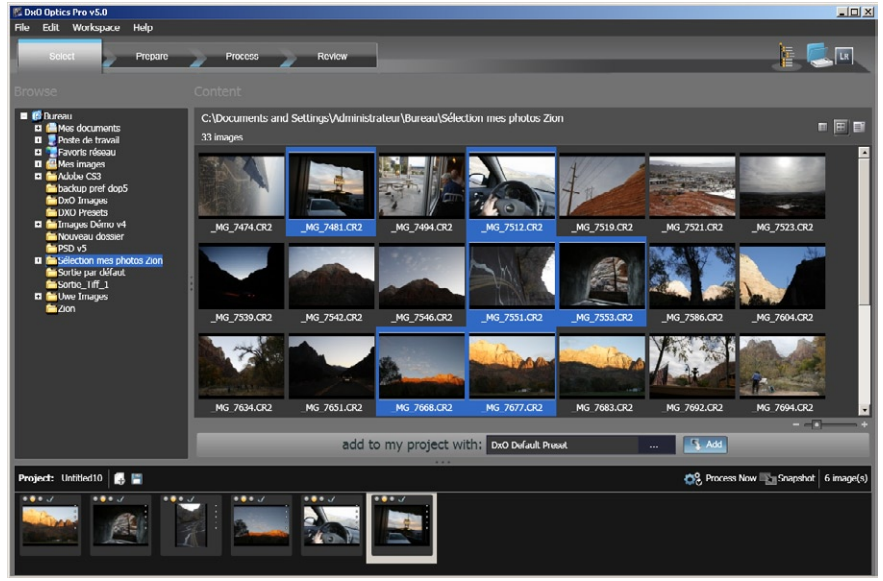
About DxO Optics Pro – Clicking on this menu item will open the 'About DxO Optics Pro' window where you can find information on the Add ins that are currently installed. This information is particularly useful if you need to contact DxO Technical Support.

The Workspace Tabs

At the top left of your window will be the four workspace tabs that you can use to correct, process and check you images. The four tabs are:

- Select
- Prepare
- Process
- Review

Each of these tabs will be covered by a chapter of this Manual devoted to explaining the workspaces and the buttons and adjustment tools available in each workspace.



Select Tab Screen

When you start DxO Optics Pro, you will see the first main screen of the program. The Select tab workspace is your key to building projects to be processed in DxO Optics Pro.

Projects are the basic building units of the program. A project is a container for images that are grouped into batches and processed. All images, even a single image, need to be part of a project to be processed.

The Select workspace screen is divided into three windows. Two of the windows are in the upper part of the screen, while the lower window (the Project window) occupies the lower portion of the screen.

On the top of the main window, additional icons are visible on the right hand side. Each of them allows you to choose a different way to select the images you want to import. The File System icon is the most popular. It gives you access to images via your hard drive's folders and subfolders. The second icon is the Project Database icon. This allows you to search previous projects, in case you would like to create a new version of an image already processed.

Both icons work similarly. You designate a folder in the first case, a project in the second one, and display their content in the content window.

Other icons may be available. They allow access to image databases managed by other software programs you may have installed on your system. To see these icons, you will need to install the corresponding Import plug-in for each program. Details and availability of plug-in modules can be found on DxO's web site (www.dxo.com).

> ***TIP:*** If you do not see all three windows, make sure that either the horizontal or vertical divider bars have not been dragged all the way up or down or to either side of your screen. The bars can be identified by three dots `●●●' appearing in the middle of the divider. Simply dragging the bar from the edge of the monitor screen towards the middle will reveal the missing window.

File System icon

Windows version:

The upper left window (File system window) is the main folder tree display. This display is very similar to the system trees displayed by Windows Explorer. Clicking on a `+' will reveal the next level of the folder structure. When you navigate to the folder containing the images you want to process and click on the folder name, the contents of the folder will be displayed in the upper right hand window (Folder contents window).

Macintosh version:

The Macintosh version of the File System reproduces the various folder displays available in Mac OS X's Finder. You can search folder content either in column view, list view or in thumbnail view. With the last two options, a local menu at the top of the display windows gives you the active folder path.

Note: You can build your projects within Optics Pro using the contents of one folder, or many folders. However, only the contents of one folder can be displayed at any one time in the right hand window.

Project Database icon:

When you click this icon, the upper left window shows the content of the internal Project Database. This database will automatically record every project you've worked on, listed in a chronological order. You'll see first the most recent projects, then yesterday's, last week's, last month's, and so on.

When you click on a project's name, the right window shows the images that were imported into that project. If you drag some of these images into the current Project window, they will be added with their respective settings. This means that if you applied some specific settings in the original project, these same settings will be reintroduced into the current project.

This will give you the option to modify some settings in order to obtain a different version of the same original image.

Content window

At the top left of the right hand window, the path and name of the selected folder is displayed as well as the number of files in the folder. On the upper right hand side of the window you will find two *File Display* buttons. The left-most button displays the folder's contents in a list view showing each file's name (Photo), file extension (Extension), file size (Size), and its creation or modification date (Date). Note: You can resort the names of the files in the folder alpha/numerically either high-to-low or low-to-high.

The button to the right of the detail button displays your folder contents as thumbnail images with the file names displayed below each image. A slider bar in the lower right hand corner of the window adjusts the size of the thumbnails. Moving the slider to the left decreases the size of the thumbnails, while moving the slider to the right increases the size of the thumbnails.

> ***TIP:*** When the content of a folder has changed (for instance because you added images to it), you may refresh its visualization by pressing the F5 key.

To the right of the thumbnail button is the *Sort button* that allows you to filter and sort the files in the folder display.

Options available to you using the Sort button are:

Name – Sort the contents of the folder alphabetically by file name.

Size – Sort the contents of the folder by file size.

Date – Sort the contents of the folder by file creation/modification date. This is useful in quickly finding the most recent image files in a folder.

Show RAW – *[Filter]* When checked, RAW image files will be shown in the file list or among the thumbnail images displayed. If unchecked, RAW files will be filtered out (not displayed).

Show RGB – *[Filter]* When checked, RGB image files will be shown in the file list or among the thumbnail images displayed. If unchecked, RGB files will be filtered out (not displayed).

Show corrected images – *[Filter]* When checked, images processed by DxO Optics Pro will be shown in the file list or among the thumbnail images displayed. If unchecked, corrected images will be filtered out (not displayed). Remember, previously processed Optics Pro images cannot be reprocessed by the program. You will need to reprocess the original images.

NOTE: Active sort options will be checked on the menu list.

The Project Window

The lower window is the Project window. It is the one window that you will see through three of the four workspace tabs in DxO Optics Pro. It is in the Project window that you build your batches by adding the images you want to process to a project. You can add your images in one of two ways:

1. You can drag-and-drop one or more images from the folder contents window to the Project window. This is the fastest, and most convenient way to add images to a project.
2. You can also add images to the Project window by selecting them and clicking on the "Import" button on the central bar.

In all cases, a preset (a group of correction and adjustment settings) is applied to your images. By default, the preset applied to images will be limited to the standard automatic corrections. Of course, these corrections are precisely adapted to every image. Using the "DxO Default" preset for different photos does not mean all images will undergo the same corrections. DxO Optics Pro, when processing your images, reads the EXIF data available in the header of each picture. Then, according to the photographic situation (type of camera body and lens used, aperture, speed, zoom position etc.), the program adapts its corrections and adjustments to meet the specific needs of each image. This is truly a unique feature of DxO Optics Pro that can save you many hours of image adjustment time and effort.

You can also replace these standard parameters with different ones. The Preset local menu gives you access to the list of all recorded presets available in your DxO Optics Pro internal database. At first, you will find presets prepared by DxO engineers; but you also have the possibility to add you own custom presets, thanks to the Presets palette in the Prepare Tab. See chapter # 10 for more details on this feature.

> You can repeat this process over-and-over choosing a different preset to use with different images. Remember, in Optics Pro, each image is treated as a unique processing file. So being able to mix varied images and presets in a single project is a very powerful feature of the program.

In the upper left hand corner of the Project window, you will find the name of the project you are working on. To the right of the name you will see the following icons:

- **'Create a new project' –** If you click on this icon, the program will create a new, blank project.

To the far right of the Project window are two buttons.

- **Process Now –** If you want to apply the automatically created default correction settings for all of your images, you can click on this button and you will be taken directly to the Process tab workspace.
- **Duplicate –** This duplicates the selected image so you can apply two different groups of settings to the same image source. Once you click this button, you will get a second identical thumbnail in the project that will behave exactly as if it was another original image.

Two more buttons allow the user to access to the *Sort* and *Filter* local menus. The thumbnails will be reorganized according to the sorting option you select (by file name / Extension / Size / Modification date / Camera Body / Lens / Status); and you can hide some sets of images (Raw images / RGB Images / Stacks / Already corrected images) to reduce the Project window clutter.

Thumbnail Icons

Surrounding the thumbnail images in the Project window are a number of icons that offer you processing control and information about each image.

> ***Tip:*** Since DxO Optics Pro considers each of your images as unique, you can mark each image with a unique processing setting to improve your workflow.

In the upper left hand corner of the thumbnails are three buttons. They are:

- Mark "To be processed" (Green light)
- Mark as "Undefined" (Yellow light)
- Mark "Do not process this file" (Red light)

When you click on one of these buttons, you tell DxO Optics Pro how to process the image during the Process stage.

You will notice that after you import images they all appear marked as "Undefined" (with a yellow light). This is done to remind you that you have not yet decide if you want to process

or discard them. When you display the images in the Prepare Tab, you may decide their final status: Process (Green light) or Do not Process (Red light).

> *IMPORTANT TIP:* Note that images carrying a yellow light (i.e. with an "Undefined" status) will ALSO be processed along with green light images. This allows you to import images and start processing them right away, when you know you want to process every image.

In the lower left of the thumbnail, controls for rotating the image are available. You can rotate the image by plus or minus 90 degrees at a time. *Note:* DxO Optics Pro will automatically rotate any image you shoot if you used the auto-rotate feature of your camera.

Module Information Icons

Once your project is open, and you add image files to it, the thumbnail of each image displays various icons that will give you processing information about your image. If for some reason correction tools in Optics Pro are not available, or the image cannot be processed, please check these icons to help diagnose what might be causing the problem.

 : The proper correction module to use has been determined from the EXIF data portion of the image file. Your image is ready to process.

 : There is ambiguous focal distance or ambiguous rotation information in the EXIF data portion of the image file. Although some value appears in the corresponding EXIF field, the camera didn't recorded it with a precision that match DxO Optics Pro requirements. To correct the focusing distance, click on the Geometry header in the Correction Palette. One of the options displayed will be 'Focusing Distance'. You can either move the slider to the left away from the infinity default symbol or click on the drop down arrow and select a focusing distance range. (Hint: In most cases, the next lowest range setting located just above the infinity symbol on the list will work well.) Similarly, ambiguous rotation can be corrected by using the Camera Orientation tool. Note that under normal circumstances, neither of these tools will be displayed since no correction is necessary.

 : A module ambiguity exists for this image. That is, there are two modules currently loaded on your computer that could be used in the processing of this image. This occasionally happens when two lenses have almost identical characteristics, and the program cannot correctly determine the best module to use. In this case, you will be need to choose the best module manually (by clicking on this icon).

 : The module ambiguity has been resolved.

 : The correction module needed to process this image was not found installed on your computer. You will need to use the program installer to download and install the module needed. You can find the installer under 'Help' and 'DxO Modules'. Click on the 'Install' button at the bottom of the DxO Modules window to start the installer. Note: If asked, you do not have to download the program again, plug-in or User/Reference Guide. Deselect these options, the software will only download the DxO Modules you selected.

 : The image cannot be processed. This is caused by camera model information being absent from the EXIF data portion of the image file, or DxO Optics Pro has already processed this particular image file, or the program cannot read the file's format properly. Missing information in the EXIF data area is most often caused by the image file being processed by another program prior to being loaded into Optics Pro.

Ranking

To help you effectively organize your workflow, there is a built-in system of image ranking that uses stars to indicate a quality ranking to your images. Unlike version 4, this ranking has no effect on DxO Optics Pro v5's workflow. It is merely a convenient way of indicating some form of quality classification.

Down the right hand side of each thumbnail image is a line of dots ● ● ● ● to indicate the selected ranking of an image. You can click these dots on or off at any time and in any workspace. When you do, the dots will be replaced by stars ★★★★★. Note: In the 'Prepare' workspace, these stars are also accessible in the preview pane.

Using the rating system is easy and straightforward. For example, if you click on the third dot it will change into a star and the dots below it will also change to stars giving this image a rating of '3'. It will look like this: ● ● ★★★.

In the lower right side of the thumbnail is a red 'X'. If you highlight an image, or set of images and click the red 'X', the highlighted images will be removed from the project.

Stacking

A 'stack' of images is a way of organizing your images into groups, which can not only help reduce clutter in your Project window, but, more importantly, enable you to apply various settings to a entire group of images at the same time (without having to multi-select them each time).In this way, a stack is equivalent to a permanent multi-selection.

Any tme you have a number of images that for some reason might require the same process settings, you may want to consider stacking them.These might be a series of related images of the same subject, or a set of images taken under the same lighting conditions.The possibilities are endless. *NOTE:* If one of these images subsequently needs individual settings, you must first unstack it in order to be able to adjust the settings for this particular image.

A stack always shows a "master" image at the "top of stack". It's this image that will be displayed in the Prepare tab when you select the stack.

Create a stack. It is easy to create a stack by selecting multiple images (so they are highlighted with a blue outer box) and then right clicking on one of the images. A menu window will open and one of the options is called 'Stacking' with a right facing arrowhead next to it. Clicking on this menu item opens up a sub-menu to the right.

> ***TIP:*** To select consecutive thumbnails for inclusion in a Stack, hold down the Shift key and click on the first and last images for the stack. To select non-consecutive images, hold down the Ctrl key and single click on the thumbnails you want to be included in the stack.

- **Create a stack.** Clicking on 'Create Stack' will create a stack where the images to the right of the first selected image will collapse below the first image. A number box will be placed in the right top corner of the thumbnail informing you of how many images are currently in the stack.
- E**xpand the stack** by double-clicking on the image, so you can check all pictures inside without unstacking them. You can also expand the stack, displaying all of the images in the stack in the Project window by right clicking on the stack and then choosing 'Stacking' and 'Expand stack'.
- **Shrink the stack** by double-click on the 'top of stack' (master) image. Note: It's the one outlined in blue.
- **Change the master image,** if the stack is expanded, by double-clicking on another image; or if it's collapsed, by using the scroll wheel on your mouse.
- **Add more images.** You can later add more images to the stack by right-clicking on the stack and choosing 'Stacking' and 'Add to stack..'.
- **Remove from stack.** If you expand a stack and click on and highlight an image in the stack, right click the mouse and in the Stacking sub-menu click on 'Remove from stack'. This will remove the image from the stack, but not from the project.
- **Unstack items** with the help of the menu that appears with a right-click of the mouse and choosing 'Stacking' and 'Unstack items'.

Once a stack has been created, it 'sticks together' and can be handled and manipulated as if it were single image. The thumbnail for a stack of images appears with a light-gray border.

Right Clicking

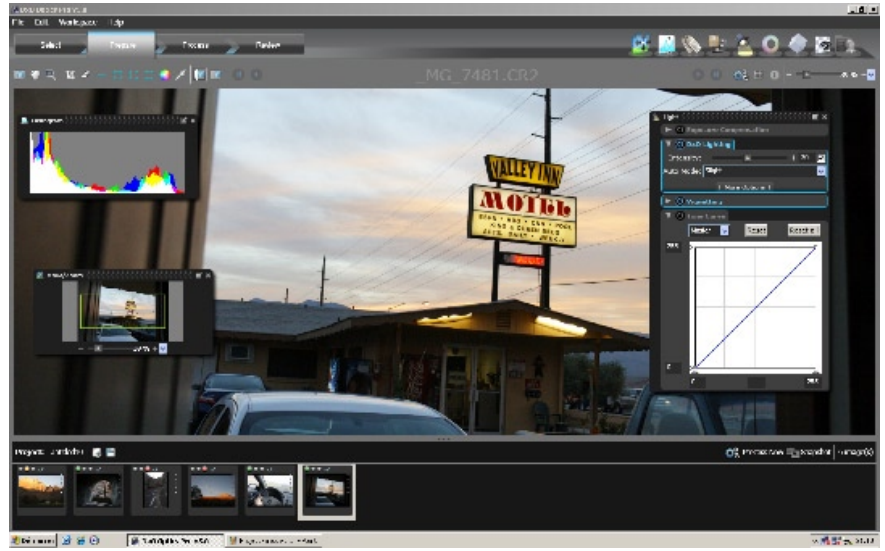
This is a very powerful, yet "hidden" feature of the program: right clicking gives you quick access to:

- Showing the file selected in Windows Explorer
- Controlling stacking functions
- Creating a virtual copy of the image selected
- Rotation controls
- Image ranking
- Image process flagging
- Copying the correction settings of the image
- Pasting copied correction settings from another image to this image
- Applying chosen presets, and
- Removing the image file from the project

Image process flagging has 4 sub-menu items:

- Undefined, Mark to be corrected and Do not correct correspond to the three processing buttons in the upper left hand corner of the thumbnail image.
- The reset button returns the settings to the pre-selected condition.

Chapter 10 The Prepare Tab



Past customers of DxO Optics Pro will notice that the 'Organize' and 'Enhance' tabs are no longer available in version 5. In their place is a single, new 'Prepare' tab that combines the functionality of the two previous tabs, therefore streamlining your workflow.

The Preview Window

The Prepare tab workspace is divided into 2 primary windows. The top window is the Preview window, while the Project window continues to occupy the lower part of your screen.

To work on an image, simply click on the thumbnail of an image in the Project window. When you do this, the correction and display processing for the Preview window will be started.

In fact, the first image to appear will be the "before" image (the original image you imported in DxO Optics Pro). Then, after a few seconds, a preview of the "after" image replaces it.

Remember, DxO Optics Pro reads the EXIF information in the file and analyzes the image contents to create a unique set of default settings for your image. This process is automatic so the settings for each of your images are optimized right away. The corrected image is then displayed in the upper Preview window.

> ***TIP:*** Some corrections made by Optics Pro (i.e. lens softness correction) can only be seen at high zoom settings above 75%.

Zoom Slider: Note the zoom slider in the upper right hand corner of the Preview window. By moving the slider to the left, you can reduce the magnification of the selected image in the window. Move the slider to the right and the magnification of the image is increased. There is also a down arrow to the right of the slider that, when clicked, will present a drop down selection of predefined magnification amounts as well as the ability to type in a zoom value of your choosing. Accepted values range from 5% to 200%.

For more information about Zooming, please see the Move/Zoom tool palette section below.

Other icons above the Preview window include (from far left to right):

- **Before image –** displays the thumbnail image chosen in the lower Project window in the Preview window as your camera shot it without any Optics Pro corrections. To see the as shot image, simply click and hold the left mouse button down. The original 'As shot' image will be displayed. When you release the mouse button, the corrected image with default processing settings will be displayed. This is an excellent way to do a quick check on optical corrections automatically made by the program to see if they meet your needs.
- **Move viewport –** When clicked, a hand icon replaces the standard mouse arrow and allows you to grab (by clicking and holding down the left mouse button) and move a magnified image in the Preview window so you can examine individual parts of the entire image. Please note that when you move to a different area of your image, that depending on the image rendering speed of your system, a clear, sharp image may take several seconds to be redisplayed.
- **Zoom viewport –** When clicked, you can move the mouse cursor over a specific part of your image and clicking will automatically zoom into that area of the image.
- **Crop –** When clicked, the mouse cursor turns into a cross-hair cursor allowing you to crop the image in the Preview window. The boundaries of the cropped image will be shown with a black dashed line. If you would like to quickly leave the crop mode, click on one of the other buttons on the toolbar.
- **Anti-dust tool –** allows you to "paint" a point or a line (whose thickness can be adjusted) over a dust shadow or a blemish detail you want to erase. After you draw a point or a line, it becomes selectable (if you click again on it with the anti-dust tool). You can then remove it by pressing the 'Del' key on your keyboard's numeric keypad. Of course, once you erase dust and blemishes on one image, you can make a preset out of it and reuse this setting on other images. *Note:* When you first click on the dust tool, two picture images will be displayed in the Preview window. The left hand image is the before image (where you will make your correction) and the right hand picture is the after image. You will need to use the zoom slider and Move viewport button to zoom into the area of the image you want to work on. When you zoom in, the same area will be displayed in both the left and right pictures.
- **NEW ICON - Horizon –** provides you with the ability to draw a parallel line across the Preview window allowing you to readjust the horizon in the image. Once you draw the line and release the left mouse button, the picture will be rotated to reflect the new horizon.
- **NEW ICON - Force Parallel (Horizontal) –** see the next section
- **NEW ICON - Force Parallel (Vertical) –** see the next section
- **NEW ICON - Rectangle –** see the next section

  TIP: To quickly leave the Force Parallel and Rectangle modes, click on the 'After' icon. Also, depending on how much correction you make with these tools, you will probably need to crop the image to reset clean edges of the image.
- **Multi-Point Color Balance Tool (MPCB) –** allows you to readjust the color of up to 4 color points on the selected image.
- **White balance color picker –** allows you select which point on the image in the Preview window should be used as the white reference point for the image.
- **After –** displays the processed (corrected) image in the Preview window. This is an accurate display of how this image will look when you process it later during the 'Process' phase of your DxO Optics Pro workflow. Please remember that some corrections can not be displayed in zoom factors less than 75%.
- **Before / After –** This is one of the more useful features of the Prepare tab. When you click on this icon, two images will be displayed in the Preview window. The left image will be the unprocessed, 'As shot' image. The right image will be the DxO Optics Pro processed image. This will give you a side-by-side, light table view of both images. You can even zoom in to the same area of both pictures to compare results.

Force parallel (horizontal)

Force parallel (vertical)

Force rectangle

The first two keystoning correction options Force parallel (horizontal) / Force Parallel (vertical) act in similar ways, except that in these cases you are asked to define a pair of vertical or

horizontal lines that you wish to be parallel. When clicked, you will be asked to draw two parallel lines on the left image that should be parallel. You can move the end points of both drawn lines to set your parallel lines within the image. It doesn't matter if you reset the lines in the same or reverse way, the end result does not change. Only the relative angles of the lines count, their lengths add nothing to the correction. If you change a pair of horizontal lines to vertical correction (or vice-versa), your image will be rotated to reflect the lines you have drawn.

If your picture contains both vertical and horizontal keystoning, you will need to use the third option, Force rectangle. This lets you draw a parallel box on the left hand image and define four points that form corners of a quadrilateral that you wish to correct to be rectangular. Note however that this is more powerful than a simple manual combination of both vertical and horizontal keystone correction, since it can also introduce an element of 'skew' into the correction.

Example: What if you have a picture that contains both keystoning and a horizon that is not level?

Since the four corrections (Horizon, Force Parallel (Horizontal), Force Parallel (Vertical), and Rectangle) are mutually exclusive, if your image contains both keystoning and a horizon that isn't level, you will have to first perform one of the corrections using the top left-hand buttons and then the other correction in the Geometry palette.

Since the Level horizon command only works with a horizontal line, if the problem with your picture is in fact a leaning vertical, it will make sense to correct any keystoning first, and only then go and correct the leaning vertical in the right-hand Geometry palette. Alternatively, you can "cheat" by using the Force rectangle tool, though this type of correction can prove to be very difficult to master.

ENHANCED FEATURE - Image navigation buttons. In the center of the upper portion of the Preview window you will find the name of the image file you are viewing, and to the right and left of the filename are buttons similar to what you will find on a VCR or DVD player. These buttons are useful in case you select many different thumbnaisl in the Project window (multiselection).

If you click the far left button that has a left facing arrowhead and vertical line, Optics Pro will take you to the first image file in your multiselection. The button with just a left facing arrowhead will take you to the previous image, unless you are already at the first image. In this case, both of the left hand buttons will be greyed out. The buttons on the right side of the file name have a similar function; only they will take you ahead to images that are further into the multiselection.

On the far right-hand side of the bar above the Preview window, to the left of the zoom slider are three icons. The icons from left-to-right are:

- **Proof this –** allows you to immediately process the image currently chosen in the Project window to quickly verify if the settings you have made for the image meets your needs or if additional correction and adjustments are necessary.
- **Toggle Grid overlay –** superimposes and removes a grid over the image in the Preview window to assist you with correcting horizons and image distortions.
- **Toggle Image information overlay –** displays and hides program information for the selected image. This information will appear in the Preview window.

The Correction Palettes

In the upper right hand corner of the Prepare workspace screen, you will see icons for each of the available correction palettes. If you hover over these icons with your mouse pointer, a tool tip with the name of the palette will be displayed for you. From left to right, the icons are:

- Move/Zoom
- Histogram
- Edit EXIF
- Preset Editor
- Lights
- Geometry
- Colors
- Details
- My Palette

If you click on an icon, the corresponding correction palette initially located on the right side of your screen will be hidden from view, thus freeing up valuable monitor space for working on your images. In this way, you only display those correction palettes you need. Returning

the palette to be viewed again is just as easy as hiding it. Simply click on the icon and the correction palette returns.

As noted earlier, the tools found in previous versions of Optics Pro have now been reorganized into more logical correction palettes. And, these palettes can be displayed and hidden as needed, as well as allowed to float over any part of the screen.

Let's examine each of these palettes and how the work.

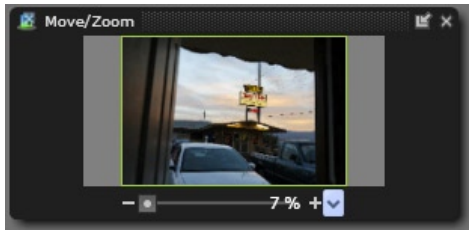
Overall Correction Palette workspace

On the right side of the Prepare tab workspace, each palette can be accessed from its black header bar containing its unique icon identifier and name. Also on the header bar for each palette, you will find two other icons on the right side of the bar. The far right icon is an 'X'. When clicked, the palette will be hidden from view. Don't worry, you have not deleted the palette. You can always redisplay the bar by clicking on the palette's icon at the top of the screen.

Just to the left of the 'X' is an icon that contains a square and an arrow. This is the **'undock'** icon, and if you click on it, you will undock the palette so it can float on your screen. Notice that you are not limited to placing the floating palette only over the Preview window, but you can place this palette anywhere on the screen. Clicking the palette bar will expand and display the tools associated with the palette. Clicking the bar again will collapse the palette tool display back into just the header bar.

TIP: If you click the undock icon again, the palette will automatically snap back to its docked position.

Move/Zoom Palette



The Move/Zoom correction palette displays a small thumbnail of the image displayed in the Preview window. The green box on the thumbnail indicates the section of the image currently being displayed. A minus sign is on the left hand side of the zoom slider bar and a plus (+) sign is on the right side of the slider. You can click on either the (-) or (+) signs to decrement or increment the zoom factor by 1%. Also to the right of the slider there is:

- A dropdown arrow that allows you to choose from predetermined zoom factors or directly enter your own factor. To close the drop down, simply click again on the down arrow.
- A fit button that sets the zoom factor so that the entire images fits in the Preview window. It's important to remember that the 'fit-to-window' preview image only shows an approximation of some of the corrections to be applied (i.e. White Balance, Exposure, rough Demosaicing, Distortion, Vignetting, Tone Curve, Lighting, Hue/Saturation/Luminance), while other key corrections like noise reduction, lateral chromatic aberration, true de-mosaicing, and sharpness processing are not always previewed. This is especially true when displaying at zoom factors below 75%. While editing these settings, you will probably want to frequently zoom in to check the effects of your corrections and zoom out to control the global image.
- A 100% button that quickly zooms the image to a factor of 100%

Note: The dropdown arrow and zoom slider work exactly like the slider and arrow button immediately above the Correction Palettes.

TIP: If you have a mouse with a thumbwheel, it will act as a zoom in/out control, within the same limits as the standard zoom controls.

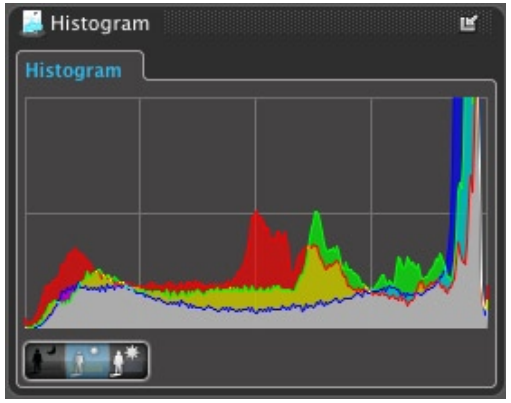
Histogram Palette

You are probably familiar with a histogram display. It is a graph showing the number of pixels for each tonal value in the three-color channels, with black on the left side and white on the right. You will find it very helpful to keep the Histogram palette open while you're working with the other tools, since it will very often give you a good idea of exactly how each adjustment is affecting your image. This is particularly useful if you are making manual adjustments to lighting, highlights, colors and recovering details.

During exposure adjustments, you may find helpful to use the highlight / shadow clipping display, (available via the three buttons beneath the Histogram display).

▼ Move/Zoom Palette

▲ Histogram Palette



These displays are intended to give a temporary pictorial indication of those parts of an image that are 'clipped' (i.e. dark areas that have reached minimum black level or light areas that have reached maximum white level). Clicking on the 'highlight clipping' button displays a picture that is mainly black (= areas with no clipping), in which certain small areas will display as white (= highlights where all three color channels are at maximum) or as different colors (= only one or two color channels are at maximum). This enables you to spot at once precisely which parts of your picture are clipping.

The exact opposite is true for the shadow clipping button—in this case, the picture displayed is mainly white, with small black or colored areas indicating clipping. The middle button restores the normal display.

It's important to note that shadow and highlight clipping displays are computed in the final output color space, and hence these displays, and any adjustments performed based on them, will be affected if the output color space is subsequently changed.

▼ Edit EXIF Palette

Edit EXIF Palette

The Edit EXIF palette is composed to two parts:

- Image information
- Exif Editor

The Image information section displays key EXIF information written to the image being displayed in the Preview pane by your camera. This is not information that can be changed. This information is good reference information and can tell you if any EXIF data is missing that may affect the ability of DxO Optics Pro to perform key optical corrections.

The Exif Editor allows you to edit the Author and Copyright information in the image's metadata section.

Preset Editor Palette

Presets are powerful tools that allow you to easily save and apply custom settings to one or more images in your projects. Saving custom presets of the current image settings permits you to define a new Preset document that you can name as you like and which will be available in the drop-down list under the Preset Editor palette in your future projects. It will also be available under the **"add to my project with:"** drop down list when you import your images.

So, how do Presets work? Basically, the settings you've prepared for use with an image can be saved and then applied to other images. More powerful still, you can choose which parameters to include or not include in your preset. And, you can manually override any preset setting at any time.

By using Presets, you can quickly apply your preferred settings to achieve the kind of 'look' you want, and then work on each image individually to fine-tune corrections and adjustments that perhaps need to be done on an image-by-image basis.

> ***TIP:*** It is probably a good practice to start off by saving most of your custom settings as Presets, in case you want to apply similar settings later to other images. This is much less work than laboriously going through each image trying to reproduce settings you've used before.

▼ Preset Editor Palette

It's worth noting here that all settings used to process any image are saved in DxO Optics Pro's internal database. If at any time you return to an image, it is possible to find out what settings were last used to process i.

When you open the Presets Palette, you see various buttons, along with a list of folders. Below this list, three icons let you create and organize presets:

- **New Folder –** allows you to create folders in which you can group similar types of presets. By doing this, you can create custom groupings of presets to meet the needs of the way you work. However, be aware that if you delete a preset folder, you will also delete the presets in that folder.
- **New Preset –** enables you to save the current settings for the image into a new preset. If you first highlight a folder before creating the preset, the new preset will be created in that selected folder.
- **Duplicate Preset –** creates a copy of a selected preset, copy that you can the modify later.

Click on the name of a preset to select it: you will visualize the way it changes the current image. But the changes are not validated; if you select another preset, the effects of the first one are discarded, and the new one applied. When you like the way a preset affects the current image, and want to make these changes permanent, just click on the "Apply" button on the bottom right of the Preset palette.

If you create a new preset, you can edit its settings by clicking on the "Edit" button. Note that the DxO Default Presets cannot be edited: you must first duplicate the DxO Default preset you want to modify, and edit its copy.

Selection of a preset

When a preset is selected, and you click on the Edit button, you can see an orange vertical bar appearing along the left hand side of any opened correction palette. In this orange bar, checkboxes are visible: the status of these checkboxes is very important.

Some of them may be checked: this means the corresponding correction engine is activated by the selected preset. A checkbox left unchecked in the orange bar means the corresponding correction is not impacted by the preset: applying this preset to an image will not alter the previous setting for this correction.

This is very different from a setting that shows a check in an orange checkbox facing an deactivated correction engine (with a gray name instead of blue). In such a case, the application of the preset would force the deactivation of the correction engine.

TIP: Presets are additive: a preset does not "erase" a previous one. This means that a preset may impact only certain settings, for instance on the Light Palette. If another preset has been designed not to impact the Light Palette, applying this second preset it will not affect the effects of the first one; but add different settings to the first one's.

Modification of a preset

When this orange bar is visible, you may change the settings of the selected preset. The image is modified to match any action you make on the controls; but these changes will NOT be taken into account (for application during the final process of the image) until you click on the "Apply" button.

Saving a preset

If you modify the settings of a selected preset, by checking or unchecking any checkbox in the orange bar, or simply by altering the position of a cursor in any correction palette, you can save the modified preset (click "Save") or discard your changes (click "Cancel").

Apply (or not) a preset

Whether you made any modification to the selected preset or not, if you like the aspect of the corrected image, you may apply the settings to it by clicking the "Apply" button. Finally, you deselect the preset by clicking "Exit". In case you don't want to apply the preset to the image, simply click "Exit" to deselect it.

Note: You can move a preset to a different folder by drag and drop.

In front of each folder is a '+' (a triangle on the Mac version). By clicking on the '+' the subfolders under Presets will expand just like a folder tree in Windows File Explorer. In the DxO Default Presets folder are grouped all of the default presets provided with the program:

- **A Darker Vision –** This preset will reduce the exposure level, while increasing the overall contrast. This gives a slight "lowkey" effect.
- **DxO Default Preset –** As you can guess, this preset is applied by default to all images imported in DxO Optics Pro. It concerns the basic corrections:

  Light: Exposure compensation activated but set to 0; Lighting set to 70 / Slight; Vignetting set to 100.

  Geometry: Distorsion set to 100;

  Detail: DxO Lens Softness activated but set to 0; Chromatic Aberration sIntensity to 100 and size to 3, with lateral chromatic aberration active; and DxO Noise activated (to values depending of camera and ISO setting).

- **No correction –** As its name tells, this preset will desactivate all DxO correction engines. Of course, when applied to a RAW image, DxO Optics Pro still takes in charge the Raw conversion (with standard settings).
- **RAW - Anti-color alias –** This preset activates DxO's denoise engine, along with the grey equalizer (that removes color noise).
- **Romantic Look –** A rather soft and low contrast preset, bringing a slight "highkey" style.
- **Vivid and sharp –** on the contrary, this preset gives a dynamic look to the image, thanks to strong vibrancy and sharpness settings.

If you click on the New folder icon, a new presets folder will be created. By clicking on the new folder's name you can Rename it. Depending on how you name your new folder, it will be automatically moved above or below the default preset folder. We would recommend that you give your folders meaningful names so you can remember how you have your presets grouped.

On the top right of the Presets Palette, you see a drop down menu icon. This menu duplicates the commands that we already described, such as New Preset, Edit, etc. But you will also see original items:

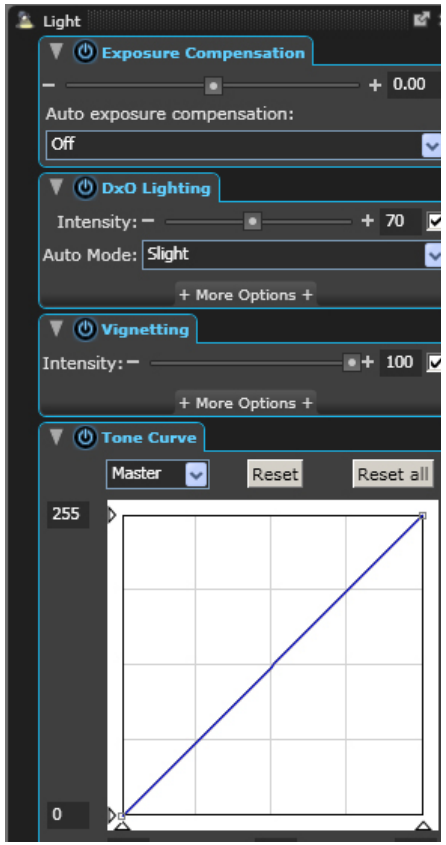
- **Import –** allows you to import previously created presets for use in Optics Pro v5. This is particularly handy if you want to move a preset you created from one computer to another computer. Choosing the Import menu command will open up a folder tree display allowing you to browse for the preset(s) you want to import.
- **Export –** allows you to export presets to a text file (this feature is plateform specific: versions Mac and Windows of DxO Optics Pro v5 presets remain incompatible).

▼ Preset Editor Palette

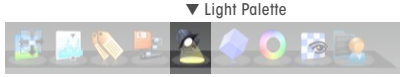
Four correction palettes: Light, Color, Geometry and Detail.

All correction engines that perform the magic of DxO Optics Pro are controllable via four palettes. Each of them adopts a "photographic" way to consider the image: "Light" will concern everything about lighting and contrast in the scene; "Color" allows every possible chromatic change. "Geometry" is all about global structure of the image, while Detail goes right to the pixel level.

Light Palette



▼ Light Palette



Natural scenes rarely exhibit ideal lighting conditions. Light sources are often directional and sometimes quite harsh. To compound the issue, the dynamic range of camera sensors can simply not compete with what our eyes can see. All this can result in some shots exhibiting under-exposed, dark or shadowed regions with missing or muddied details.

To a certain extent, such as when the wanted image signal is sufficiently above the noise level of the sensor, lighting problems can be corrected in post-production, given appropriate image processing is available.

Lost detail in shadows has been recovered in addition to optical corrections

The Lights Palette has been organized into to four major adjustment groups:

- Exposure compensation
- DxO Lighting
- Vignetting
- ToneCurve

Exposure compensation

The slider works just as you might expect. Moving it to the right (or entering a positive Ev number into the edit box) increases the image's exposure, while moving the slider to the left (or a negative Ev number) reduces it. The range is from +4.00 Ev to –4.00 Ev.

> ***Tip:*** During exposure adjustments, you will find it helpful to use the highlight / shadow clipping display available via the buttons beneath the Histogram display.

Below the slider is an 'Auto exposure compensation:' drop down box. This box provides you with a list of predefined automatic exposures for different types of shooting conditions. Choosing one of these exposure compensations can speed up your workflow by providing additional

custom settings for this type of shooting situation. Of course, these settings can be refined as needed.

DxO Lighting

Pixel-precise image segmentation technology lies at the heart of DxO Lighting, to deliver automatic local contrast adjustment and thereby reveal hidden detail in dark areas. Simply put, DxO Lighting first breaks the image down into a number of areas in which luminance values have a certain range. It then processes each of these areas in the most effective manner possible to reveal lost detail. In specific terms, lightness and tone curve slope are slightly increased in dark areas to bring out detail, while avoiding signal clipping that can occur if the overall gamma level of the image were adjusted.

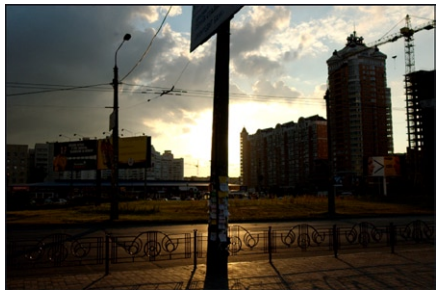
The Intensity Slider range is from 0 to 150 %, and there's also an edit box for direct entry. This slider will blend the original image with the corrected one.

There is a check box to the right of the slider, that indicate that the slider is in Automatic mode. When you move the slider, the check disappears; you can click on the check box again to reactivate the automatic mode.

Directly below the slider is a drop down box allowing you to pick from 3 correction modes.:

- Slight
- Medium
- Strong

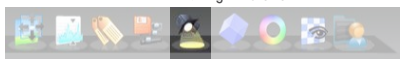
Look at the effect on the four pictures below:



Original image

Lighting "slight"

▼ Light Palette



Lighting medium

Lighting strong

Note: Certain features will only be available if the appropriate lens correction module is loaded. Where this is not the case, some of the corrections will appear grayed-out and be disabled. .

Below the Auto Mode drop down box is 'More Options'. If you click on these words an additional correction panel will be displayed. Clicking 'Less Options' will hide this panel.

The **'White and Black'** point sliders operate in a complementary fashion. Each has a range from 0 to 255, or you can enter a whole number in the edit boxes instead. These controls have the effect of stretching the image's lower tonal range up towards white or stretching the upper range down towards black. This is similar in many ways to what might be achieved using a tone curve adjustment and is probably easiest to visualize in conjunction with the Histogram display. Selecting the check box on the right enables and disables the automatic mode.

The **'Brightness'** adjustment acts basically like an overall gamma control with the slider and entry box having a default setting of 1.00 and a range from 0.50 to 5.00. The '**Preserve shadow'** feature (checked by default) operates at higher positive gamma settings, where shadows tend to become washed-out, and intelligently decides to what extent the darker tones should be 'held back' as shadows. The **'Shadow Radius'** slider / edit box affects the way DxO Lighting makes its decisions about what areas represent shadow or not, and how to apply the gamma locally in the image. This slider has a range from 0 (entirely global) to 15 (fully localized). As with other controls, there is a check box to the right of the adjustments that allows you to enable or disable the automatic modes for Gamma and Shadow Radius sliders.

And last, but by no means least, comes the pair of sliders / edit boxes for **'Local contrast'** (range from 0 to 100 %) and **'Global contrast'** (range from +50 to –50 %). The Global contrast control uses a tonal S-curve to affect the overall contrast of the image, with a useful bi-directional range allowing both contrast enhancement for slightly flat images and reduction for contrasted ones. The Local contrast control, on the other hand, is more subtle in its effect, altering the contrast in a spatially determined way that takes into account the area around each pixel, having something of the feel of the old photographic effect of 'dodging-and-burning'.

Before contrast adjustment

After contrast adjustment

Vignetting

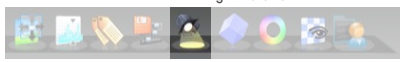
Here again, there is a check box to the right of the Intensity slider, that enables/disables the automatic mode. *Note:* This correction also depends on the presence of the correct DxO Correction Module being loaded on your system, otherwise it will be grayed out and unavailable.

Vignetting correction takes place in two steps, both of which can be fine-tuned.

- First, from the lens data, focal length and aperture setting, the DxO Correction Module computes the attenuation factor for every pixel in the image, and each pixel's RGB value is multiplied by the inverse of this factor. The '**Correction Intensity Slider'** (range 0–100%) allows you to decide how much of the vignetting should be removed from the whole image, independent of image content. In other words, all pixels will be multiplied by the scaled factor applicable to their position in the image.
- Second, a filter is applied to avoid clipping in bright areas and noise increase in dark areas. Limiting the value by which a pixel can be multiplied, depending on its luminance, does this. The effect of this filter will be different, depending on image content.

Clicking the 'More Options' button opens up a sub-panel. Shadow/Highlights preservation restricts the amount of exposure correction applied by the vignetting corrector at both ends of the tonal range, so as to avoid either crushing the shadows or clipping the highlights. *Example:* If you want to limit the luminance increase (which may reveal unwanted noise) in dark image corners because you shot at a high ISO, shadow preservation limits the degree of correction being applied. Likewise, because of the vignetting, the camera may have incorrectly exposed a cloud in the sky. The highlight preservation filter allows you to apply as much vignetting correction as possible, while still retaining wanted highlight detail.

▼ Light Palette



The range of this slider is 0 – 100%. As usual, the normally checked 'Auto' box must be unchecked in order to enable the manual control. If you want full manual correction of vignetting, you can set the value to 0 (Off).

Note: We recommend you do not depart from the default 100%, as the shadows preservation slider is often more effective than the correction intensity slider in preventing the undesirable effects of vignetting correction. Also, only vignetting caused by the lens or sensor is corrected. Mechanical vignetting, caused for example by too narrow a lens shade, cannot be corrected. In the case of mechanical vignetting, you will want to use the crop tool to remove the unwanted parts of your picture.

Tone curve

The tone curve is a very powerful tool, but is not, at first, easy to comprehend.

The tone curve shows the relationship between tonal values into the tool (across the x axis) and out of it (up the y axis). The tone curve represents the **"transfer characteristic"**, or the way in which input tones are mapped onto output tones. The initial straight line indicates that output tonal values are exactly the same as input values over the entire tonal range.

In order to adjust tone mapping for correction or creative purposes, the straight line is manipulated so it alters this input/output relationship. In traditional photographic terms, this means altering the gamma of the image, and this graphical approach allows for a great deal of flexibility.

> ***TIP:*** If you find that the right side of the Tone curve is too close to the right hand side of your monitor, you can click on the undocking icon for the Lights palette and move the palette to another, more accessible part of your screen.

Note first that the combo box at the top lets you choose to adjust either the Master channel—i.e. all three colors together—or any of the three Red, Green, Blue channels individually. The buttons to the right enable you to reset either the single curve you are working on, or reset all three of them together back to the default straight line.

Probably the first step in your adjustment will be to add points to the line, which you do simply by left clicking on the line. *Note:* It may take a bit of practice to click exactly on the point on the line you wish to adjust.

As soon as a point is created, that point is 'locked'. You can then drag it around, and the unlocked portion of the line will follow creating a curve in the line as you do so. You can watch the results of your adjustments in real time on the preview image.

You can create as many points as you need in order to generate the curve you want. To move a point, simply click on it and drag it to a new location. The active point is shown filled in black, and inactive ones as hollow white. Likewise, you can delete the active point using the Delete key.

An alternative to drawing a made-to-measure line is to make a numerical entry of the gamma value. The box at the bottom center is set by default to a gamma of 1.00, but you can enter any figure between 0.05 and 6.00. As you would expect, a gamma value higher than 1 tends to bring up detail out of the shadows, while a value lower than 1 pushes details down into the blacks.

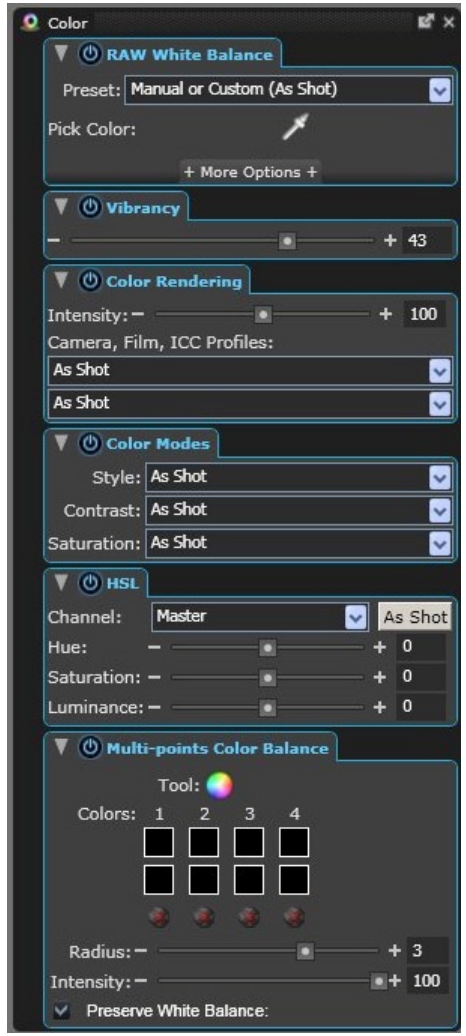
The input and output black and white points can likewise be set, either by dragging & dropping the relevant points with your mouse, or entering numerical values in the 4 entry boxes—from 0 (black) to 255 (white).

DxO's powerful tone curve, lighting correction and noise reduction features mean you'll be able to recover an astonishing amount of shadow detail that in conventional photography would likely have been lost. Remember, these corrections are most effective when processing RAW images, which is why the RAW format is preferred for use whenever possible.

The Tone curve adjustment is probably the hardest to master but is certainly one of the most useful features in terms of tonal control of your images. It is well worth your time to practice using the Tone curve to have more precise control over the Lighting adjustments being made to your image.

▼Color Palette

Color Palette



RAW / RGB White Balance

To set the white balance of an image, go up to the 'eyedropper' icon in the upper left group of correction icons on the RGB White Balance palette. If you hover your mouse pointer over either of these icons, it will display 'White balance color picker'.

Clicking this button displays two preview images side by side, the left-hand image being the original (before) image, and the right-hand image showing the effect of adjusting the white balance according to the reference point chosen. A message will also appear in the upper left of the before picture instructing you to "Click a point in the image to neutralize its color."

> ***TIP:*** The point chosen as the white reference should be a fairly light grey tone. Avoid clipped highlights because the results can be unpredictable!

Simply position the pointer over the required area *(you can Zoom in to the area first to improve the selection point's accuracy)*, and left-click to white balance this point. At any time, you can re-select 'As shot' (on the drop-down menu) in order to cancel the changes and go back to the original white balance setting. You also may prefer to select any standart setting from this menu.

Note: The eye-dropper 'looks' at the average of a number of screen pixels, so you should also avoid transition areas that might yield unwanted errors.

From this point, the controls will be different wether you're working on a RGB or RAW image.

If you click on 'More options' in the RGB White Balance panel, a Temperature slide appears that adjusts the color temperature of your image. This will swing the balance of the red and blue channels, while leaving the green channel untouched. Moving the slider to the right increases the color temperature and moving it to the left decreases it.

Note that the effect on the image is to make it warmer with increasing color temperature and cooler with decreasing color temperature. Although this might at first appear counter-intuitive, we need to remember that this is correcting the color balance *as if the picture had been shot with this color temperature lighting in the first place.*

EXAMPLE: Imagine that a picture has been taken by tungsten artificial light, but with the camera accidentally set to 'daylight'. The resulting image will appear too orange. Moving the slider to the left, towards a lower K value more appropriate for the artificial light actually used, will cool the image, therefore correcting the orange cast to the image.

If you click on 'More options' in the RAW White Balance panel, two sliders become available. A Temperature slider, similar to the RGB version; and a Tint slider that will shift the image colors from green to purple.

▼Color Palette

Let's take a look at the operation of this control using some actual pictures (in this case, RAW images).

EXAMPLE: Here in the middle is the picture as shot, and to the left and right, the effects of shifting the color temperature slider left and right respectively:

Cooler (Lower) Original Warmer (Higher)

> ***TIP:*** Extreme settings in the RGB mode need to be used with care in order to avoid artifacts that are the result of limitations in the RGB formats themselves.

Vibrancy

Moving the slider controlling Vibrancy to the right will enhance the colors to make them more appealing and give your image greater 'pop' while avoiding undesirable side effects, such as reddish skin tones. Conversely, moving the slider to the left will reduce the strength of the colors in an over-saturated image.

Vibrancy control moved higher to enhance natural colors of photo

Color rendering

Color rendering lets you apply a specific look to your RAW images, starting right from the very look of specific camera bodies, referred to here as 'color rendition profiles'. This functionality will differ slightly if you have activated the DxO FilmPack.

Color rendering – Black & White

Color rendering – Color Positive Film

Color rendering – Cross Processed Film

▼ Color Palette

The option « ICC profile » allows you to load a specific profile created from a test image. The implication of this is far-reaching. It means you can shoot with multiple bodies, and yet always produce results with consistent color rendition. You can apply the color rendition profile of Brand X to a camera from Brand Y, so all your pictures look as if they were taken using your Brand X camera body. Alternatively, the two more neutral settings cancel out even these tiny variations between cameras, to produce a technically precise, neutral result.

Color modes

Sepia tone example

Color modes offers you three combo boxes where you can make some preset and repeatable choices about the overall look of your image. These color modes are available for both RAW and JPEG images. Choices of high / medium-high / medium-low / low are offered for both contrast and saturation.

'Style' offers 'As shot' and various style presets: B&W, Toning –and others, if you have installed the DxO FilmPack plug-in. As their names imply, **'B&W'** removes all the color from the image, while **'Sepia'** tones the entire image with a pleasing sepia effect.

'Contrast' offers High Contrast, Med-High Contrast, Med-Low Contrast and Low Contrast settings.

'Saturation' offers High Saturation, Med-High Saturation, Med-Low Saturation and Low Saturation settings. HSL (Hue / Saturation / Lightnes

Hue, saturation and lightness can all be adjusted for the master channel, and also separately for each of the three primary (Red, Green, Blue) and three secondary (Yellow, Cyan, Magenta) color axis, as selected in the combo box.

The **Hue** slider can be moved to the right or left to change the hue, or a positive or negative figure can be entered in the edit box. The exact operation of this slider is affected by which color channel you have selected to adjust. The slider and box values range from +180 to –180.

Likewise for **Saturation**, the slider can be moved to the right to increase, or to the left to decrease, the color saturation (overall, or any of the six color axis), or a positive or negative figure can be entered. The slider and box values range from +100 to –100.

The same goes for the **Luminance** slider. Move the slider to the right (or enter a positive figure) to lighten and to the left (or enter a negative figure) to darken. These slider and box values can be from +100 to –100.

HSL – Sample Saturation Adjustment

The action of the Luminance slider is interesting, and you will probably find it easiest to understand if you look at the result of changes made with it on the Histogram display. Moving the slider to the right or entering a positive figure lifts the black level towards white, compressing the tonal range into the upper half of the scale. Conversely, moving the slider to the left or entering a negative number brings down the white level towards black, compressing the tonal range into the lower half of the scale. And as usual, the 'As shot' button cancels any HSL correction.

▼ Color Palette

MPCB (Multi-points Color Balance)

Notice the more natural color of both the hair and face

Multi-points Color Balance (MPCB) offers you a sophisticated way of achieving exact color matching between shots, even where a neutral color reference is not available. The system allows you to pick up to four colors and set the color you want reproduced. DxO Optics Pro will then make a best-compromise calculation to adjust the color balance of the entire image. What's more, it can achieve this across an entire group of images making it is easier to match critical colors between different shots.

To use this function, you first need to click on the MPCB button  on the left-hand side of the 'Prepare' tool bar. This will open the DxO Color correction panel. It will also put the preview display into twin-image mode (before and after correction).

On the MPCB panel, you have four pairs of color patches labeled 1–4. These will represent the color points you pick in your image, and beneath each pair is a red 'X' which enables you to delete any of the 4 adjustment points.

As soon as you left click on the left-hand image, you can select a color to go in the top ('before') color patch, and a color wheel will appear on your image, like this:

The center of the color wheel corresponds to the point you have selected, its size (from 1 to 4 pixels) set by the **'Sample radius'** slider / edit box on the MPCB panel.

Now you can use the mouse to drag the cursor around the color wheel to set the color you would like this first point to reproduce as in your final output.

> ***TIP:*** You might want to zoom in to a specific part of your image to make choosing the exact color point easier. .

Dragging the cursor (the small circle on the adjustment line) in and out on the radius reduces or increases the saturation, and dragging it in an angular direction changes the hue. The saturation is displayed alongside the color wheel as a value from 0 to 100%.

> ***TIP:*** You can temporarily lock the hue by holding down the Ctrl key as you drag the pointer with the mouse, or the saturation by holding down the Shift key. When your mouse cursor is over the adjustment cursor, the mouse cursor with turn into a cross-hair target. You can also lock Hue and Saturation by right clicking on the color wheel and selecting one of these two options.

The result of your color adjustment will be previewed in the right-hand 'after' image, and the new color ('after') will be shown in the lower patch in the Multi-points Color Balance panel.

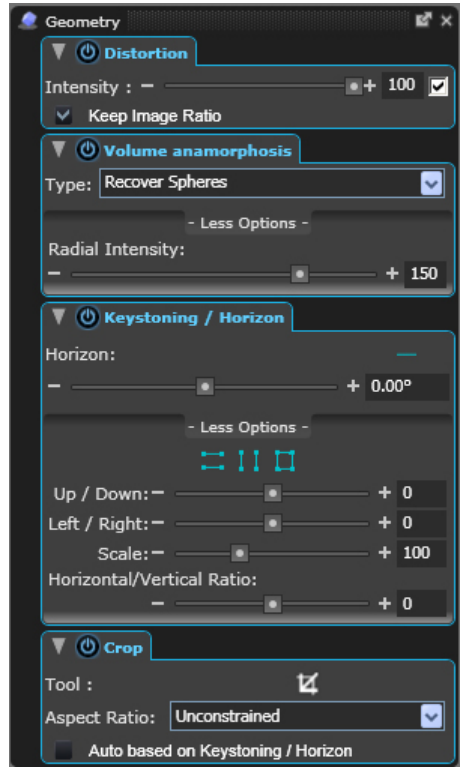
If you want to select further points for balancing, you can click again on a new location in the left image. As you do so, the previous color wheel will collapse to a small circle with its number beside it. These numbers correspond to the patches in the MPCB panel. You can revisit an earlier color point at any time by clicking right in the center of it. And, you can move it around by grabbing it at any point on the color wheel, other than at the adjustment cursor, and dragging it to where you want it. You can delete any color point by clicking on the 'X' button beneath its color patches in the MPCB panel.

Also on the MPCB panel are two sliders and edit boxes for (sample) Radius (range 1 to 4 pixels), which sets the size of the point around the cursor that is averaged. There is also an adjustment for Intensity (0–100%), which enables you to adjust the flexibility around the clicked point, and a check box for 'Preserve white balance'.

From the points you set, DxO Optics Pro calculates the color adjustments that need to be made to achieve the balance you require. If there is a conflict between the points you have set, the program will make the best compromise it can between them all. If you check the box to enable **'Preserve white balance'**, then DxO Optics Pro will calculate the compromises in such a way as to maintain the neutrality of the image as much as possible. With this mode enabled, attempting to force a color cast onto an originally neutral point is likely to produce *unpredictable, but interesting results.*

▼ Geometry Palette

Geometry Palette



A reminder that if the proper correction module is not loaded on your system, some or all these corrections will be grayed out.

The Geometry Palette has been organized into to four major adjustment groups:

- Distortion
- Volume Anamorphosis
- Keystoning / Horizon
- Crop

Distortion

Geometric distortion may be pincushion, barrel, or even for some lenses a mixture of the two! In each case, the analytical measurements carried out by DxO Labs make it possible to correct the distortion in such a way that straight lines in the original scene are correctly reproduced as straight lines in the photo. The Distortion tool has just one slider for the degree of distortion correction and the range is 0 to 100%. The default setting is 100%, and you should only depart from this in special circumstances—either to avoid cropping of important detail near edges or for creative reasons.

> ***TIP:*** Distortion correction involves a non-linear change in the magnification, which produces curved edges to the image and empty black spaces. To restore clean, straight edges and maintain the image's original aspect ratio, some cropping of the image is inevitable. At very wide-angles (especially with fish-eye lenses) this may be quite significant, so remember to make allowances for this when framing these types of shots.

There is a check box to enable or disable Keep Image Ratio. Normally, during distortion correction, the corrected image is re-cropped back to the original aspect ratio. However, in certain cases, this may mean that the image is cropped tighter than is strictly necessary. Using this option releases this constraint on the aspect ratio, so the cropping is just the bare minimum required to straighten the edges of the image. You are then free to crop the image manually to suit your needs.

Volume anamorphosis correction (VAC)

There is a fundamental problem when capturing a picture of our three-dimensional world onto a two-dimensional image, governed by the basic laws of optics. When converted into a flat image, the shapes of certain three-dimensional objects seem distorted, so they do not correspond to what our eyes and brain expect to see. This is referred to as **'volume anamorphosis',** and is most noticeable and objectionable when using wide-angle lenses or when it affects foreground objects close to the camera.

One of the biggest problems when trying to correct for this distortion is that it is entirely picture-content dependent. And because of the trade-offs involved, how much correction needs to be made is of necessity a subjective, artistic decision that must be made by the user.

The distortion is most evident with objects near the camera, and the correction required depends on their underlying shape. Basically, cylindrical objects (for example, columns or full-length human figures) need correction along one axis more than another, which we refer to as **cylindrical correction** (in a sense this may be either horizontal or vertical). Spherical objects (e.g. a human head) need correction on both axes at once. We refer to this as **spherical correction** and it is actually calculated along a radius from the center of the picture. Both of these corrections are dependent on the focal length of the lens used to take the particular picture.

▼ Geometry Palette

Anamorphosis Spherical Correction

The Volume Anamorphosis Correction panel provides a drop down box recovering either spherical or cylindrical corrections. When selecting the spherical corrections, the "More options" panel let you access to a Radial Intensity correction slider; cylindrical corrections are fine-tuned with Vertical and Horizontal Intensity sliders. All sliders can take values from 0–200% and allow you to control how much of each type of correction is applied to the image.

To adjust these controls, you need to first examine the image and decide what type of correction is required. Choose the appropriate type of correction for the picture content that most needs correcting, and then apply as little correction as possible to render the residual distortion acceptable. Over-correction will start to re-introduce unwanted geometric distortion and you may have to find the best compromise.

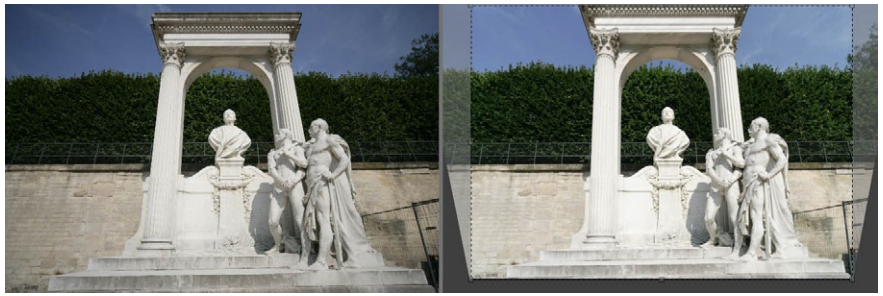
Keystoning / Horizon

The **Horizon** slider has a range from –180° to +180°, enabling the image to be rotated completely upside down at either extremity of the scale. This is useful for correcting leaning verticals.

> ***TIP:*** Using the Toggle Grid Overlay button in the upper right toolbar can assist you in simplifying adjustment of the squareness of the shot.

If you click on 'More Options', the Keystoning / Horizon correction palette will expand to display additional button and slider controls.

At the top of the extended panel are buttons to control Force Parallel (Horizontal), Force Parallel (Vertical) and Rectangle. The pair of Up/Down and Left/Right sliders / edit boxes give you additional fine control for adjusting vertical or horizontal **keystoning correction** with both sliders having a range of +100 to –100. Also note that you can type in a value instead of using the sliders for even more precise control of these functions. *Note in the sample image below that some cropping is necessary due to the adjustments needed to correct the keystoning in the original image. This is normal.*

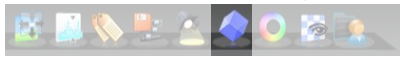


Though there is some small loss of image information along the top and sides of the original image, the finished product has the proper perspective with all objects in the image maintaining proper proportions.

Note: Defining your geometric corrections in this way will override any other settings you may have entered via the sliders and/or edit boxes. Also note that each of these corrections cancels out the others, so they are mutually exclusive.

Selecting the Horizon option (the line button on the right above the direct entry box for the Horizon tool) lets you define a line in the picture that you want to correct so as to be horizontal (or vertical). To do this, you first create one end point with the mouse in the left hand (preview) image, and holding down the left mouse key, dragging the cursor to the other edge of the image. Releasing the mouse button sets another end point to define your line. A bright green line will appear on the preview image.

▼ Geometry Palette



As soon as you release the mouse button, the second point on the horizon is set and the right (after) image will rotate in such a way as to make your chosen line horizontal (or vertical). If you make a mistake, you can click on Undo [Ctrl + Z] and then reset your second end point. A slider and numeric entry box allows you to make corrections to 1/100 of a degree.

Scale

The Scale slider / edit box lets you resize the image while maintaining all proportions associated with the image. The default value is 100%, and you can reduce the size to 50% or increase it to 200%.

Horizontal/Vertical Ratio

The Horizontal/Vertical ratio slider / edit box lets you stretch or squeeze the height of your image while keeping the width unchanged. The scale runs from –100 to +100, which represents from 50% to 200% of normal height. .

Crop

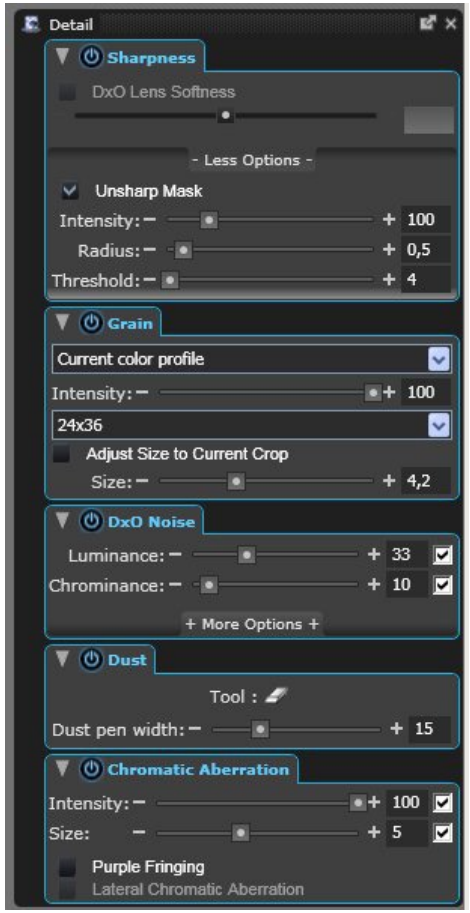
To crop an image, you can either select the Crop button from the left side of the header tool bar, or open the Crop panel in the right-hand corrections palette and click on the Crop icon. Once Crop has been enabled, you can select a point in the image and holding down the left mouse button, drag and create a crop box that appears as a black line rectangle inside the image. By clicking on and dragging the corners of the rectangle, you can adjust the size of the crop. Clicking on the borders of the crop will allow you to move the crop box, and clicking on an area outside of the crop will remove the crop box and allow you to create a new rectangle.

On the right-hand panel, there is a drop-down list from which you can choose the way the aspect ratio of the image is controlled in Crop. Unconstrained gives you complete control to reshape the crop in any way you like. Otherwise, a choice of one of the fixed ratios will constrain the crop to always maintain certain proportions, from 1:2 to 1:1, or maintaining the original, 'as shot' aspect ratio.

A final option allows you to define a Custom ratio, handy if you need to crop a whole series of images to conform to a specific aspect ratio. You can enter numeric values for the ratio you want. These must be integers, but the box will accept a sufficiently wide range of values to enable any desired proportion to be achieved.

In the lower part of the Crop palette, a checkbox activates the automatic crop feature, **Auto based on Keystoning / Horizon.** *With this option, any modification of keystoning will bring an automatic crop of the image, according to the ratio parameter that is selected.*

Detail Palette



The Detail palette allows you to control everything that concerns the pixel level. Sharpening, denoising, dust and chromatic aberrations removal settings are available within this palette. Note that the grain controls appear only if you installed the DxO FilmPack plug-in.

▼ Detail Palette

Sharpness

DxO can correct only for certain kinds of softness — the lens + camera combination's inherent inability to reproduce fine detail (commonly referred to as "optical blur"). Other kinds of softness caused by inaccurate focusing, insufficient depth of field or motion blur, for example, cannot be corrected.

Note: These corrections will not be visible in the main preview image below 75%, so you will need to use the **Zoom tool**.

DxO Lens Softness

This forms part of Optics Pro's optical corrections, and as such, is lens-and-body dependent. As a result, this panel will only be enabled (i.e. its title bar highlighted) for images for which the appropriate correction module is installed. Here again, there is a check box to disable this correction.

The **'DxO Lens Softness'** slider allows you to manually set the overall level of sharpness required for a particular image. Remember that this tool intends to reach an identical level of sharpness for the entire image. Therefore, it will automatically apply a stronger correction on the weakest areas of your image. The sharpness level you choose to apply will of course depend on your personal taste, final resolution and type of output (print, web, etc).

The slider / edit box range is in units from –2.0 to +2.0, from Softer to Sharper, with a default setting of 0. The default setting of 0 is the lens softness setting that has been determined by DxO Optics Pro to be the best setting for this particular image.

Moving the slider to the left or entering negative values will give a softer, smoother image, while moving the slider to the right or entering positive values will give a sharper image.

Note: The value –1.0 will result in an image that is similar to a 'Gaussian Blur' image in Adobe® Photoshop™. This is presented as a comparison only. This is because the value +1.0 is *not* a simple unsharp mask. The sharpening applied in DxO Optics Pro is intelligent in that it depends on the image content. Areas with noise are sharpened less than areas containing detail.

For each area in the image, the amount of sharpening will also depend, for example, on the ISO setting used to take the picture. Less sharpening is automatically applied at a higher ISO than a lower ISO to avoid increasing the noise in the image.

Note that because this sharpness correction is specifically tailored for your camera's optics, and may well vary across the image field (to allow for lens performance variations), it is usually preferable to perform as much of your sharpening as possible using the Lens Softness correction. This allows less use of the Unsharp Mask (USM), which although is an adaptive tool, is a more generalized and coarser sharpening process. Of course, for images where the appropriate DxO Correction Module is not installed, all sharpening must be done by the USM.

Unsharp Mask

If you click on "More options" on the Sharpness panel, the Unsharp Mask tool will be displayed. Once again, as with the Lens Softness option, there is a check box to enable and disable this correction. And if the check box is unchecked (correction disabled), the title bar and controls will be grayed out.

The **'Intensity'** slider / edit box sets the degree of sharpening correction applied, with a range from 0 to 500. The **'Radius'** slider / edit box has a range in units from 0.10 to 5.00. This control affects the fineness of the correction zone surrounding image detail. Low values give very subtle correction, while over-use of high values can lead to the formation of haloes. The 'Threshold' slider / edit box has a range from 0 to 255 and adjusts how far up the tonal range sharpness correction starts.

▼ Detail Palette

TIP: To avoid noise increase in lowlights, which may not contain much wanted detail, the threshold can be raised so that sharpness correction starts at a higher gray level. Also, you do not normally want to use both lens softness correction and the Unsharp Mask on the same image. This can lead to undesirable results, including the creation of artifacts in the image.

Take a look at these images to see the effect of these USM controls:

Grain

When the Grain box is checked and DxO FilmPack is installed, you can apply the film grain characteristics of several types of film to your image. By clicking on the drop down box, you can choose to stay with the current color profile, or one of the film profiles provided. The slider bar below the drop box allows you to adjust the strength of this effect. There is also a direct entry box so you can specify the amount of intensity you want from 0 to 200. Please note that in order to see the effect this tool has on your image, you must be zoomed on the Preview pane to at least 75%. An intensity slider allows you to increase or decrease the amount of grain in the processed image.

By clicking on the size drop box, you can specify predefined and custom output format sizes for your image. You can also adjust the output size of the processed image to automatically fit the size of the current crop settings. A size slider is also provided with a direct entry box for values of from 0 to 10.

A box labeled 'Adjust size to current crop' automatically adjusts the size of the image to match the proportions of the current crop settings.

DxO Noise

DxO Noise is a calibrated correction, in other words, the correction algorithm is specifically tailored for each camera, and therefore this correction will only be performed for images from cameras that have been calibrated by DxO. *Note:* These corrections will not be visible in the main preview image, but only by using the *Zoom tool to a value of at least 75%.*

Both the Luminance and Chrominance controls under this tab have individual automatic boxes to the right of their sliders that must be unchecked in order to enable the controls. *Note:* If you move a slider, the automatic setting box will be unchecked for you.

In order to judge the effect of your noise adjustments, it is essential to use the **Zoom tool**, which gives an accurate preview of the final image quality. Choose an area of your image where you can best assess the noise to make your adjustments, and then, if necessary, move the zoom area around in order to examine other critical areas.

The degree of **Luminance noise correction** can be set using the slider / edit box, with a range from 0 to 100%.

> ***TIP:*** Although DxO Optics Pro's luminance noise reduction is intelligent and discreet, it is still advisable to use the minimum amount of correction that produces acceptable results and avoids any danger of unwanted effects on fine detail.

The degree of **'Chrominance noise correction'** can be set using the slider / edit box, with a range from 0 to 100%. This is useful for reducing or eliminating color noise, which the eye is particularly sensitive, and you can usually, and safely, use higher settings with little risk of unwanted side effects.

The **'Gray equalizer'** slider / box under More Options has a range from 0 to 100%. This makes it possible to 'clean up' unwanted color noise from mid-tones, and has the effect of slightly de-saturating neutral tones around mid-gray, to minimize spurious color effects in these sensitive areas.

> ***TIP:*** You will probably be able to leave this correction at the default setting unless you notice the effect it can have of de-saturating certain pastel tones.

Look at the pictures below that illustrate the effect of this noise reduction, particularly visible in the shadow areas.

▼ Detail Palette

Original image

Lighting activated

DxO Noise activated

Fine details adjustment made

Dust

A new feature to version 5 of DxO Optics Pro is 'Dust'. This anti-dust tool allows you to "paint" a line (whose thickness can be adjusted) over a dust shadow or a blemish detail you want to erase. After you draw point or a line, it becomes selectable (if you click again on it with this anti-dust tool). You can then remove the item of concern. Of course, once you erase dust and blemishes on one image, you can make a preset out of it and reuse it on other images.

When you first click on the dust tool, two picture images will be displayed in the Preview window. The left hand image is the before image and the right picture is the after image.

To use the Dust tool, follow these steps :

- Open the Dust panel and click on the dust tool which looks like an eraser. This will open the 'double image'.

- With the blue circle cursor, draw a mask where the dust or blemish is located. Don't forget to zoom into to the image to make masking the dust or blemish easier. The dust is removed on the 'after' image.
- If you wish to remove a correction, simply select the ble mask with the Dust tool activated. The mask will turn dark blue : remove it by pressing the 'Del' key.

NOTE: Dust removal is not displayed if images are displayed more than 75%. The width of the dust pen can be adjusted using the slider in this section.

Chromatic aberration

There are two controls for chromatic aberration. To the right of them are the usual check boxes for automatic setting, which have to be unchecked to enable the manual controls.

- The first slider/edit box, with a range from 0 to 200%, adjusts the correction intensity for all types of chromatic aberration. It basically affects tiny colored transitions, which may generally be assumed to be the result of aberration rather than actual picture content.
- The second, with a range from 0 to 12, adjusts the 'size' of the purple fringe that will be suppressed — this basically affects the way DxO Optics Pro decides what is considered to be chromatic aberration that needs correcting and what is wanted picture content.

The **Purple fringing correction** just has a check box to enable or disable it. *Note:* Overall Chromatic aberration correction must be enabled in order for Purple Fringing to become available.

There is also a check box to enable Lateral chromatic aberration. This correction depends on the presence of the correct DxO Correction Module, otherwise it will be grayed out and unavailable.

My Palette

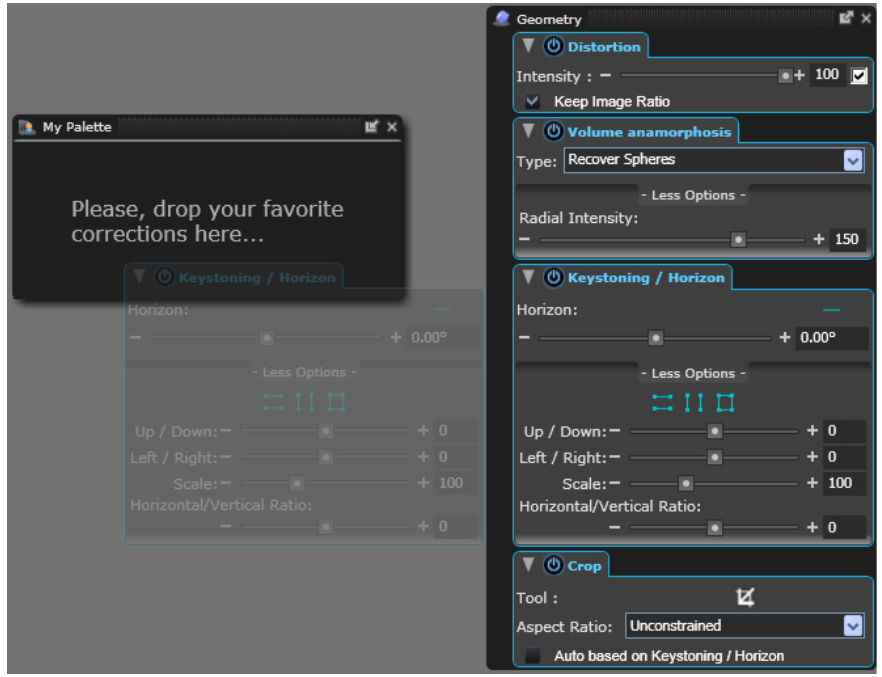
MyPalette is an extra palette that you can freely customize. While using the Prepare tab, you will probably notice that there are controls that you use more often than others. In fact, it's very likely that you use only two or three of them on a daily basis.

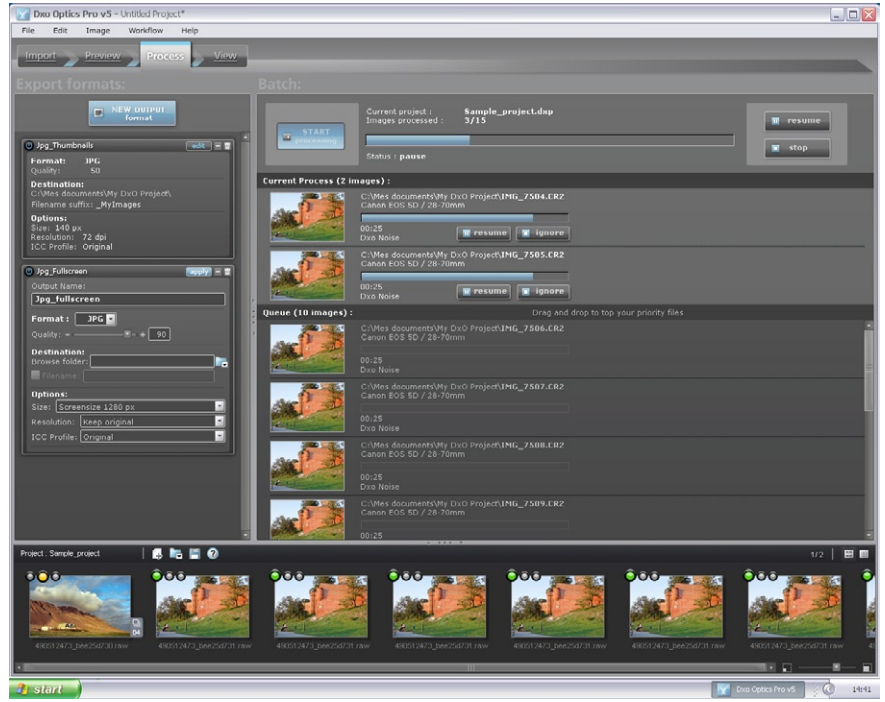
Instead of opening a series of palettes, you can prepare your own personalized one. Open "MyPalette" by clicking on the icon with a small character on the right of the icon palettes bar.

▼ My Palette

You'll see a blank palette, named MyPalette. Simply drag on MyPalette the control you often want to access : a duplicate of the control appears, that you can use exactly as its regular copy. This original one has not disappear; that's just an alias that has been installed in MyPalette.

You can repeat this operation with some other controls, to built the perfect set of tools that suit your needs. On the opposite, you can clear MyPalette of any useless control by dragging it away from it.





The Process Workspace

The DxO Optics Pro Process workspace is divided into three windows. The upper left window is the **Output Format** window, the upper right is the **Process Status** window, and the **Project window** again occupies the lower window on the screen.

Output Format window

One of DxO Optics Pro's great timesaving features is the ability to save images in more than one format at a time. So, for example, you might want to archive processed images in a high-quality format like DNG (only available when originating from RAW images), while at the same time saving a JPEG copy for web-based publication (including destructive compression). What's more, this feature enables you to create multiple output format settings within each format. For example, you might have one JPEG format configured for images destined for website use, and also want to create another for making prints. This is all possible with Optics Pro's processing flexibility. All of these configurations will be listed under the respective output formats. So in a

single processing batch, you can produce multiple versions of the same image with different output format settings.

Creating a new output

You create a new output by clicking on the 'New output' button at the top of the Output Format window. This will open an output format window that allows you to specify certain details regarding the file format. There is a specific window that opens with each format to take advantage of the format's capabilities.

JPEG:

1. Output Name - name the output format
2. Format - select an output format - in this case JPEG
3. Quality - select the quality of the output. (This allows you to select the degree of JPEG destructive compression, and therefore the file size you wish to use. Note: You should use as high a setting as possible for maximum quality, unless file size considerations take precedence (i.e. website use or e-mail attachments).
4. Destination – specify a destination folder. You can choose to place the output files in the same folder as the input files (not recommended), or browse and specify a separate output folder (recommended).

   TIP: Create an output folder that is easy to remember (i.e. 'DxO Output'). This way, you will always be able to easily find your output files after processing is complete.
5. File name suffix - select a file name suffix. (This is useful if you are going to place the output files into the source folder.)
6. Size - select the output image dimension size from pre-determined selections including the ability to specify a custom output size (enter the width of the image).
7. Resolution - select the resolution in dots-per-inch [dpi] (including the ability to select a custom dpi. If you select the 'Custom' option, the next combo box is activated, which lets you specify an image size in dpi.)

   TIP: Use an output dpi that is compatible with the target output. For instance, if you are going to print your output files to a high quality printer that supports 300 dpi, use 300 dpi as your output resolution.
8. ICC Profile - select the output ICC profile color space (including sRGB, AdobeRGB and a custom profile). If you select a custom profile, a blue folder will be displayed to allow you to browse to the location of the custom file.

   TIP: Like resolution, use the color profile that is appropriate for the intended use for your images. For example, consider using sRGB for web use and AdobeRGB for printing to your photo printer.

TIFF:

1. Output Name - name the output format
2. Format - select an output format - in this case TIFF
3. Compression - select whether you want file compression employed during processing. Note: Contrary to JPEG compression, the TIFF compression is non-destructive: you can use it without damaging the quality of the image.
4. Force 8 bits - select whether you want to create 8-bit images or 16-bit images. Of course, whether you can create 16-bit images will depend on whether your original image is 16-bit. If the original image is already 8-bit, it will remain 8-bit.

   TIP: Unless your intended output destination requires a lower quality image, it is recommended that you not select 'yes' for this processing option and leave the output image in the same quality format as the original image.
5. Destination – specify a destination folder. You can choose to place the output files in the same folder as the input files (not recommended), or browse and specify a separate output folder (recommended).

   TIP: Create an output folder that is easy to remember (i.e. 'DxO Output'). This way, you will always be able to easily find your output files after processing is complete.
6. File name suffix - select a file name suffix. (This is useful if you are going to place the output files into the source folder.)
7. Size - select the output image dimension size from pre-determined selections including the ability to specify a custom output size.
8. Resolution - select the resolution in dots-per-inch [dpi] (including the ability to select a custom dpi. If you select the 'Custom' option, the next combo box is activated, which lets you specify an image size in dpi.)

TIP: Use an output dpi that is compatible with the target output. For instance, if you are going to print you output files to a high quality printer that supports 300 dpi, use 300 dpi as your output resolution.

9. ICC Profile - select the output ICC profile color space (including sRGB, AdobeRGB and a custom profile). If you select a custom profile, a blue folder will be displayed to allow you to browse to the location of the custom file.

TIP: Like resolution, use the color profile that is appropriate for the intended use for your images. For example, consider using sRGB for web use and AdobeRGB for printing to your photo printer.

ENHANCED FEATURE - DNG

1. Output Name - name the output folder
2. Format - select an output format - in this case DNG
3. Destination – specify a destination folder. You can choose to place the output files in the same folder as the input files (not recommended), or browse and specify a separate output folder (recommended).

TIP: Create an output folder that is easy to remember (i.e. 'DxO Output'). This way, you will always be able to easily find your output files after processing is complete.

4. File name suffix - select a file name suffix. (This is useful if you are going to place the output files into the source folder.)
5. Size - select the output image dimension size from pre-determined selections including the ability to specify a custom output size.
6. Resolution - select the resolution in dots-per-inch [dpi] (including the ability to select a custom dpi. If you select the 'Custom' option, the next combo box is activated, which lets you specify an image size in dpi.)

TIP: You can also create multiple versions of the same output format. This is particularly useful if you want to place a specific type of output file in multiple locations on your system. For instance, you find that you need to place finished JPEG files in three different folders. Two of the folders will be designated for use by different organizations, and the third folder will be for archiving the finished product. You can create three instances of JPEG output formats and select a different destination folder for each window.

Setting the indicator buttons to control Processing

As mentioned earlier in this Manual, you can control what images are processed by setting the indicator buttons on each image. These are the circular buttons in the upper left corner of each thumbnail. You have three choices:

- **Green light: Mark to be processed –** choosing this option will mark the image file to be processed when you click on 'Start processing'.
- Y**ellow light: Mark as undefined –** this default option, like 'Mark to be processed', will allow the image file to be processed in the next processing run.
- **Red light: Do not process this file –** choosing this option will cause the DxO Optics Pro processing engine to bypass this image file.

Processing your images

To begin processing the images in your project, simply click on the 'Start processing' button in the upper part of the Process Status window. As each image is processed, a master indicator bar will show you the progress being made for the entire processing run. You may 'Pause' or 'Stop' project processing by clicking on the appropriate button to the right of the master progress bar.

Immediately below this area is a 'Status' line, which will give you additional information about the processing session. And, below this is information on how many images are currently cued for processing.

Finally, as each image in the batch is cued for processing and being processed, its image is displayed in the lower portion of the Process window as well as a progress bar for each image.

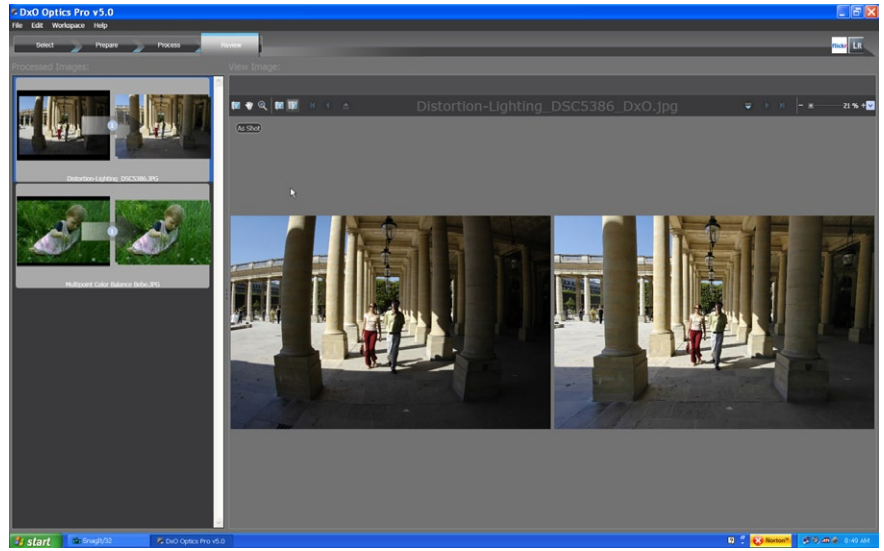
Utilizing Multiple Cores: DxO Optics Pro will automatically determine the best processing mode to use each time it is run. The best processing mode is determined by many factors, including:

- the number of cores you have in your computer system,
- how much memory is installed and available,
- how much disk space is available, and
- what other programs and processes are running.

Based on these factors, Optics Pro may or may not fully utilize every core in your system. When multiple cores are in use, multiple threads (images) will be processed simultaneously. This will vary from one processing run to the next, and this is normal.

If you find that the program is not utilizing all of your system's resources on a routine basis, please review the configuration, operating system settings, and total processing load on your system. Optics Pro tries to utilize as many resources as necessary to complete its tasks. The more resources that are available, the more efficiently image processing will be done on your system.

When processing has been completed, the program will notify you in the 'Status:' line as well as change the indicator buttons.



The Review Workspace

The Review tab workspace is divided into two windows. The left window will contain a pair of images for each picture processed. The left image in the pair is the original image and the right image is the corrected image. If you click on a pair, the corrected image will initially be displayed in the right hand window and the pair will be highlighted with a blue background immediately surrounding the images. If you would like to see both images side-by-side, you can click on the Before/After button above the viewing window. This is similar to the Before/After button on the Prepare tab.

Above and to the left of the right hand window are five icons. They are:

- **Before image –** displays the thumbnail image chosen in the lower Project window in the Review window as your camera shot it. Clicking on this icon will alternate between the original image and the processed image.
- **Move viewport –** allows you to grab and move a magnified image in the Review window so you can examine multiple parts of the image.
- **Zoom viewport –** clicking on this icon zooms in to the image in the Review window.
- **After –** displays the processed (corrected) image in the Review window.

- B**efore / After –** This is one of the more useful features of the program. When you click on this icon, two images will be displayed in the Review window. The left image will be the unprocessed, 'As shot' image. The right image will be the DxO Optics Pro processed image. This will give you a side-by-side view of both images. You can even zoom in to the same area of both pictures to compare results.

Zoom Slider: Note the zoom slider in the upper right hand corner of the Review window. By moving the slider to the left, you can reduce the magnification of the selected image in the window. Move the slider to the right and the magnification of the image is increased. There is also a down arrow to the right of the slider that, when clicked, will present a drop down selection of predefined magnification amounts.

> ***TIP:*** If you have a mouse with a thumbwheel, it will act as a zoom in/out control, within the same limits as the standard zoom controls.

Chapter 13 DxO Optics Pro plug-in for Adobe® Photoshop™

Installation

DxO Optics Pro external module for Photoshop™ is installed with the help of the DxO Download Manager. You can install it at the same time as the application, or later (for example after having installed Photoshop™ on your computer). The Download Manager automatically places a folder called DxO (with the "Import.8ba" file inside), in the "Plug-ins" folder of Photoshop™. It is possible that the installer may not place the plug-in in the correct folder, if you have several versions of Photoshop™ (i.e. the full version as well as Photoshop™ Elements™). In this case, you can manually move the DxO folder in the "Plug-ins" directory of Photoshop™ where needed.

Activation and Use

To activate the plug-in, launch Photoshop™ and scroll down the File menu, under the command 'Import', and choose DxO Optics Pro. The usual program window of DxO Optics Pro will appear, with one important difference; only the three tabs 'Select, 'Preview' and 'Process' are available. Under Select, place images in a project just as you would in the standalone version of the DxO Optics Pro version of the program.

Prepare your images with the necessary enhancements and then in the 'Process' tab define the output formats you need. With one click on the 'Start' button, you will launch image processing. Once processing is completed, the images will be automatically passed back to Photoshop™ and opened in the Photoshop™ workspace (one workspace window for each image.)

Chapter 14 DxO Optics Pro plug-in for Adobe® Lightroom™

DxO Optics Pro version 5 has been developped to work seamlessly with Adobe Lightroom. If you use Lightroom to organize your photographs, you can send them to DxO Optics Pro v5 that will process them. You may also access the images from Lightroom's from inside DxO Optics Pro, thanks to its optional Lightroom plug-in.

Setting up Adobe® Lightroom™ preferences

The first step is to choose the DxO Optics Pro v5 as the secondary editor in Lightroom™. To do this, open the Preferences of Lightroom™, and choose the « External Editors » tab. In the lower section « Additional External Editor », clicking on the 'Choose' button allows you to select « DxO Optics Pro.exe » (on the Windows platform), or DxO Optics Pro 5 (on Macintosh).

Next, select the:

- TIFF File Format,
- AdobeRGB color space,
- 16 bits/component bit depth, and
- Compression None.

Using DxO Optics Pro from Lightroom™

First, in Lightroom, select the image(s) that you want to process in DxO Optics Pro. In the Photo menu, choose « Edit with DxO Optics Pro ».

DxO Optics Pro opens automatically : you see the Prepare tab, where you can make some adjustments of the automatic settings. Then, in the Process tab, you can start the batch. Once corrected, the images are sent back to Lightroom.

> ***TIP:*** If the RAW version of a selected image is available in the Lightroom database, DxO Optics will retrieve it and process it. (even if Lightroom's dialog box only proposes a Tiff version of the image). This gives you the opportunity to use DxO Optics Pro Raw converter, instead of Lightroom's..

Accessing Lightroom™ collections from DxO Optics Pro

In Dxo Optics Pro, a plug-in allows you to access directly Adobe's Lightroom™ collections. Click on the optional Lightroom icon, sitting on the top right of the main window (next to the Database and FileSystem icons). You see the collections created in any version of Lightroom installed on the same computer, visible in the the left pane.

Click on a collection to see the images it contains. You may then import any image inside your current project.