



**Perfectly Clear**  
By Athentech Imaging



# Perfectly Clear

**LIGHTROOM PLUG-IN USER MANUAL**

September 2011, Version 1.1.X

# Congratulations!

You will soon be processing your photos through the World's fastest and most advanced automatic image correction science available on this planet!

Perfectly Clear is award winning technology with over 10 patented corrections and more than 10 years of scientific research<sup>1</sup>, The benefit is RealColor Photography® - accurately beautiful corrections - ensuring that your memories are perfectly preserved.

Our mission is to save you significant time while producing outstanding quality. Automatically.



<sup>2</sup> Eight out of ten times, in a blind test, Professionals using Lightroom selected the Perfectly Clear instant correction over their own work, which averaged 10 minutes to enhance.

# Why Perfectly Clear?

**Proven Results** - Perfectly Clear is powering the automatic corrections of over 85,000 photo kiosks, 2,500 printers, countless online sites and labs, and you`ve likely used Perfectly Clear if you`ve ever printed to Walgreens, Black`s, Tesco, photobox, photoworks, or Olympus. ([www.athentech.com/Our-Licensees.html](http://www.athentech.com/Our-Licensees.html))

**Real Color Photography®** - Our corrections are accurately beautiful. This means that your blue eyes should be blue, green grass should be green, and your purple bride`s maid dress should be purple!

**Backed by Science** - Our scientific approach mimics the physics principals of light - the same way the human eye captures light. We correct each pixel independently - it is as if your 21 megapixel photo was taken with 21 million separate apertures. ([www.athentech.com/Science.html](http://www.athentech.com/Science.html))

**Saving you time** - We gave Photoshop experts 10 different images and asked them to manually correct them. On average, this took 5-7 minutes per photo. The original photos were then processed through Perfectly Clear - average time 2 seconds per photo. We then asked which photo was preferred - 8 out of ten times the Perfectly Clear photo was preferred!

**Recognized** - Perfectly Clear has been granted several awards and accolades for the value it adds to photographers by saving them time and making their editing effortless and much less time consuming.

<sup>1</sup> Perfectly Clear Patents: United Kingdom Patent No. 2363933, European Patent No. 1177678, U.S. Patent Nos. 6677959 & 6633684, Singapore Patent No. 83972 & 94006, HK 1048213, New Zealand 523251 & 514714, Australia 771979, Mexico 233930 & 227042, Canada 2368544, China ZL 00808690.7, India 217854, Japan 4175461, Korea 572444. FotoNation Red-Eye Patents: US 6,407,777 and US 6,042,505 and US 7,042,505. Other patents pending for Perfectly Clear, FotoNation, Tribeca Imaging and Stoik Imaging.

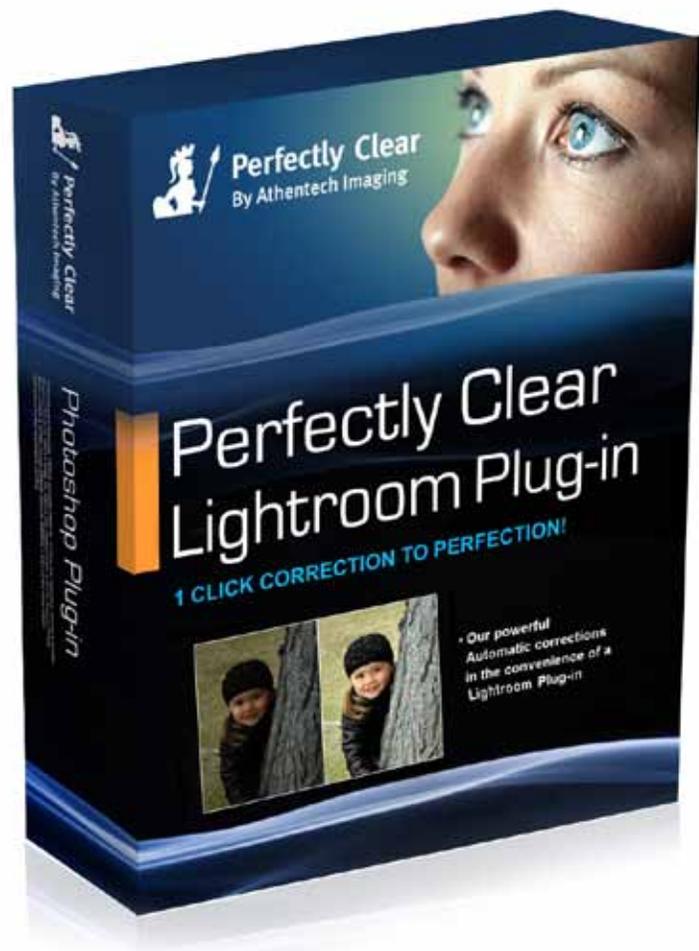
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# Chapter 1

## Minimum System Requirements

- Windows O/S: Windows XP, Vista, Windows 7
- Mac OSX Leopard, Snow Leopard, Lion
- Adobe Lightroom v2.7 through 3.0 or later
- 2 GB of RAM  
(4 GB recommended)



Perfectly Clear works with both 8 bit and 16 bit images, 32 and 64 bit processors.

For raw images, Perfectly Clear uses the 16 bit image passed to it and processed with Lightroom raw engine.

# Chapter 2

## **How do I install the software?**

Free trial and buying the software

# 1. Installation

Double click on your installer file that you either downloaded or is on your CD. After accepting the End User License Agreement, the installer will automatically install the proper files.

## 2. Launching Perfectly Clear Lightroom Plug-in

There are 2 ways to use Perfectly Clear.

### i) Edit In...Perfectly Clear

First, simply select a photo (or multiple photos) from your filmstrip or grid view, right click (or select "Photo" from the top menu) and choose "Edit In > Perfectly Clear". Lightroom will ask you if you would like to: 1) Edit a Copy With Lightroom adjustments (this is the only option available if you are working with raw files); 2) Edit a Copy, or 3) Edit Original.

If you have more than 1 photo selected then our plug-in will load all photos and you can view and tweak them individually by pressing the "<" or ">" buttons (located bottom right) within the same session.

**Please note that Perfectly Clear will not work on .psd files (this is due to the complex and proprietary nature of the Adobe Photoshop file). Also, if you want to process very large volumes of photos (ie - more then 400), we suggest you use the Export option (you can still view and fine tune each photo) as opposed to "Edit In". Lightroom imposes some technical limitations on large volumes of photos with external image editors when using Edit In.**

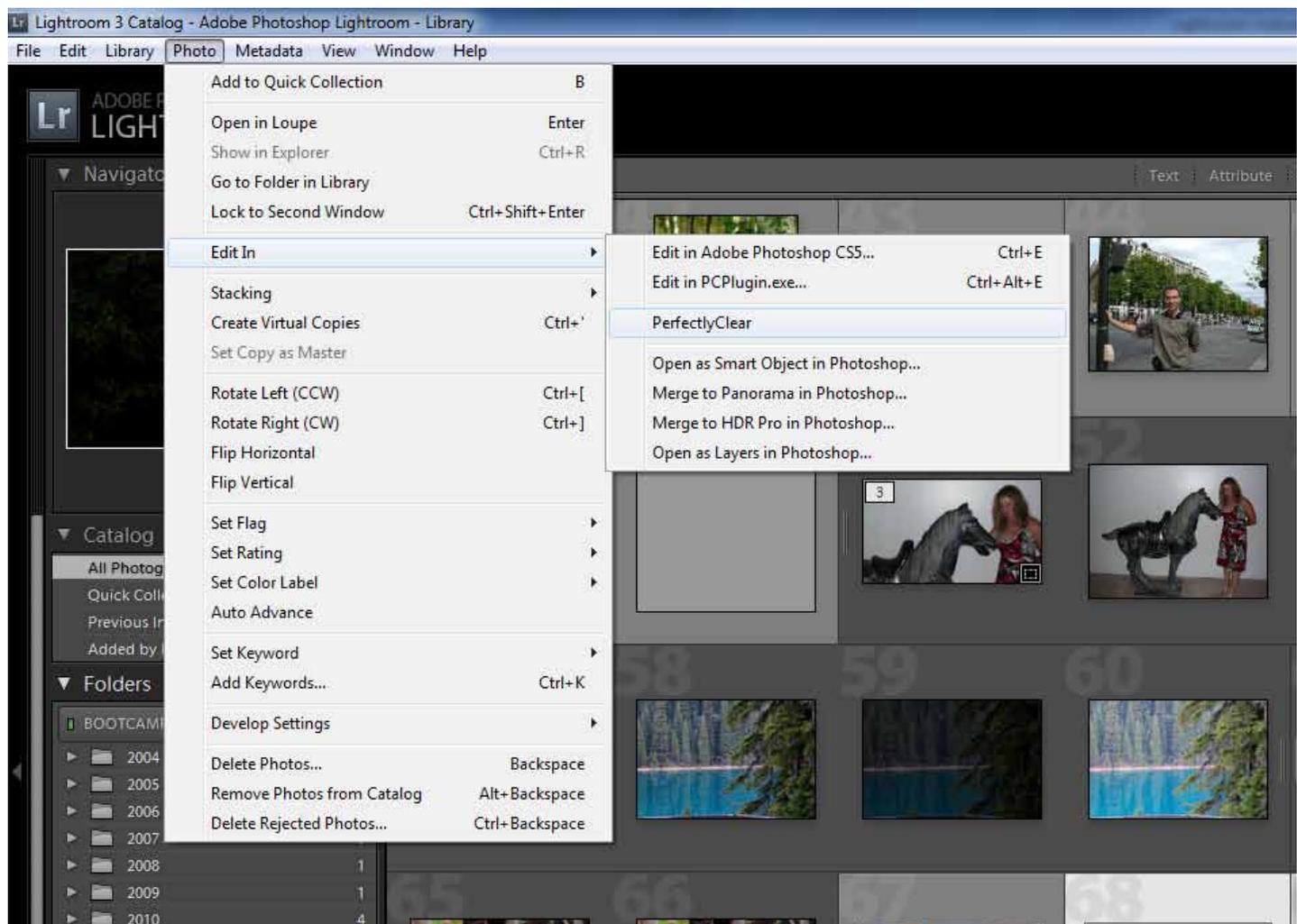
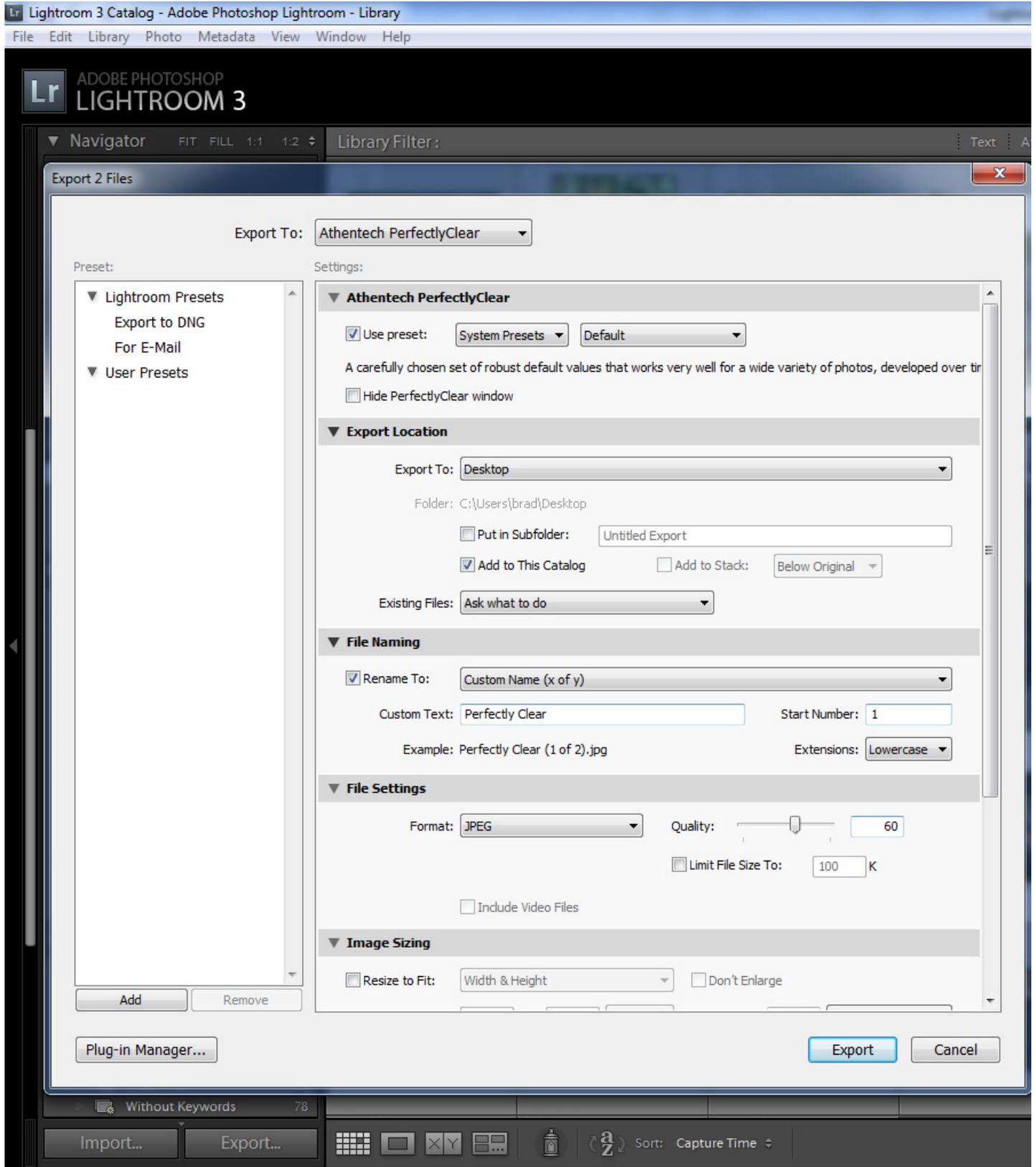


Figure 2 - Launching Perfectly Clear

## ii) Export with Perfectly Clear

Secondly, you can automatically batch correct lots of photos by pressing the “Export” button (or File > Export) and then choosing “Athentech Perfectly Clear” from the “Export To:” drop down menu. Simply follow the on-screen instructions to choose your export format and where to save it to. Please note that if you don’t select “Hide Perfectly Clear Window” option, then our plug-in will appear so you can view and tweak each photo (just like for option 1 above).



## “Edit In” Troubleshooting:

If Perfectly Clear does NOT appear when you select “Edit In”, then go to “Edit > Preferences” (for Mac, it is under “Lightroom” menu) and select the “External Editing” Tab. Then in the middle of your screen where it says “Additional External Editor”, press the “Choose” button. Navigate to:

### Windows

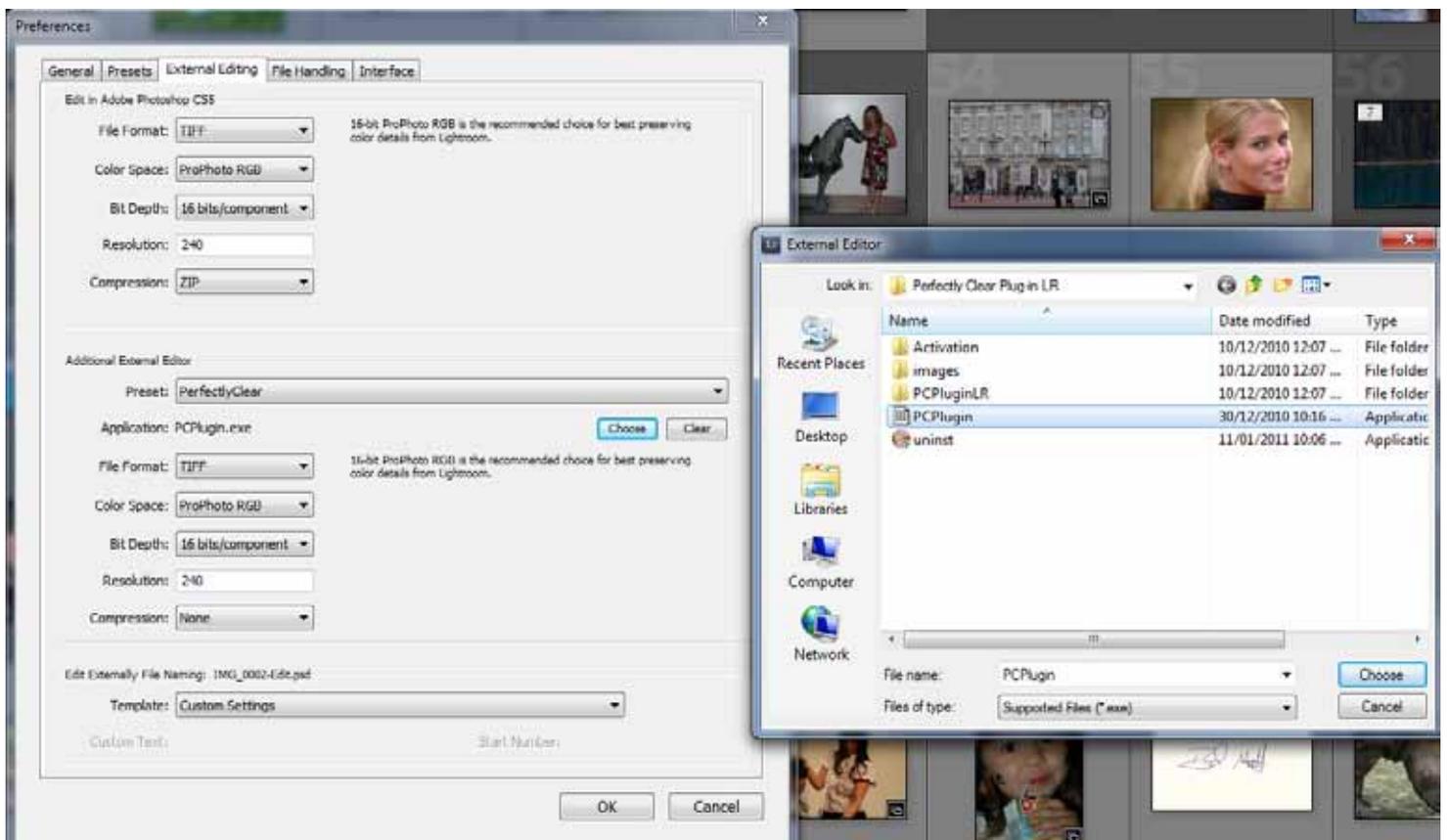
C:\Program files<x86 if 64 bit system>\Athentech\Perfectly Clear Plug-in LR and select the file called “PCPlugin” (this is a .exe file)

You will see the “Application:” now says “PCPlugin.exe”. Now, under the “preset:” drop down choose “Save Current Settings as New Preset...” and type “Perfectly Clear” and press the “Create” button.

### Mac

Applications: Athentech: PerfectlyClear Plug-in for Lightroom: PerfectlyClearLR.app

Then press “ok”, exit Lightroom, and re-launch, and Perfectly Clear should now appear under Edit In.



## “Export” Troubleshooting:

If you do not see “Athentech Perfectly Clear” under the “Export To:” drop down menu, then press the “Plug-in Manager” button on the bottom left, then select “Athentech Perfectly Clear” from the listing on the left and press the “Add” button. Make sure the status is enabled. If Perfectly Clear does not appear in the list, then press the “Add” button and navigate to:

### Windows (Vista or win7):

C:\Users\\AppData\Roaming\Adobe\Lightroom\Modules\ PerfectlyClear.Irplugin  
and select “ExportFilter.lua”

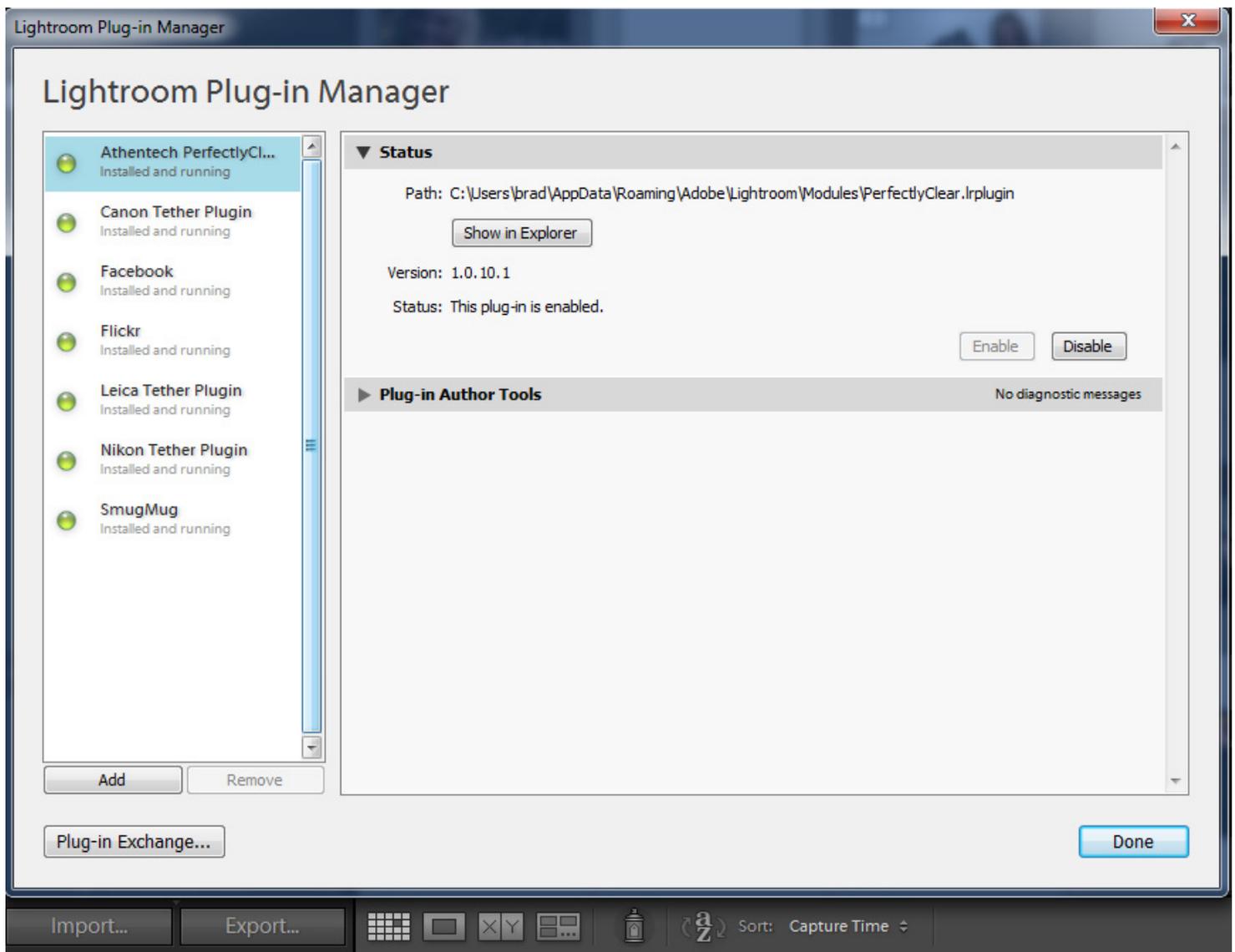
### Windows (XP):

C:\Documents and Settings\\Application Data\Adobe\Lightroom \Modules\  
PerfectlyClear.Irplugin and select “ExportFilter.lua”

<Note: if the above file path doesn’t exist, then please try “All Users” instead of your “user name”>

### Mac:

Users: <user name>: Library: Application Support: Adobe: Lightroom: Modules: PerfectlyClear.  
Irplugin



### 3. Running in Trial Mode

While in trial mode, the first time each day you run Perfectly Clear Lightroom Plug-in the following window will appear:

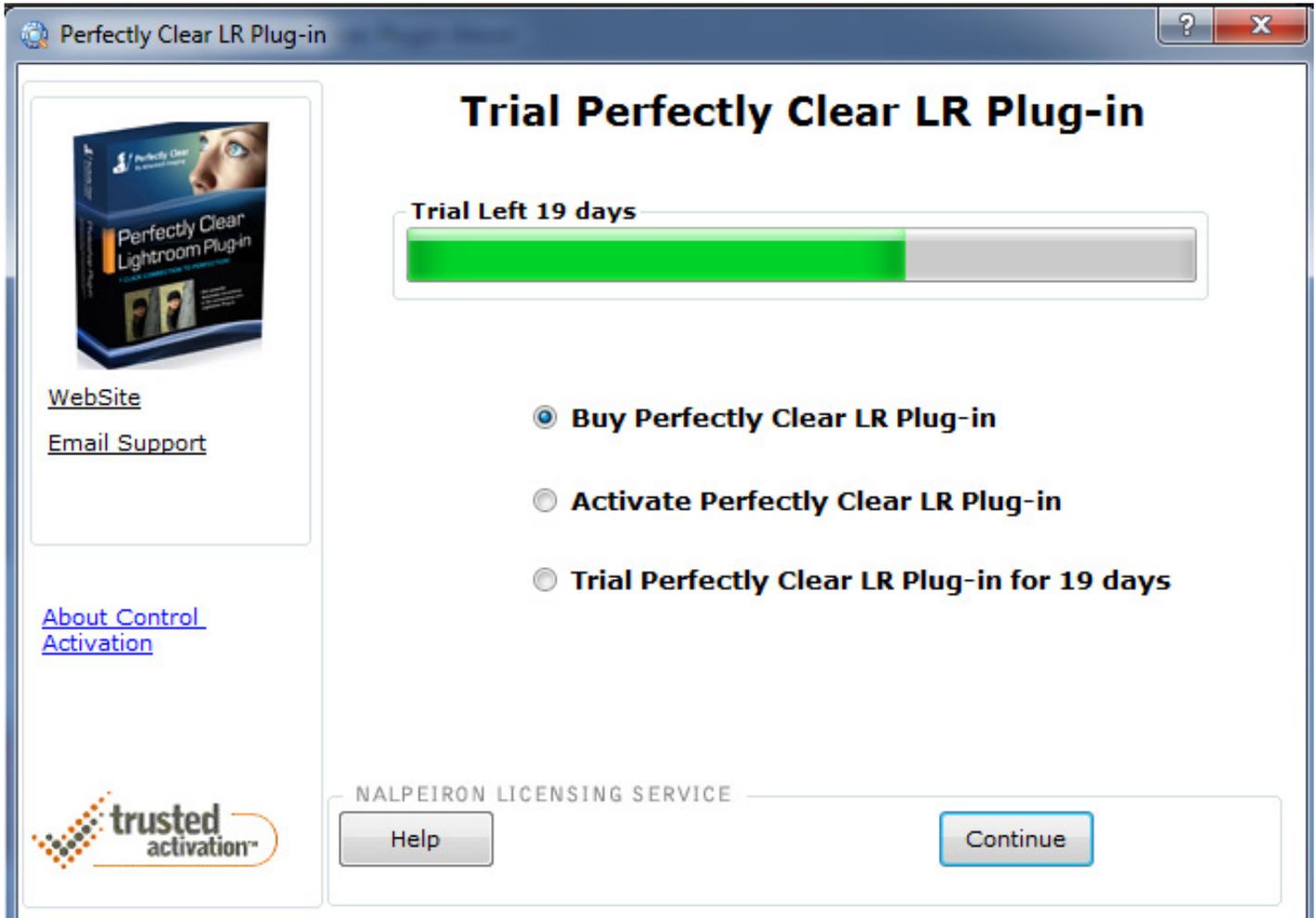


Figure 3 - Activating (Windows)

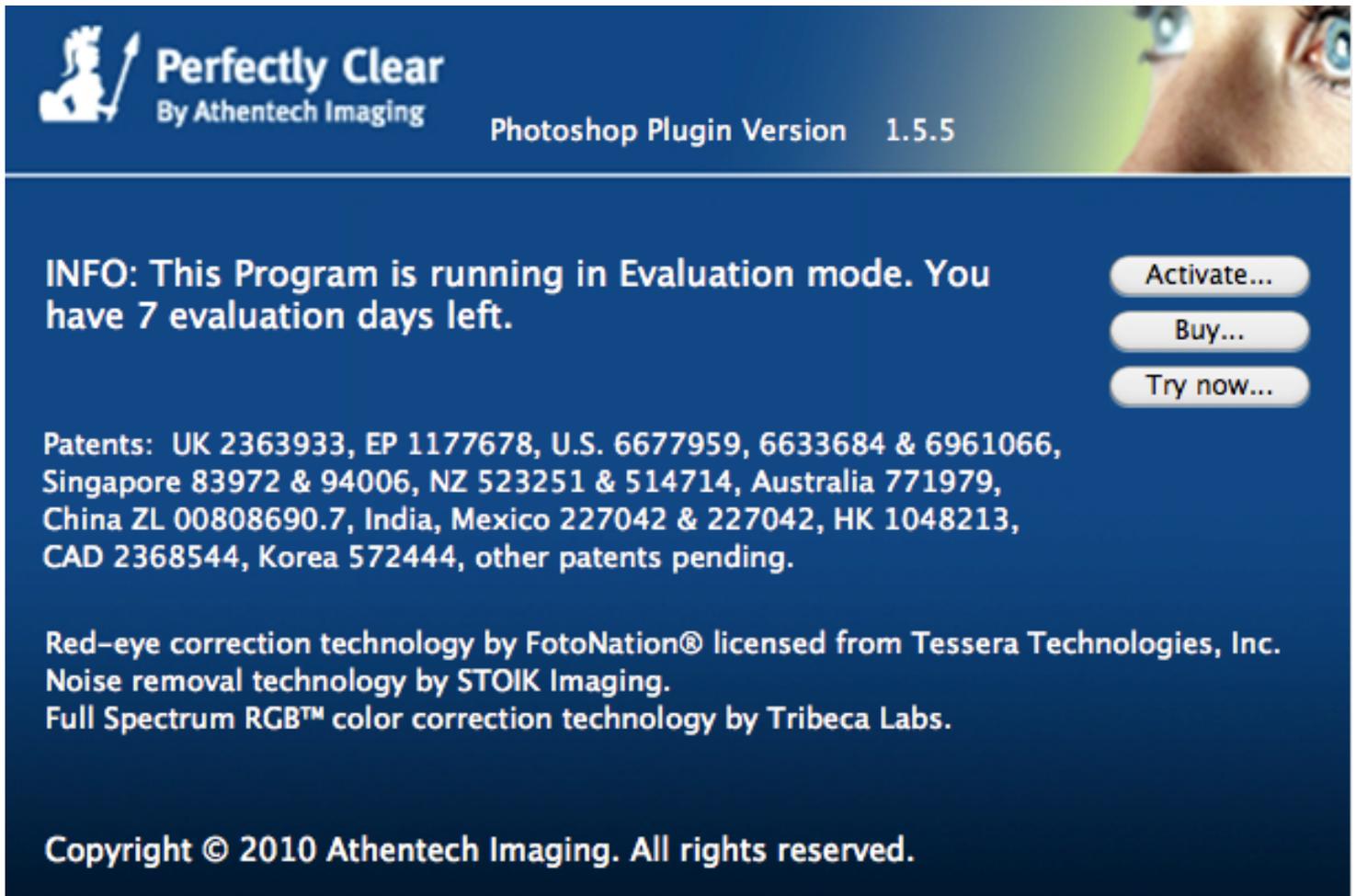


Figure 3 - Activating (Mac)

**Buy Perfectly Clear Lightroom Plug-in -**

This will take you back to our website. (More details later on in this chapter.)

**Activate Perfectly Clear Lightroom Plug-in -**

This option will be used once the software has been purchased and you have an activation key

**Trial Perfectly Clear Lightroom Plug-in for 30 days -**

Choose this to trial our software. The trial is fully functional with no restrictions or watermarks.

## 4. Buying Perfectly Clear Lightroom Plug-in

To purchase a license key, simply choose the “Buy Perfectly Clear...” button. This will redirect you to our website where you can purchase Perfectly Clear Lightroom Plug-in. You have the convenient options of using any major credit card or PayPal.

**\*\*You MUST use a valid email to purchase Perfectly Clear as your activation key will be emailed to you.**

## 5. Activating Perfectly Clear Lightroom Plug-in

Once you have your license number/activation key (you will receive an email if you purchased online, or it may be attached to you CD or box if you made a physical purchase) simply choose “Activate Perfectly Clear...” (Figure 3), enter your license number into the open box and press the “Activate” button (Figure 4). The software will connect to the internet to activate.

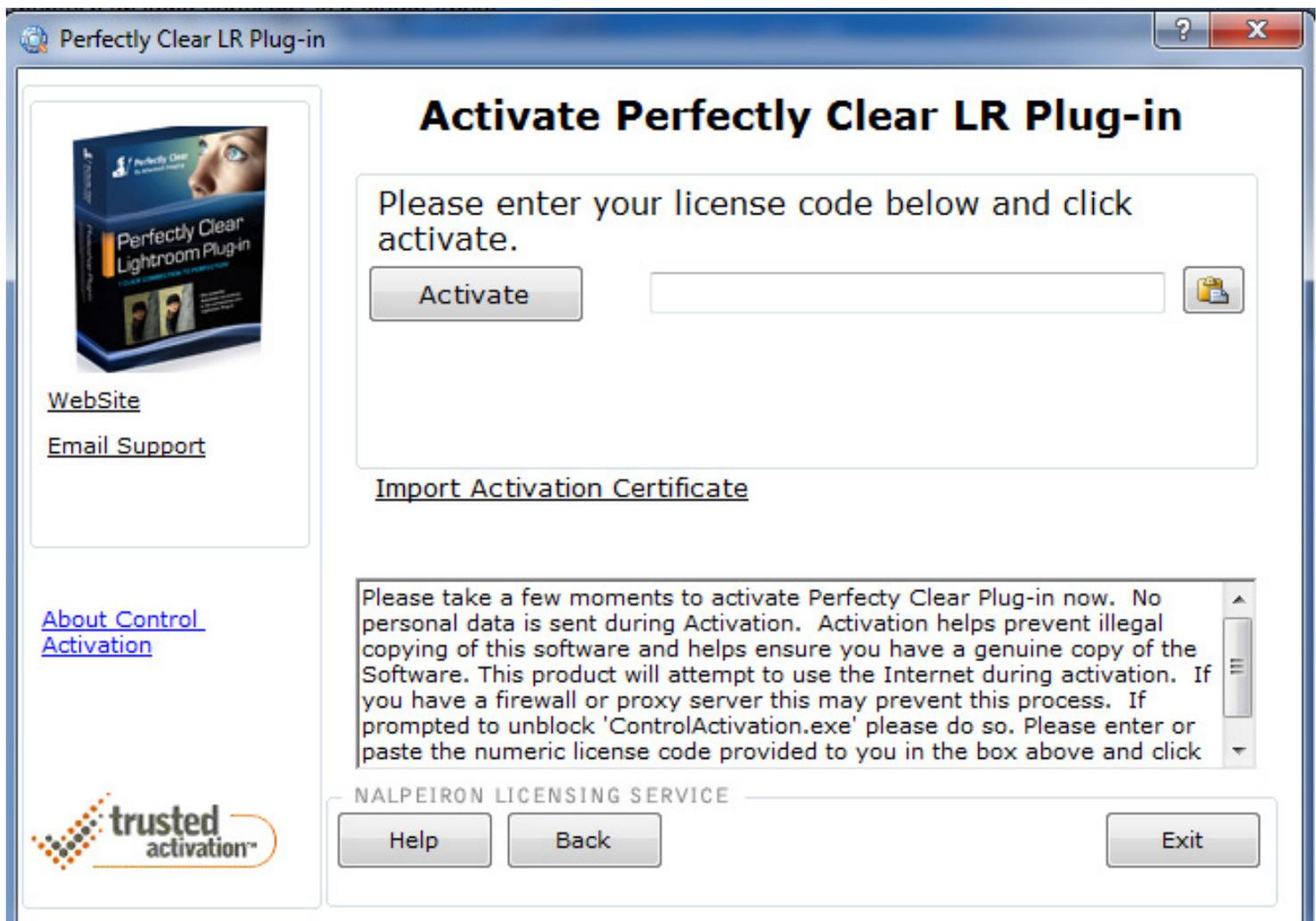


Figure 4 - Activating (Windows)



Figure 4 - Activating (Mac)

From time to time firewalls will block the activation process. If this happens to you please follow these steps to bypass this problem.

- i) Click on “Import Activation Certificate” (**Figure 4**) or the “Import Certificate” button on a Mac, this will bring up another dialog box (**Figure 5**).



Figure 5 - Importing Activation ID (Windows)



Figure 5 - Importing Activation ID (Mac)

- ii) Click on “Use the browser to get an Activation Certificate” or “Activate on Website” (Mac). This will bring you to Nalpeiron Trusted Activation website (**Figure 6**).

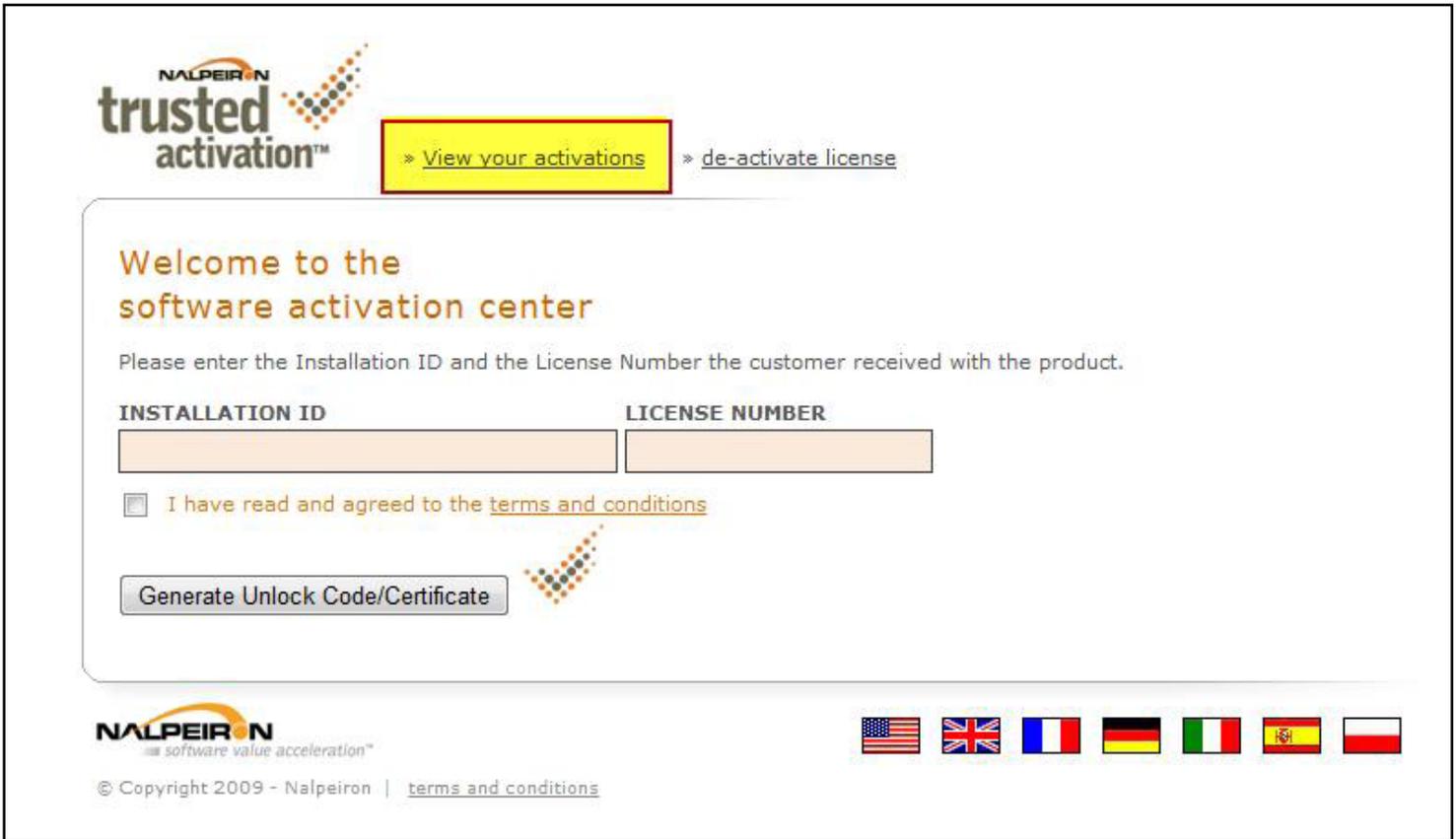


Figure 6 - Trusted Activation Website

- iii) Copy the Installation ID and License Number (these may be populated on screen, if not then please see your original email) as you see in **Figure 5**.
- iv) Paste those numbers into the website (Figure 6), review and agree to the terms and conditions.
- v) Click on “Generate Unlock Code/Certificate”.

vi) Copy and paste the Unlock Code (**Figure 7**) into the box provided in (**Figure 5**).

vii) Click Import.

The screenshot shows the Nalpeiron 'trusted activation' interface. At the top left is the logo with the tagline 'software value acceleration™'. To the right are two links: '» View your activations' and '» learn more about activation'. The main content area displays the message 'process successful... customer's unlocking code/certificate is' followed by a scrollable list of five orange-colored alphanumeric codes. Below the list are three buttons: 'Back', 'Copy to Clipboard', and 'User Registration'. At the bottom left is the Nalpeiron logo and copyright information '© Copyright 2009 - Nalpeiron | terms and conditions'. At the bottom right is a row of six national flags: USA, UK, France, Germany, Italy, and Poland.

**NALPEIRON**  
trusted activation™

» [View your activations](#) » [learn more about activation](#)

**process successful... customer's unlocking code/certificate is**

613922892964911691605  
021277792583244146414  
471700955950832122906  
876084160029656369277  
783621686481180388530

Back Copy to Clipboard User Registration

**NALPEIRON**  
software value acceleration™

© Copyright 2009 - Nalpeiron | [terms and conditions](#)

USA UK France Germany Italy Poland

Figure 7 -Unlocking Code

## 6. Registration

Now that Perfectly Clear Lightroom Plug-in is active on your computer you have the option of registering your newly purchased software. This registration process is optional but there are some powerful management benefits to registering. The registration box (Figure 8) pops up after you accept the registration key, asking for your name, address, email and a few other details, most boxes are optional.

Once you've registered you create a login name and password and with that you are able to login on the website. There you can manage License Keys you've purchased, see how many actions/de-activations have been done.

If you decide to not use this registration feature please go to the next step.



Figure 8 - Registering

## 7. Deactivating/Transferring your License Key

After you have activated and registered your License Key (registration optional) you can deactivate if you so choose. The main purpose of deactivating would be to transfer your license to another computer.

In order to do this start up Perfectly Clear Lightroom Plug-in and click the “about” button then the “License” button, simply press the “De-Activate Perfectly Clear...” option and follow the on-screen instructions (Figure 9). Make sure you read the conditions of de-activating your license and choose “yes” before clicking “continue”.

License information, including your license key, is available at any time simply by clicking the “About” button once you’ve launched Perfectly Clear Lightroom Plug-in.

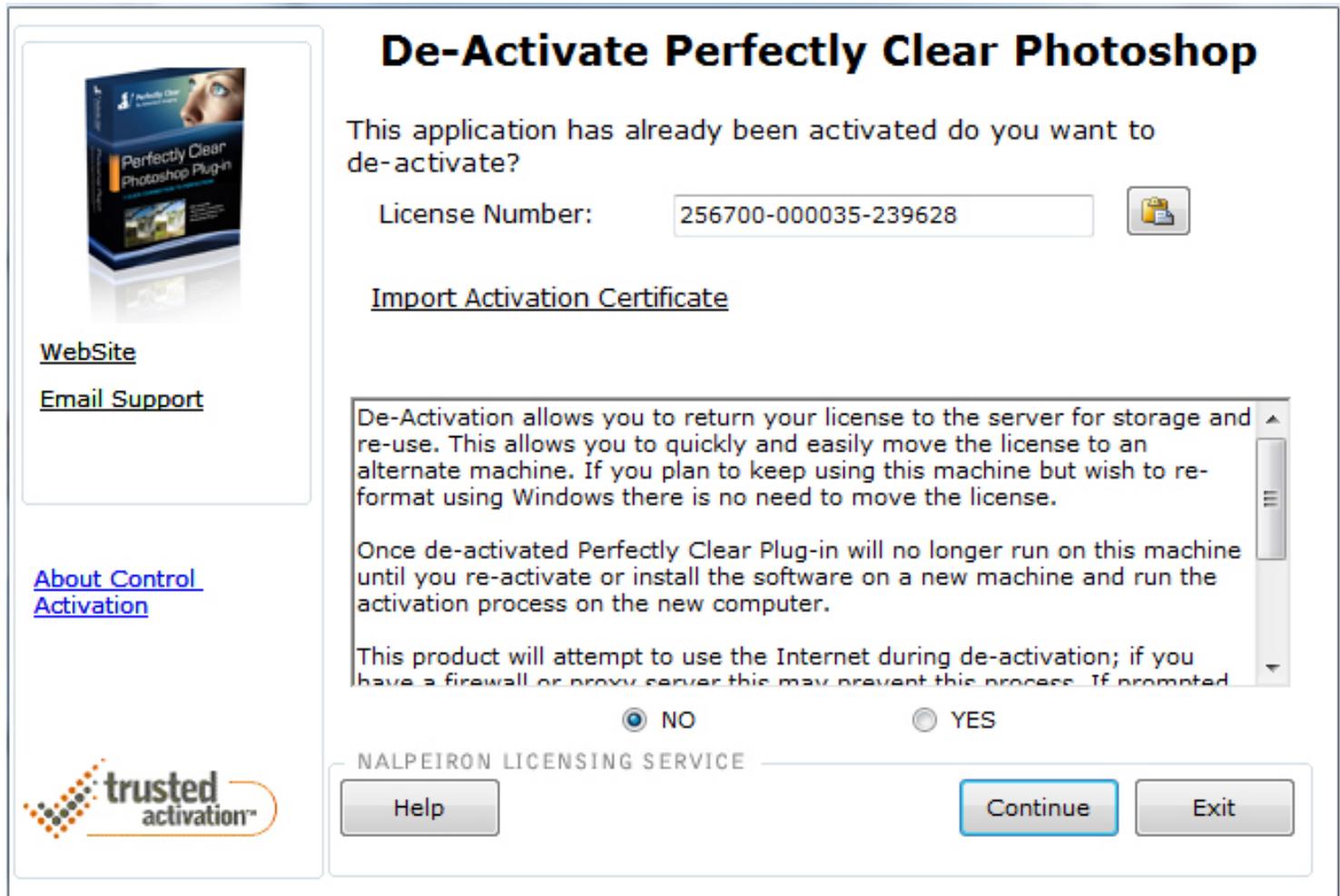


Figure 9 - De-Activating - Windows



Figure 9 - De-Activating - Mac

# Chapter 3

## **Lets Start Correcting!**

How to use the software

## 1. Select your image(s)

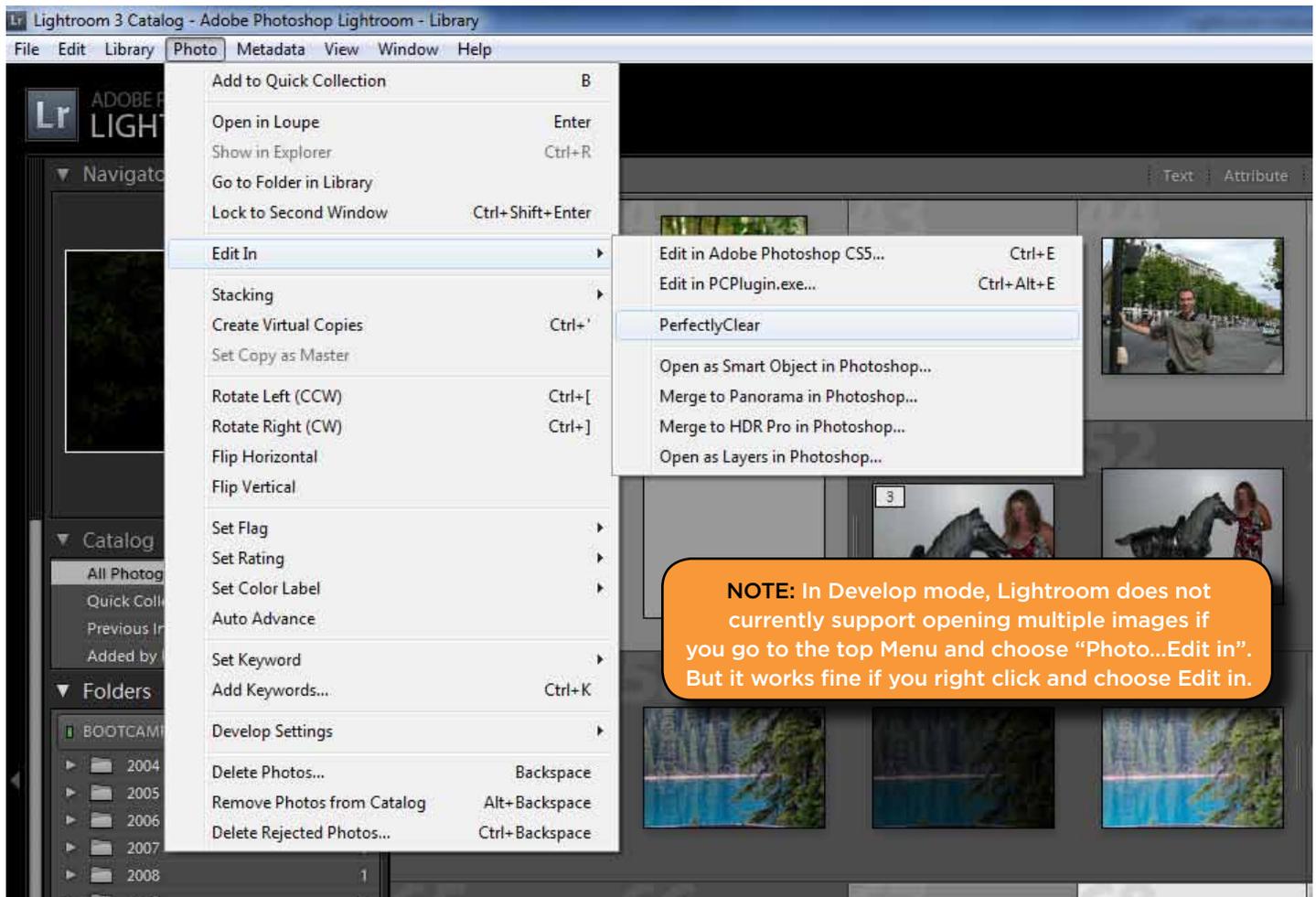
## 2. Decide how you would like to launch Perfectly Clear

There are 2 options:

- i) **Edit In...Perfectly Clear** – use this approach if you want to view and fine tune each photo.
- ii) **Export** – use this if you want to batch correct large volumes and export out of Lightroom

### OPTION 1 - Edit In...Perfectly Clear

First, simply select a photo (or multiple photos) from your filmstrip or grid view, right click (or select “Photo” from the top menu) and choose “Edit In > Perfectly Clear”.



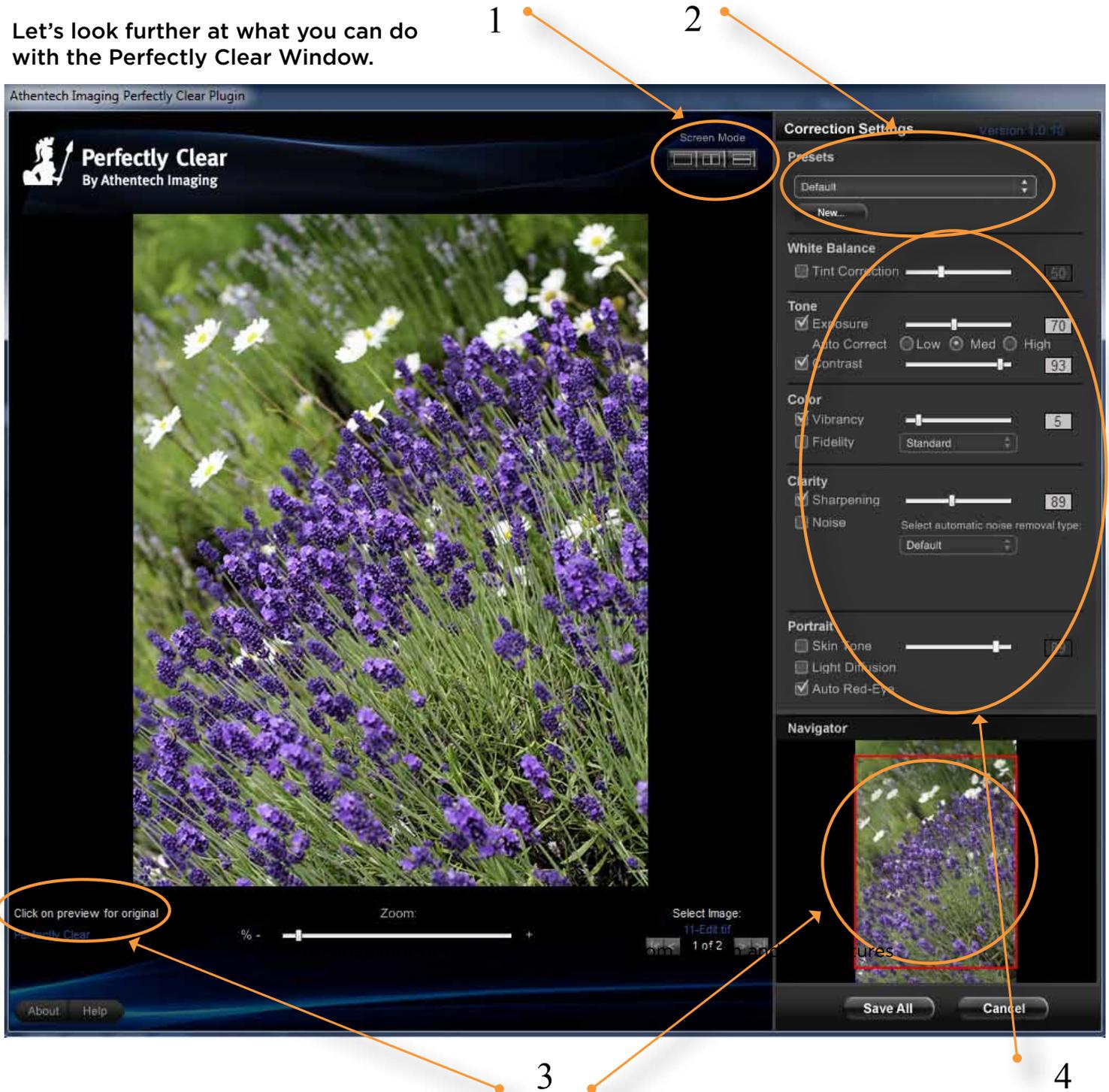
Lightroom will ask you if you would like to: 1) Edit a Copy With Lightroom adjustments (this is the only option available if you are working with raw files); 2) Edit a Copy, or 3) Edit Original.

Perfectly Clear will automatically process your selected photo(s) and show the corrected result (please see below window). If you have more than 1 photo selected then our plug-in will load all photos and you can view and tweak them individually by pressing the “<” or “>” buttons (located bottom right) within the same session

**Please note that Perfectly Clear will not work on .psd files (this is due to the complex and proprietary nature of the Adobe Photoshop file). Also, if you want to process very large volumes of photos (ie - more than 400), we suggest you use the Export option (you can still view and fine tune each photo) as opposed to “Edit In”. Lightroom imposes some technical limitations on large volumes of photos with external image editors when using Edit In.**

**NOTE: If Perfectly Clear does not appear in either Edit in or Export, then please see page 10 of this manual on how to fix.**

Let's look further at what you can do with the Perfectly Clear Window.



### 1. Select your View

There are 3 different views as indicated by the toggle buttons in the upper right :

- A) Full Preview Window - to toggle between the original and corrected photo, simply mouse click and hold anywhere on the photo. Underneath the photo on the bottom right you will see an indicator showing you which photo you are viewing.
- B) Side by side - press the 2nd button to show the original on the left, and the correction on the right
- C) Top / bottom - press the 3rd button to show the original on the top and the corrected photo on the bottom.

## 2. Choose your preset

Perfectly Clear comes with 6 pre-defined presets. When you launch the plug-in, your photo will be corrected with the last preset used. To change, simply choose another preset from the drop-down menu. You can also create as many custom presets as you desire. More information on each preset is outlined in Chapter 4.

## 3. Zoom to see the details and quickly navigate

To see the details of your image, simply slide the zoom slider to the right for more details. The area that you're viewing is displayed in the red box in the Navigator window in the bottom right. You can move the image around by:

- A) Mouse click and hold, then drag the large preview photo around
- B) Moving the red box in the Navigator window around
- C) Clicking anywhere in the Navigator window.

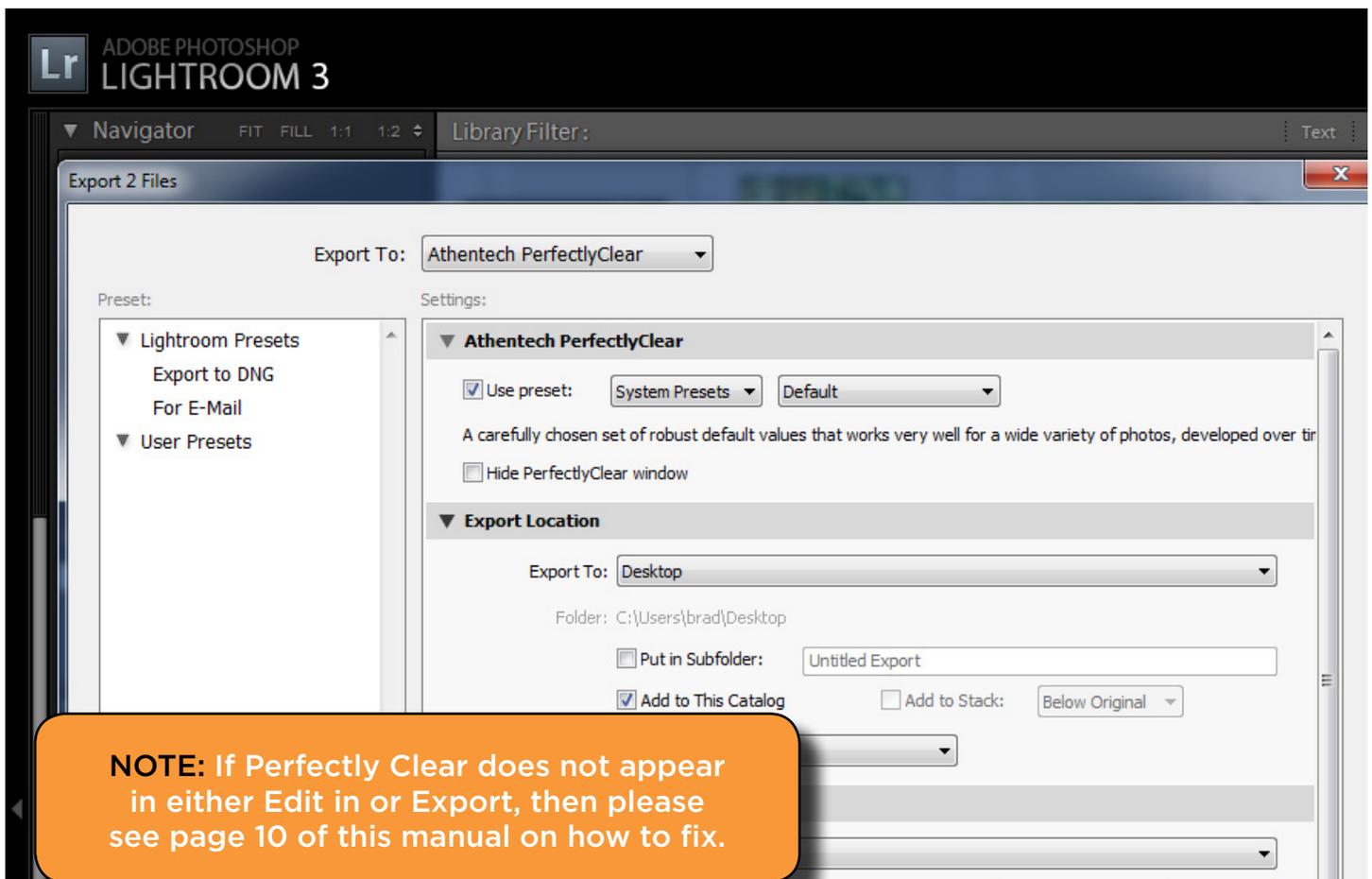
## 4. Fine tune your correction

The right panel contains all of our algorithms. Simply toggle ON or OFF by checking the box, or adjust a slider bar to see the effect of each algorithm. More information on each algorithm is available at [www.athentech.com](http://www.athentech.com).

# So really, that's all there is to better pictures, effortlessly!

## OPTION 2 - Export with Perfectly Clear

Secondly, you can automatically batch correct lots of photos by pressing the "Export" button (or File > Export) and then choosing "Athentech Perfectly Clear" from the "Export To:" drop down menu. Simply follow the on-screen instructions to choose your export format and where to save it to. Please note that if you don't select "Hide Perfectly Clear Window" option, then our plug-in will appear so you can view and tweak each photo (just like for option 1 above).



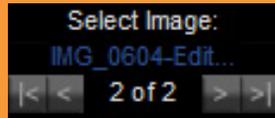
# Useful tips

## 1. Perfectly Clear Window re-sizeable

To adjust the viewing size of the Plug-in window, click the bottom right corner and drag to re-size. This size will be remembered for the next time you launch.

## 2. Viewing and fine tuning the Perfectly Clear automatic correction on multiple photos.

This is possible in Lightroom. Simply select as many photos you want in Lightroom, and then when you load the Perfectly Clear Plug-in they will all be loaded and automatically corrected! Navigate to the next or previous image, or the last or first image image by pressing the buttons that you see in the bottom right:



## 3. Short-cut keys

- i) Slider bars can be adjusted using your mouse scroll wheel (if your mouse has this),
- ii) "ctrl" (Windows) / "command" (Mac) "+ / -" shortcut keys for zooming

## 4. Adjusting your Preferences

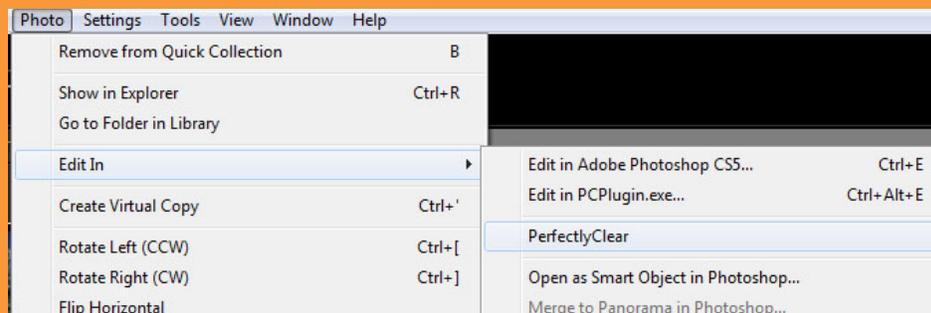
Select Preferences from the Edit menu on Windows, from Lightroom menu on Mac, to adjust or change your File Format, Color Space, Bit Depth, Resolution and compression.

*Note: that if you change the Perfectly Clear default settings that come with the software (at this point it will show as 'Perfectly Clear (Edited)'), these settings are saved only if you select 'Update preset' from the drop down menu '*

*Note 2: These editor preferences only apply when you select "Edit a Copy with Lightroom Adjustments". In other words, when you select "Edit a Copy" or "Edit Original" (neither are available for RAW files), Lightroom does not process the file(s) before passing them to Perfectly Clear, so they remain in the original format, and editor preferences have no effect.*

## 5. How "Edit In" operates in Lightroom

You may have Perfectly Clear appear twice – once as Edit in "PCPlug.exe" and below as "PerfectlyClear" - separated by a thin line (please see below):



The 'bottom' part of this menu shows all external editors set up through Preferences and displays them using the names of presets that you entered. In this case "PerfectlyClear".

The 'top' part shows Photoshop, if installed, and the external editor currently selected in Preferences. Lightroom displays them using the name of application. In this case "Edit in PCPlug.exe"

In other words, both entries point to the same application, but it is referenced by the name of preset in one place and by the name of application in another. This is just the way Lightroom works. Both produce identical results.

## 6. Exporting

- a. You will notice 2 drop down menus where you choose either a System Preset or any Custom User Preset that you created.
- b. If you do not select the "Hide Perfectly Clear Window" option, then the Perfectly Clear Plug-in window will pop up for every photo allowing you to fine tune (just as in Edit In...). Check this option if you want to batch process images without first viewing and tweaking.

# Chapter 4

## **Workflow**

Where and when to use Perfectly Clear with your images

Perfectly Clear is designed to save you significant time in your editing process. It should be used as a first step in your image correction workflow to remove the 13 problems created by digital cameras, specifically: under-exposure, lack of depth, lack of sharpness, lack of color vibrancy, lack of color fidelity, abnormal tint, noise, red-eye, and incorrect skin tones.

After you have used Perfectly Clear, you can then apply your creative talent to give your photos an artistic look, whether that is HDR, Black & White, soft focus, etc.

Thus you should apply the Perfectly Clear Lightroom Plug-in as your first step in Lightroom, before using other plug-ins or manually using the Lightroom controls.

## Step 1

### **Automatically Correct with Perfectly Clear**

Our automatic correction should get you 80% - 100% of the correction that you require.

This is where the time saving occurs.

## Step 2

### **Fine Tune with Perfectly Clear**

If Perfectly Clear didn't get you your desired result automatically, then simply choose another preset, and/or adjust any of the slider bars for each correction. The good news is fine tuning is super easy and efficient with our Lightroom Plug-in as you can load as many photos into our plug-in at once to correct.

## Step 3

### **Apply Your Artistic Talent**

Last, you can use other plug-ins or manual Lightroom corrections to apply your unique creative talent to give your photos your special touch.

# Chapter 5

## **The Power of Presets**

How to use each of the Presets and create your own

Perfectly Clear Lightroom Plug-in comes equipped with 6 pre-loaded presets (called “system presets”).

- 1. Default**
- 2. Landscape**
- 3. Portrait**
- 4. Noise Removal**
- 5. Fix Dark**
- 6. Tint Removal**

Let's look at the attributes of each profile and when we might want to use them:

## 1. Default

A robust preset that works excellent on a very wide variety of your photos (indoor, outdoor, flash photography, portrait, etc). The most common algorithms are turned ON: exposure, contrast (depth), sharpening (crispness), color vibrancy, and auto red-eye. You can comfortably process a large variety of photos knowing that no damage will be done to them. The below example shows a typical example:



## 2. Landscape

This preset is designed for outdoor shooting with no flash photography (no red-eyes) and natural sunlight. Exposure, color vibrancy, sharpening and depth will all be corrected. It will create a natural looking outdoor look, with slightly less depth than the default setting. The example below show a typical shot to use with this:



## 3. Portrait

The “Portrait” setting has been developed for portrait photos, weddings, and close facial shots. It will slightly smooth skin and the blemishes in the face and create a more diffused, softer picture with less contrast. It is great for accurately capturing purples (such as bride’s maid dresses and similar scenes) since cameras will capture this as blue, but we’ll correct back to the proper purple. Let’s look at the below example:



## 4. Noise Removal

Camera phone images tend to be noisier. Also, if you shoot using high ISO settings, or at night, then your photos will be grainier. Furthermore, as digital cameras continue to add more pixels, then the photos will tend to be noisier. Use this preset for your noisy images to apply the very powerful Stoik noise removal algorithm to remove the nasty grain and noise from your photos as shown below.



## 5. Fix Dark

Use this preset for those really dark photos (caused by a subject back-lit by a bright background). This preset will turbo-charge the exposure to bring out significant details. Note: this will work magic on really dark photos in revealing the details, but these photos usually also contain lots of noise which may also be made more obvious as the darkness is removed.



## 6. Tint Removal

Use this profile to remove abnormal tints (yellow, blue, etc.) from your photos that are caused by infrared, ultra-violet, incandescent, fluorescent or tungsten lighting:



## Managing your presets

You can easily create an unlimited amount of your own special sauce for correcting photos. Simply adjust the various corrections to your desired preference, and select the “new” button located under the preset drop-down menu. Choose the name that you want to call it and optionally, enter a description that will appear in a pop-up above the preset when you move the mouse above the name.

To remove, simply select and press “remove”.

Once you’ve created a preset, you will be able to edit it by pressing the “update” button.

# Chapter 6

## **Fine Tuning**

What if I want to fine tune the corrections?

# No problem!

There are a total of 10 different algorithms for you to adjust. Let's look at what each algorithm does and how to fine tune it.

## 1. TINT CORRECTION: algorithm description

Abnormal tint occurs in situations where the sensors of the camera have inappropriately picked up and reflected in the image excess green from fluorescent lights, or excess red from the infrared heat of a person in the image, or excess blue from ultraviolet, or excess yellow from tungsten lights.

Perfectly Clear's patent pending process will automatically remove these unwanted tints.

### **TINT CORRECTION: adjustments**

When turned ON, this algorithm will look at each image and if there is an abnormal tint, remove it. You can adjust how much tint is removed - simply move the slider bar further to the right for more tint removal. If there is no tint, no correction will be performed and it will say "no tint detected".



## 2. PERFECT EXPOSURE: algorithm description

Perfect Exposure is the most important algorithm and forms the core for all other corrections. Perfect Exposure optimizes the light exposure in every pixel. This patented approach corrects the image to emulate what the photographer and subjects saw at the time of taking the photo.

A quick note on overexposed photos: We distinguish between overexposed (which will benefit from the Perfectly Clear process) and clipped images. The clipped portions of an image are considered to be those portions that exceed 255 on the RGB spectrum. Portions of the image which meet these criteria have no data in these areas, and where this occurs Athentech doesn't hallucinate what might have been there.



### **PERFECT EXPOSURE: adjustments**

By default, when Perfect Exposure is ON, so is Automatic Strength Selection. This means that Perfectly Clear will independently look at each photo and suggest a specific amount of exposure correction unique to that photo.

You can adjust how aggressive the Automatic Strength Selection is: Low, Medium, High. In general, a higher setting means a greater exposure correction per photo.

You can also manually grab the slider bar and adjust. This allows you to override the auto correction.

### 3. CONTRAST (DEPTH): algorithm description

This algorithm comes from the signal processing world (medical X-rays, for example). In X-rays, the challenge is that there are over 4,000 shades of grey in a radiograph.

However, the human eye can only detect 50 -100 shades. The result is a radiographic image that appears blurry. Perfectly Clear for Radiography optimizes the contrast in each and every pixel so that the radiographer, doctor, or surgeon can easily discern the details throughout the entire image. As image quality in radiography means the difference between life and death, it's essential that no artifacts are created and no information is deleted. We've taken this technology and retrofitted it to photography so that we can provide you with an image that is very eye-pleasing with lots of "punch & depth".



#### CONTRAST (DEPTH): adjustments

Since the eye perceives reality in 3-D, photographers also like lots of contrast/depth with their photos, and as such you'll notice that it is usually set as quite high (on the right side of the slider) for the presets.

Please note that a contrast of 0% does not yield the same result as turning contrast off. Also note that when you choose to increase the Contrast your photos will usually benefit by increasing the defaults of Perfect Exposure since increasing contrast creates a photo that is overall slightly darker.

For extremely dark photos, it is beneficial to turn depth "off" in order to bring out extreme details.



## 4. COLOR VIBRANCY: algorithm description

Perfectly Clear automatically checks and determines whether or not the capture device has captured the full vibrancy of the colors in the picture. If it hasn't, then the algorithm will automatically restore the washed out/faded colors in the photograph while always maintaining the true colors represented in the original photo. If the camera has properly captured true color, then this function will have no effect on the image.



### **COLOR VIBRANCY: adjustments**

To enrich color vibrancy simply slide the slider bar to the right. Increasing Color Vibrancy may cause some clipping at the low end of the RGB spectrum but, it will never cause clipping at the bright end of the spectrum. Moving the slider to zero will increase the color density less and result in zero chance of clipping. You will note that on many images there is no increase in color vibrancy. This is because the camera sensors have already captured true color. There is a difference between a setting of "0" and turning the algorithm OFF.

## 5. DIGITAL COLOR FIDELITY: algorithm description

Digital capture devices are currently incapable of reproducing the full visual spectrum of colors the eye sees. Point any digital camera at a purple object (Laker's jersey, FedEx box, blue morning glory flower, for example) and compare the image on screen with the original purple object in front of you. What do you see? The purple object will appear blue on the screen! For example, see the two photos below – the photo on the left is an uncorrected photo directly from the digital camera. The jerseys are actually purple, but have been captured as blue by the camera. The photo on the right has been corrected with Digital Color Fidelity and correctly restores the proper purple exactly as seen by the human eyes in the real world.

Since True Color is fundamental to preserving precious memories perfectly, Athentech has partnered with Tribeca Labs to provide you with Digital Color Fidelity (“DCF”). DCF is a patent-pending process which maps untrue colors created in the camera’s imaging pipe back into the true colors seen with the human eye at the time the photograph was taken.



### DIGITAL COLOR FIDELITY: adjustments

There are 2 settings that you can adjust: “Standard”, and “Vivid”. Standard will re-map to the full color spectrum of the colors that the camera failed to capture. Vivid will do the same, but will accentuate the colors. The result is a photo with more contrast, more vivid colors, and more “punch” to it. The photos below show an example between the two settings:



*No corrections*



*Perfectly Clear (“PC”)*



*PC + Standard DCF*



*PC + Vivid DCF*

## 6. SHARPENING: algorithm description

Perfectly Clear's proprietary sharpening is a series of very powerful and unique algorithms developed to deliver a crisp looking photo that is artifact free.

### **SHARPENING: adjustments**

Simply select the check-box next to the "sharpen" dialog to activate and move the slider bar to the right for increased crispness and to the left for less sharpening.



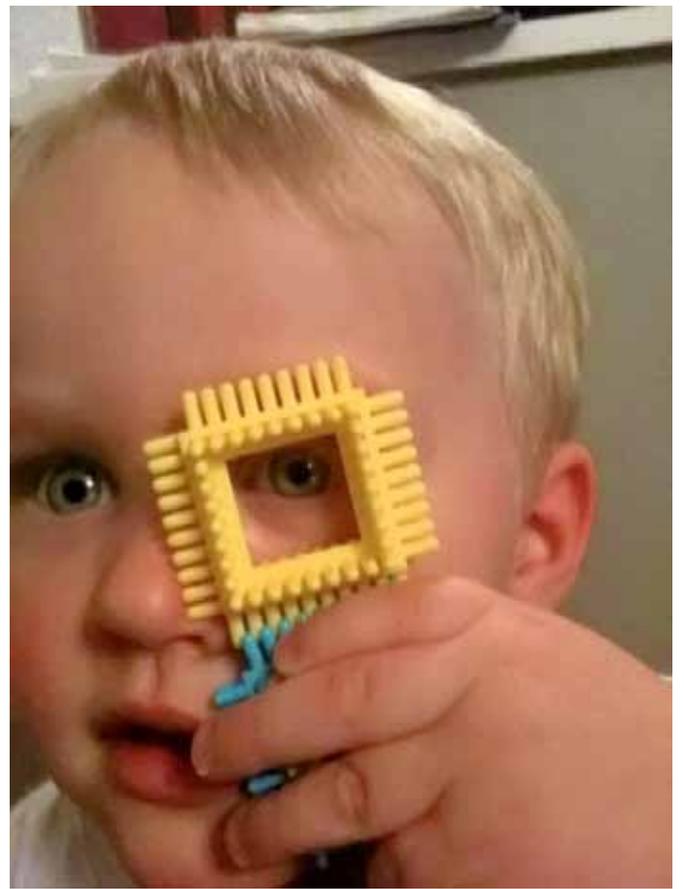
## 7. NOISE REMOVAL: algorithm description

Athentech has partnered with Stoik Imaging in providing you with their patent pending noise removal technology. The Stoik engine is the fastest and most effective on the market for removing high and low ISO noise in photographs, grains in scanned images, JPEG compression artifacts, Moiré pattern effects and much more.

Stoik Noise Autofix is the first photo noise reduction algorithm that allows for fully automatic operation. The algorithm will first analyze the photo to determine if noise exists, and only then apply the proper amount of noise removal. Specific algorithms and settings are applied depending on whether the photo was taken with a digital camera, camera phone, or scanner.

The algorithm includes modules of noise detection, noise analysis and noise filtration which are statistically trained to provide optimal balance between photo noise reduction and preservation of image details. Unlike other noise removal algorithms that blur photos after removing noise, the Stoik algorithm is unique in preserving the crisp details.

The noise in digital photos is reduced by 2 - 3 stops, so that the noise level of the photo shot at ISO 1600 is effectively reduced to ISO 200 - 400 levels



## NOISE REMOVAL: adjustments

When noise removal is turned ON, there are 4 presets to choose:

**A) Default** - a robust, powerful setting for all camera corrections.

**B) Camera Phone** - a special engine has been added in to correct the grainy quality of most camera phone pictures

**C) Night Scene** - The night setting is optimized for shots where dark areas of the image are mixed with illuminated and potentially detail intensive areas. We find that the lower frequency noise is the biggest (and solvable) concern for these types of shots with potential noise blotches and color banding.

**D) Portrait** - The emphasis is to retain the structural and natural color composition but remove larger noise artifacts and blemishes while avoiding the over-processed, plastic look.

In addition, you can adjust the overall strength of the noise removal process by sliding the single slider bar - greater processing strength occurs the more the slider bar is to the right. Details slider bar can also adjust the amount of detail preservation.

\*\*\*\*Please note that noise removal is the most time consuming of all of the algorithms. As such you may notice a speed hit when using this algorithm.

## 8. SKIN TONE CORRECTION: algorithm description

People emit Infrared Red (“IR”). Digital Camera sensors capture IR. The human eye doesn’t see IR. As a result, captured and correct photos often appear redder than they appear in the real world. This is especially true for indoor photos when taken with a flash. The Perfectly Clear Skin Tone Correction will automatically detect and remove the spurious IR from flesh tones while maintaining the proper reds in the other portion of the photo.

### SKIN TONE CORRECTION: adjustments

To enable simply select and move to the right to increase the strength.



## 9. LIGHT DIFFUSION: algorithm description

The Light Diffusion setting has been developed for portrait photos, weddings, and close facial shots. It will smooth the blemishes in the face and create a more diffused, softer picture with less contrast. Skin tones will often be slightly warmer/redder when this algorithm is enabled.

### LIGHT DIFFUSION: adjustments

To enable simply turn **ON**.



## 10. AUTOMATIC RED-EYE REMOVAL: algorithm description

Red-eye is caused when the camera's flash reflects off the veins in the retina at the back of the eye. In other words, what we're seeing is the subject's blood vessels. Research shows that during the winter months, as much as 30% of photos suffer from red-eye.

To solve this problem, Athentech has teamed up with FotoNation (Tessera Technologies) to include their patented technology as part of the Perfectly Clear image correction suite. Using advanced recognition techniques, the presence of red-eye is automatically detected and removed. The technology is so sophisticated that it carefully retains those important glints and sparkles in the subjects' eyes.

### **AUTOMATIC RED-EYE REMOVAL: adjustments**

To active this algorithm, simply turn ON. Each photo will be automatically scanned and if red-eye is detected, it will be removed. If no red-eye is detected, then no red-eye will be removed.



# Chapter 7

## **Batch Processing**

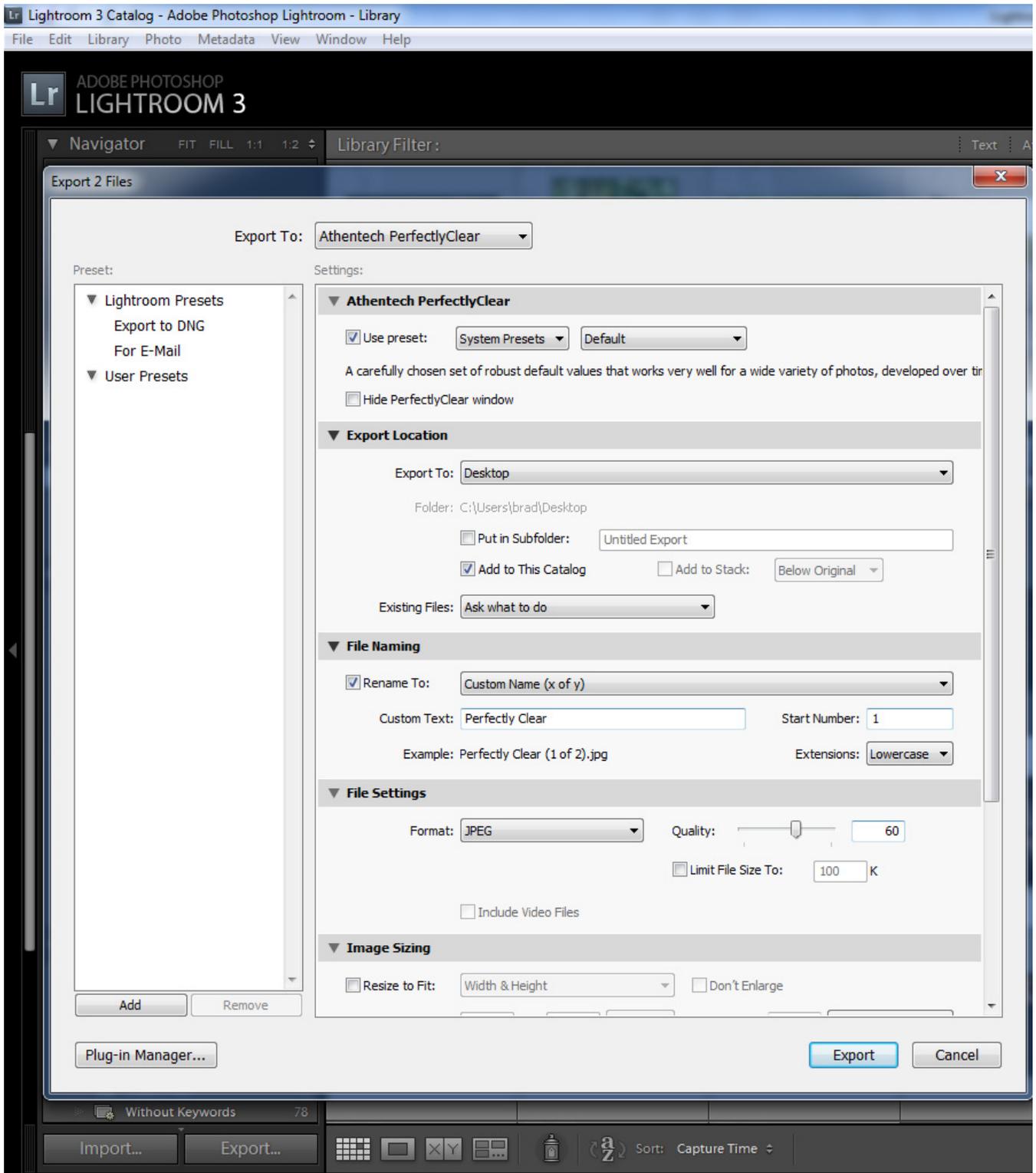
Saving you significant time

# Overview

Batch processing large volumes of photos is incredibly easy with the Perfectly Clear Lightroom Plug-in!

Simply select your photos in Lightroom that you would like to correct, then press Export and choose “Athentech Perfectly Clear” to Export To. Make sure that the “Hide Perfectly Clear window” is checked. Choose your preset, location to save to, naming convention, and other options offered in Lightroom and then press Export.

If you wish to view each photo and tweak the automatic correction applied, then select your desired photos, and go “Photo > Edit In...Perfectly Clear”,



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