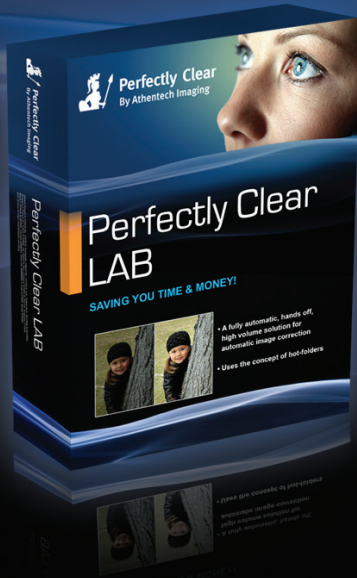




Perfectly Clear
By Athentech Imaging



Perfectly Clear

LAB USER MANUAL

MARCH 2012, Version 3.5.x

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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 research¹, 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.



² Eight out of ten times, in a blind test, Professionals using Photoshop 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.
(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)

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.

¹Perfectly 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.

Inside This Manual

Chapter 1	
Minimum System Requirements	5
Chapter 2	
Processing Speeds	7
Chapter 3	
How Do I Install the Software	10
Chapter 4	
Let's Start Processing	12
Chapter 5	
What If I Want to Fine Tune the Corrections	19
Chapter 6	
pdf processing	31
Chapter 7	
Additional Adjustments	33

Chapter 1

Minimum System Requirements

Minimum System Requirements

- **Operating System: Windows XP, Vista, Windows 7**
- **.NET framework 2.0 or higher**
- **2 GB of RAM (4 GB or more is recommended)**

Our recommended hardware is the intel i7 chip with 8 GB of RAM running windows 7, 64 bit.

Perfectly Clear LAB is multi-processor enabled.

We currently process .jpeg, .bmp, .png, .gif and .pdf extensions. Please let us know if there are other image types that you would like processed. At the current time Perfectly Clear LAB does not process raw or 16 bit images – please let us know if you are interested in using LAB for raw photos.

Chapter 2

Processing Speeds

Processing Speeds

All of the below timing tests were done on the following 3 machines

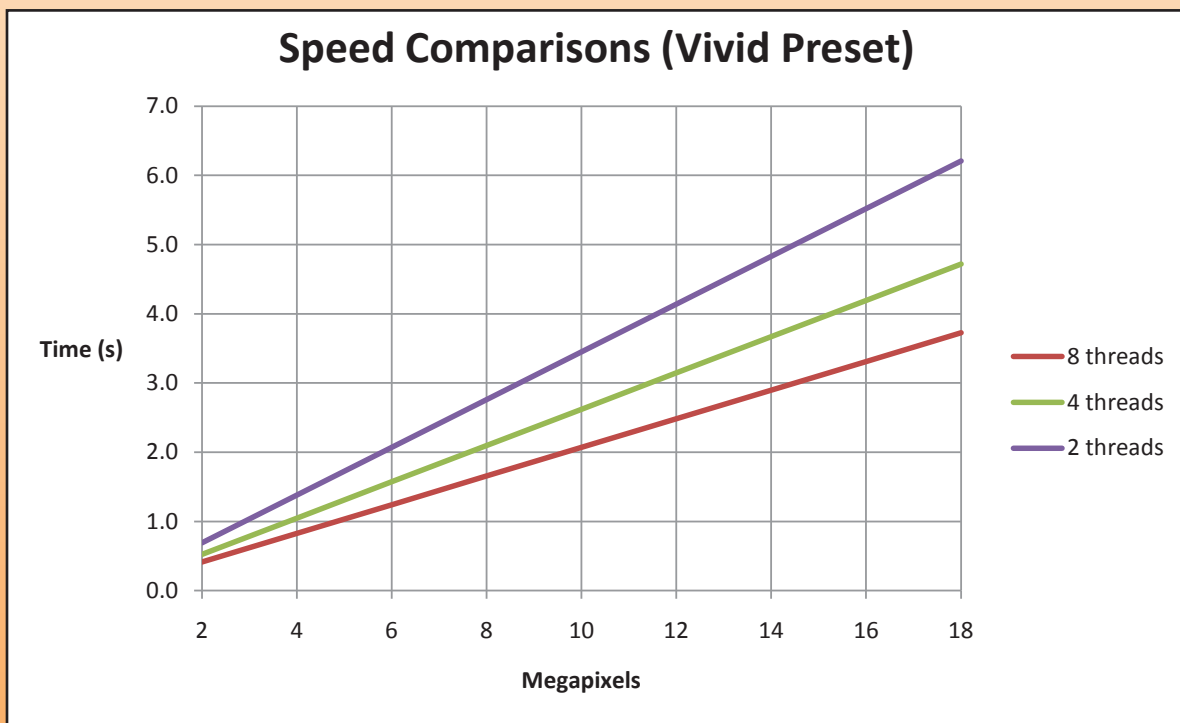
- i) 4 core, threaded to 8, 2.93 GHz i7 processor running Windows 7 32 bit with 3 GB of RAM
- ii) 2 core, threaded to 4, 2.67 GHz i7 processor running Windows 7 64 bit, with 8 GB of RAM
- iii) and 2 core, 2 threads 2.67 GHz i7 processor running Windows 7 32 bit, with 3 GB of RAM.

This timing tests were done using the Vivid Details preset (Exposure, color vibrancy, contrast, sharpening, red eye, skin & depth bias)

Speed is dependent on 3 main factors:

- 1) number of pixels in your photo**
- 2) number of threads your computer has** (for example, the intel core i7 870 has 4 cores hyper-threaded to 8, which will run faster than the intel core i7 M620 which has 2 cores hyper-threaded to 4)
- 3) Amount of RAM on your computer** (your clock speed will also have an impact)

Perfectly Clear analyzes and processes every pixel in the photo. As a result speed is linear to the number of megapixels. That is, a 10 megapixel photo will take twice as long to process as a 5 megapixel photo. The following graph shows the total time for various image sizes and the impact on speed using the Vivid Preset on 3 different computers (each with a different number of threads)



Using the Vivid Preset (color vibrancy, exposure, depth (high definition), sharpening, skin and depth bias, red-eye), **the average time of Perfectly Clear LAB is 0.21 – 0.34 seconds per megapixel**, depending on how many threads you have. We used 3 different win7 machines running intel core i7 870, M620, and P8800. This includes reading and writing to disk and the analysis and processing of Perfectly Clear.

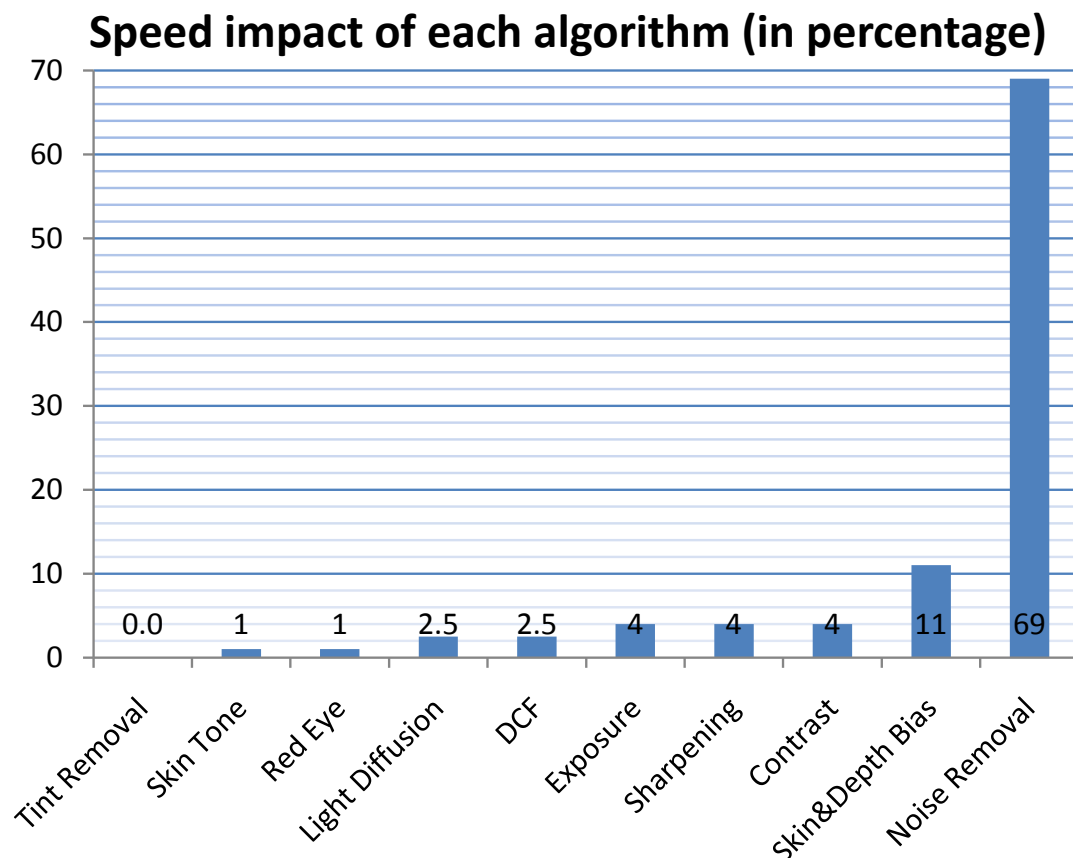
Thus, depending on the size of your photos, you can achieve the following throughput per hour:

i) 10 Megapixel photos – approximately 1050 - 1750 photos per hour

ii) 5 Megapixel photos – approximately 2100 - 3500 photos per hour

****This time is based on the hardware described above and Vivid preset****

It is important to note that each algorithm has a different impact on speed. For example, noise removal is the slowest correction (it is very calculation intensive), so turning on noise removal will cause total time to process a photo to increase by 70%. Tint Removal, Skin Tone, and Red-eye removal are so fast that it won't have a noticeable impact. Skin & Depth bias will take an extra 11%. For more information on the speed impact of each algorithm, please see the following graph which shows the total time to process each algorithm on a photo when they are all turned on.



Chapter 3

How Do I Install the Software

How Do I Install the Software

Simply double click on the “Perfectly Clear LABS.msi” file and follow the on screen instructions. A short-cut will be installed on your desktop, and the actual files and folders will be installed on your computer at the following location: c:\Perfectly Clear LAB

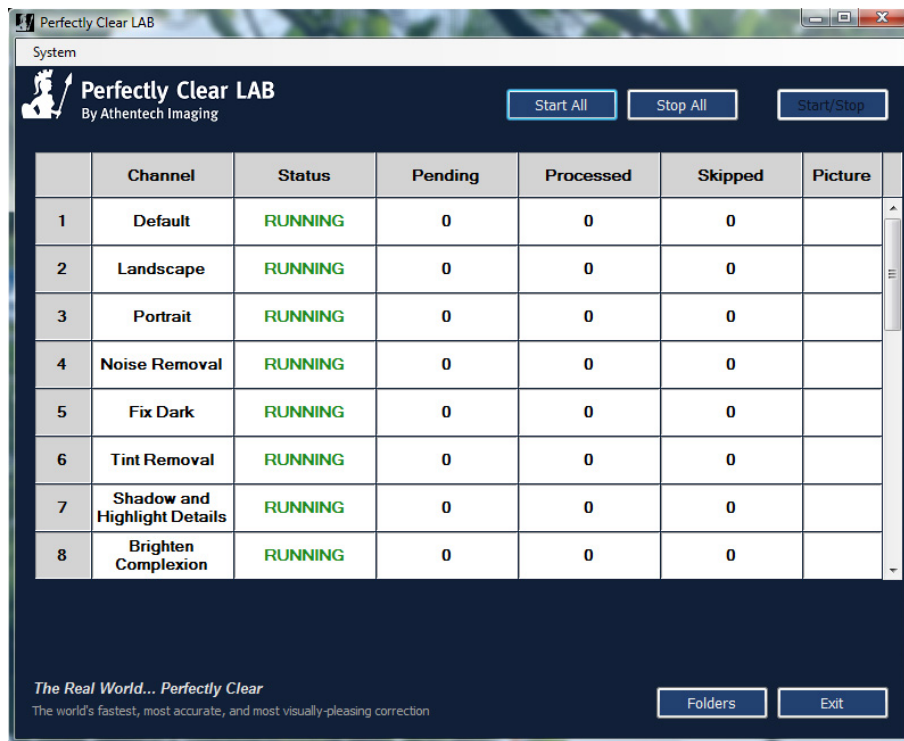
Chapter 4

Let's Start Processing

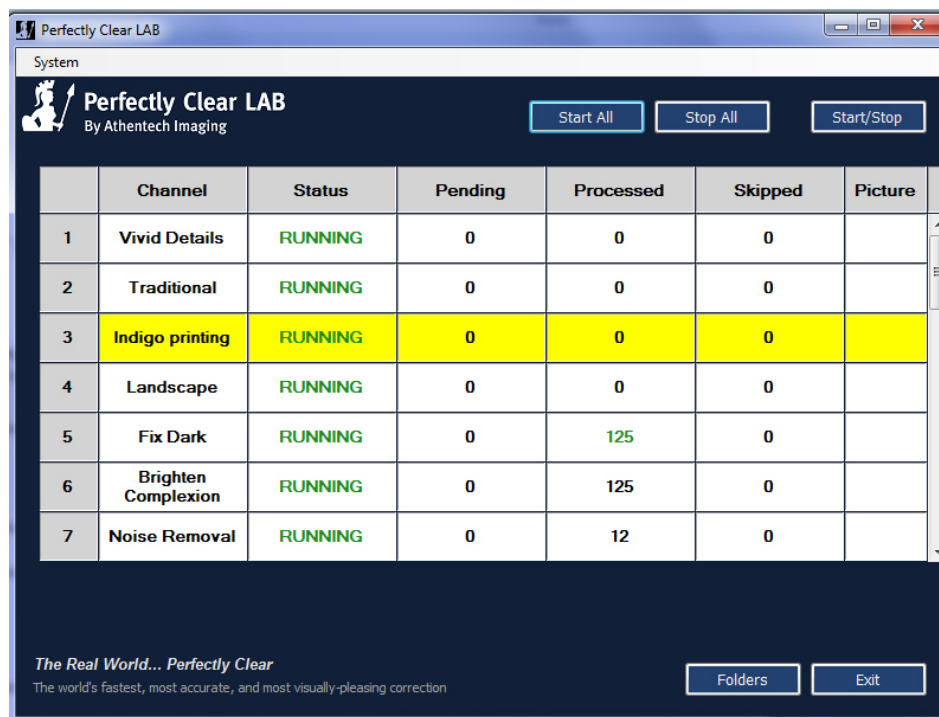
Let's Start Processing

Step 1: Start the channels

Double click the icon on your desktop: “Perfectly Clear LAB”.
This will load the software as shown below:



This software operates using “hot-folders”. To begin, press the “Start All” button. You’ll notice the Status of each channel has now changed to Running. If you desire, you can also start only one channel by highlighting the channel and pressing the “start/stop” button as shown below:



The folders are now “live”, meaning that as soon as photos (or folders) are copied or sent to any of the “In” folders, the photos will be detected, processed, and the corrected photos will be saved in the corresponding “Out” folder. The original picture will either be deleted or moved to an “Original” folder depending on the settings that you’ve chosen. This is summarized in the below diagram:



To view the folders, press the “folder” button on the bottom right of LAB software. Your input, output, and original folder will be shown for each channel.

Our software can handle entire folder structures meaning that you can copy folders containing subfolders, .txt, .ini, .doc files (ie – control files) and the entire folder structure will be passed through and maintained with only the actual photo files being processed.

So really, that’s all there is to better pictures!

We provide the ability to process your customer’s photos through different presets depending on the types of photos your customers have provided, and/or your customer preferences. The software comes shipped with 10 different presets. To process an order through one of the presets (“Vivid Details”, for example), simply copy the pictures to the folder with that name (“Vivid Details Input”). The section below describes each of the 10 different presets.

A note about Folders, Channels, Presets:

Folders refer to the physical folder (or shortcut) on your computer that photos are sent to.

“Hot-folder” means a folder that is “live”, automatically detecting photos and processing them, and then moving them to a different folder when completed.

“Channels” simply refer to folders that have been assigned a name and specific processing attributes. ie – a Preset.

Presets refer to the default settings that come loaded with the software. Each preset is optimized for certain photos, shooting circumstances, etc. You can create your own custom presets and assign it to a channel, and you can also modify our default presets that come shipped with the software.

Step 2: Select a Preset

The software comes shipped with 10 pre-loaded presets.

1. **Vivid Details**
2. **Traditional**
3. **Indigo Printing**
4. **Nexpress Printing**
5. **Landscape**
6. **Fix Dark**
7. **Brighten Complexion**
8. **Noise Removal**
9. **Tint Removal**
10. **Shadow & Highlight Details**
11. **Portrait**

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

1. Vivid Details

We suggest you start with this preset. Vivid Details is 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 (using our latest high definition contrast curve), skin & depth bias, 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. Traditional

This uses the same set of parameters as above expect our original contrast curve - "High Contrast". This will produce photos with a bit more pop (higher contrast), but with less details in the shadows, less highlight recovery, and flatter skin tones.

3. Indigo and iGen printing

If you are printing on hp indigos, or Xerox iGens, then this preset is for you! Many of our licensees have complained how these machines print photos too ``hot``, or red, particularly in skin tones. As a result, we came up with this preset that produces excellent results and overcomes the difficulties of printing on hp Indigos and Xerox iGen's.

4. Nexpress Printing

This Perfectly Clear preset was created and approved by Kodak for optimal results with Kodak Nexpress printers. If you are using Nexpress printing systems, then start with this preset.

5. 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 then the default setting. The example below show a typical shot to use with this:



6. Fix Dark

Use this preset for those really dark photos (for example, 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. As a result we've turned on noise removal to fix for this. Note that this preset is too aggressive for "normal/average" photos. The below examples illustrate the Fix Dark preset at work:

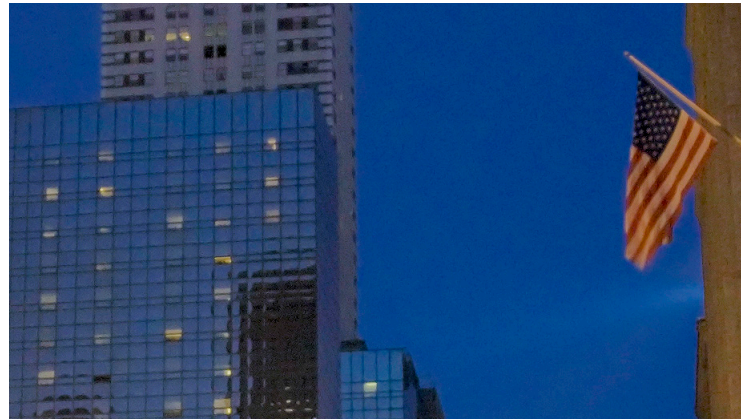
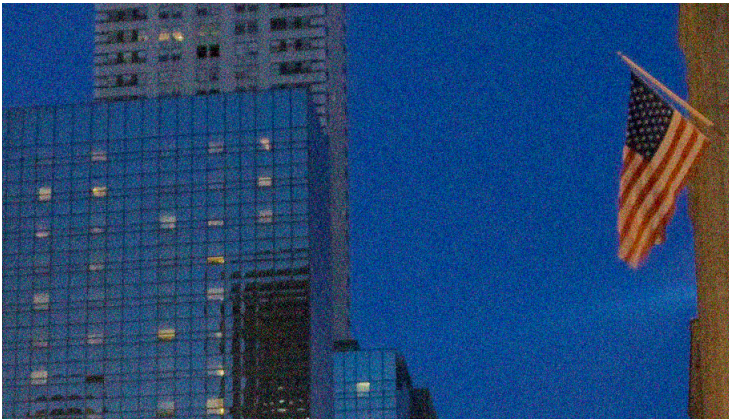


7. Brighten Complexion

This preset is designed for use with many Asian skin tones. The emphasize is on creating smooth, white skin tones.

8. 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:



9. 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:



10. Shadow & Highlight Details

Use this preset on high quality photos to bring out the vivid details, depth, and proper exposure. This preset uses the same algorithms as the Vivid Details - but has skin & depth bias turned off (which will mask many artifacts introduced by digital cameras) and noise removal turned on.

11. Portrait

The “Portrait” setting has been developed for portrait photos, weddings, and close facial shots. It will slightly smooth skin and blemishes in the face.

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:




Note that our Light Diffusion is turned off – you may want to turn it on to create a more diffused, softer picture with less contrast.

To view the exact algorithm settings for each preset, simply select “Display” from the system menu and then “parameter view”

Perfectly Clear LAB

System

 **Perfectly Clear LAB**
By Athentech Imaging

Start All

Stop All

Start/Stop

	Channel	Tint Correction	Color Vibrancy	Color Fidelity	ASS / Governor	Sharpen	Contrast	Bias	Skin Tone	Red Eye	Noise Removal/ str./ det.
1	Vivid Details	OFF	ON/5	OFF	ON/105	ON/ 100%	ON/Hi Defn/90	Bias2	OFF	ON	OFF
2	Traditional	OFF	ON/5	OFF	ON/100	ON/ 100%	ON/Hi Cntrst/93	OFF	OFF	ON	OFF
3	Indigo printing	OFF	ON/3	OFF	ON/100	ON/ 80%	ON/Hi Defn/95	Bias3	ON/ 30%	ON	OFF
4	Landscape	OFF	ON/5	OFF	ON/100	ON/ 80%	ON/Hi Cntrst/80	OFF	OFF	OFF	OFF
5	Fix Dark	OFF	ON/5	OFF	ON/125	ON/ 80%	OFF/Hi Cntrst/25	OFF	OFF	ON	default/ 0/0
6	Brighten Complexion	OFF	ON/5	OFF	ON/100	ON/ 90%	ON/Hi Defn/90	Bias1	OFF	ON	default/ 0/0
7	Noise Removal	OFF	ON/5	ON/ standard	ON/85	ON/ 150%	ON/Hi Cntrst/85	OFF	OFF	ON	default/ 0/0
8	Tint Removal	ON/ stng	ON/5	ON/ standard	ON/100	ON/ 90%	ON/Hi Cntrst/85	OFF	OFF	ON	OFF

The Real World... Perfectly Clear

The world's fastest, most accurate, and most visually-pleasing correction

Folders

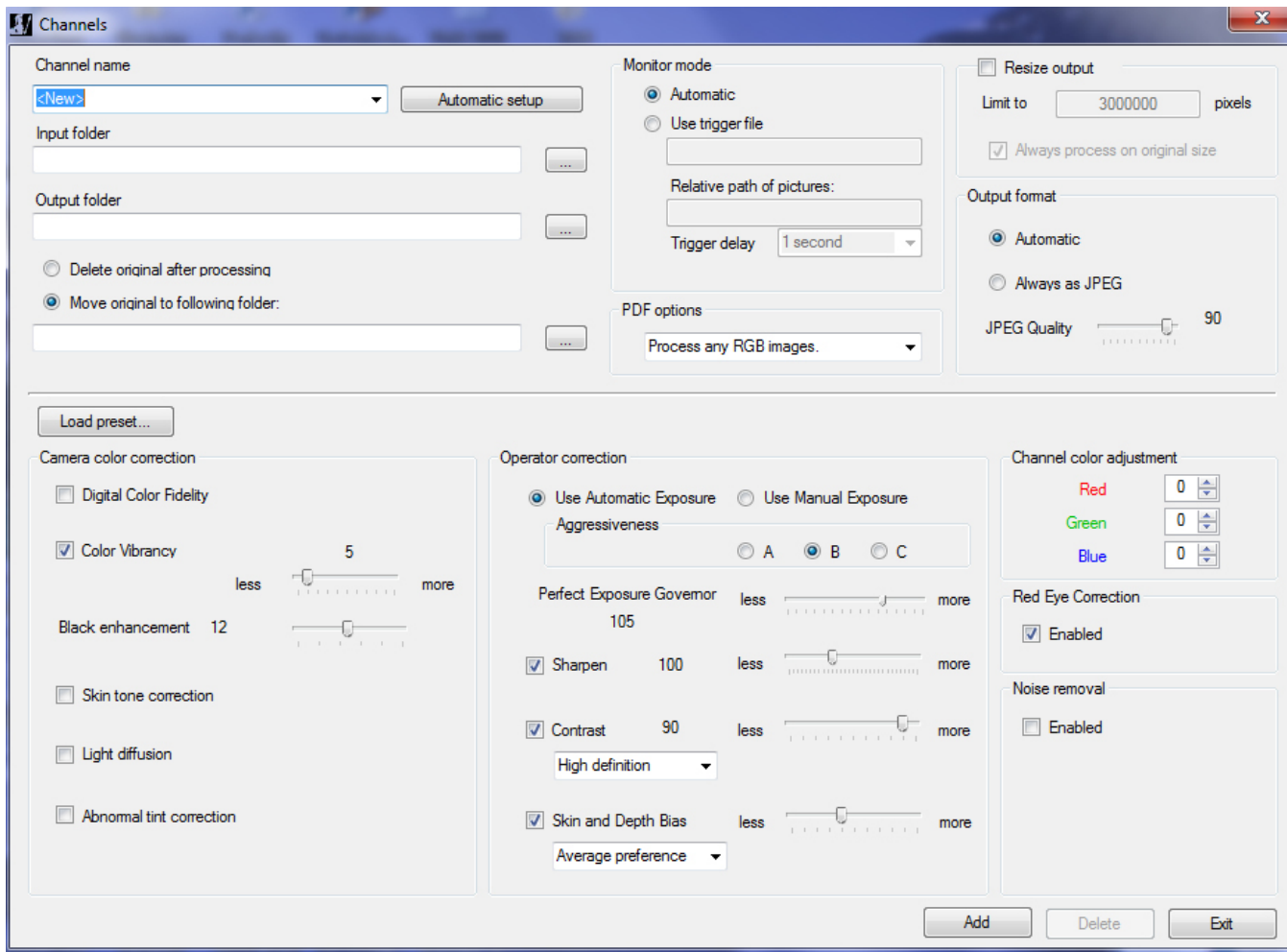
Exit

Chapter 5

What if I want to fine tune the corrections?

What if I want to fine tune the corrections?

There are a total of 13 different algorithms in the software. All of them but one (dynamic range which happens automatically behind the scenes) can be fine tuned and adjusted to enable you to create unique presets for your market. You do this by choosing “presets” from the “system” menu (located in the upper left of the software). You’ll see the following screen:



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

The default is OFF. This algorithm will look at each image and if there is an abnormal tint, remove it. If there is no tint, no correction will be performed.

We have four different Tint Corrections (the speed is the same for all 4). Please note that the actual tint removal engine is identical for all corrections, the only difference is the Automatic process in detecting whether a photo has a tint problem:

a) **Conservative** – this is the most robust for batch processing. However, since the emphasize is on conservativeness, there will be some photos that have a tint problem that will not be corrected. Suitable for batch processing over a wide variety of photos.

b) **Moderate** – More aggressive in detecting and correcting for tint. Also suitable for batch processing large volumes of photos, but there may be the odd photo that does not have a tint problem that our detection process “detects to have” and tries to remove.

c) **Aggressive**, and

d) **Strongest** – these 2 settings are designed for automatic batch processing of photos that have already been determined have abnormal tinting. If photos that do not have abnormal tint are sent through, then there is a good change that they will be “damaged” as the detection process is assuming that the photos have a tint problem.



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 create what might have been there.



PERFECT EXPOSURE: adjustments

You can use Perfect Exposure in either fully automatic mode where Perfectly Clear will determine the optimum exposure to apply for every photo, or you can apply the same amount of exposure to all of your photos.

i) Automatic Strength Selection (recommended)

To use Perfect Exposure in automatic mode, simply click the radio button “Use Automatic Exposure”. You can fine tune the Automatic Strength Selection process two ways:

1) Changing the Aggressiveness

Automatic Strength Selection has 3 modes: A (least aggressive), B (normal), C (more aggressive). In general, a higher setting (C, for example) means a greater exposure correction per photo.

2) Changing the Governor

A ‘Governor’ is a control that is implemented to control the maximum speed at which an automobile travels. In the case of Perfect Exposure our Maximum Limit ‘Governor’ controls the maximum amount of light that an image can receive in amplification.

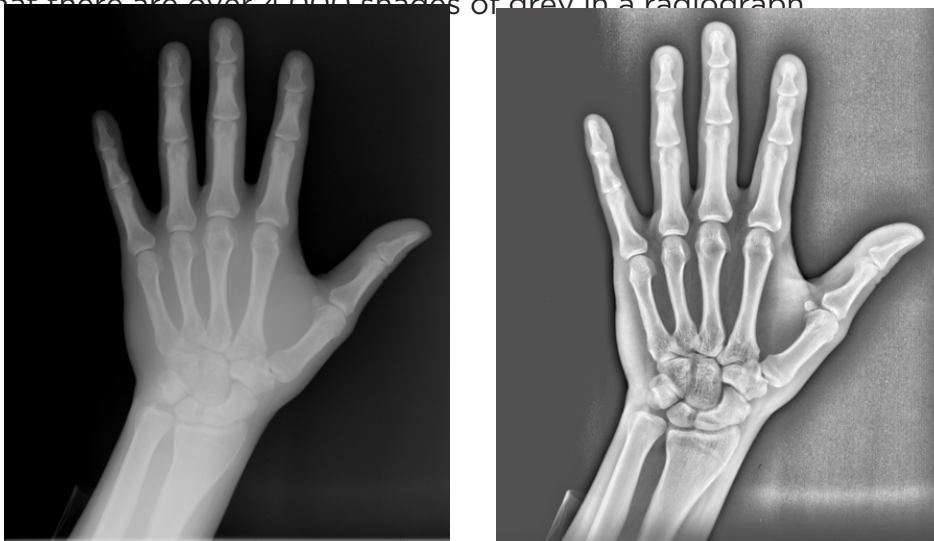
In the case of automatic corrections, a maximum limit is desirable because it enables you to choose a more aggressive exposure correction of the highly under developed photographs while assuring Zero Tolerance (i.e. zero photos damaged) on all images, including those which are properly exposed. In other words, it acts as a “stop” preventing photographs from being exposed to too much light.

ii) Manual Exposure

To apply the same amount of exposure to all of your photos, simply select this radio button option. The interface will change allowing you to select your desired exposure. Note the range of Perfect Exposure is from 0 to 150. In general, the human eye will only notice increments of approximately 10. ie – photo A processed at 8, and photo B processed at 11 will look the same.

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

Simply select the check-box next to the "Contrast" dialog to enable. The contrast ranges from 0 (slider all the way to the left) to 100% (slider all the way to the right).

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).

Please note that a contrast of 0% does not yield the same result as turning contrast off.



For extremely dark photos, it is beneficial to turn depth "off" in order to bring out extreme details as shown in the photo to the left:

There are 2 different contrast algorithms:

(i) High Contrast (original algorithm) - this is our original contrast curve. It provides images with lots of depth.

(ii) High Definition (latest technology, recommended to use) - this new algorithm has 3 benefits:

- 1) more details will be brought out in the shadow/dark areas
- 2) better highlight preservation (maintaining details in the highlight areas)
- 3) More accurate and beautiful skin tones.



High Definition (Latest algorithm)



High Contrast (Original algorithm)

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.

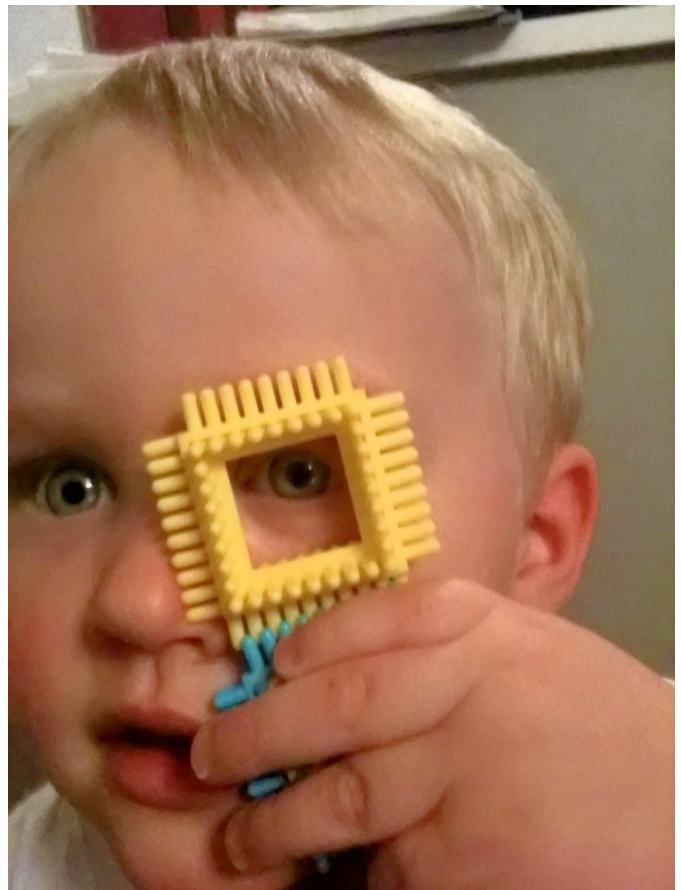
B) Camera Phone - a special engine has been added in to correct the grainy quality of most camera phone pictures

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. SKIN & DEPTH BIAS: algorithm description

Further to the above skin tone correction, people in different regions of the world have different preferences for skin tones. We provide the ability to tweak the skin tone look for your particular market.

Our bias corrections also overcome the difficulties of printing on hp Indigos and Xerox iGen's. Many of our licensees have complained how these machines print photos too ``hot``, or red, particularly in skin tones.

In addition, our bias corrections will cover up many of the flaws created by digital cameras, and allow you to further tweak how much depth you would like in your photos.

SKIN & DEPTH BIAS: adjustments

There are 3 options to choose from (simply slide the slider bar to the right to increase the strength, and to the left to decrease):

1) Average preference - this is our default setting removing red from skin tones, and adding depth to the background areas.

2) Brighter preference - the same impact as ``average preference``, but with overall a brighter image with more details revealed in the shadows. We designed this correction to work excellent on Indigo and iGen prints as these printers over-saturate photos.

3) Asian preference - designed for our Asian licensees, this preference will create whiter/paler skin tones with the facial area being emphasized the most and the background being darker. This preference is the most aggressive in whitening skin tones.

10. 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**.



11. 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.



12. BLACK ENHANCE – algorithm description:

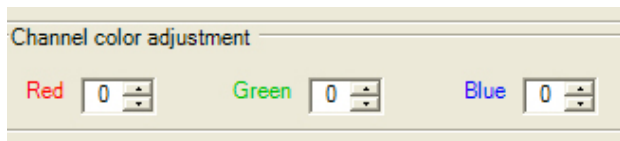
Black Enhance allows you to adjust the level of black in your photo. The amount of black serves as an anchor point in your photo.

BLACK ENHANCE : adjustments

The default value is 12. This means that no exposure correction will be applied to pixels below the value of 12, anchoring the black point at this level. If you move the slider bar to the left – there will be more exposure correction, resulting in a brighter photo with less black.

Miscellaneous

RED, GREEN, BLUE fine tuning



It's possible to adjust the overall level of red, green, or blue for entire photos simply by adjusting any or all of the 3 settings. One reason why you might want to do this would be to compensate for the color gamut in your printer.

Chapter 6

pdf processing

pdf processing

Perfectly Clear LAB now supports .pdf processing. Simply send your .pdf file into Perfectly Clear LAB like you would a .jpeg and Perfectly Clear will go to work processing it immediately. LAB extracts the photos from the .pdf file, corrects them, and then places them back in the .pdf file.

There are 4 options that you can fine tune for your .pdf processing:

1) Process any RGB image

- There is no differentiation between images (photos and background). Everything is corrected.

2) Utilize Metadata

- This is the most robust approach, but must be supported by the company/software that you use to compile .pdfs.
- For example, users of Digilab software can use this option in Perfectly Clear LAB. When you are creating your product in the Digilabs software, you can choose which images to apply image correction to – and Perfectly Clear LAB will only be applied to these selected images. This is useful because many photobooks may use faded photo for the background. Of course this photo is lacking in color vibrancy, so Perfectly Clear will naturally try to correct it, but in this unique circumstance no correction is required.
- Technically what's happening is we're using The EXIF tag ID Hex A401 to read if the photo requires correction. When 'Utilize metadata' option is selected, Perfectly Clear LAB skips all pictures with this tag set to '1' (and also all images that contain NO tag) and processes all pictures with this tag set to '0'.

3) Use artificial intelligence – aggressive processing

- If the .pdf file contains no flags, then we apply our own intelligence to try and determine what is a real image and requires processing and what is a background. With this option we apply our logic rather aggressively – the next option is more conservative.

4) Use artificial intelligence – moderate processing

Chapter 7

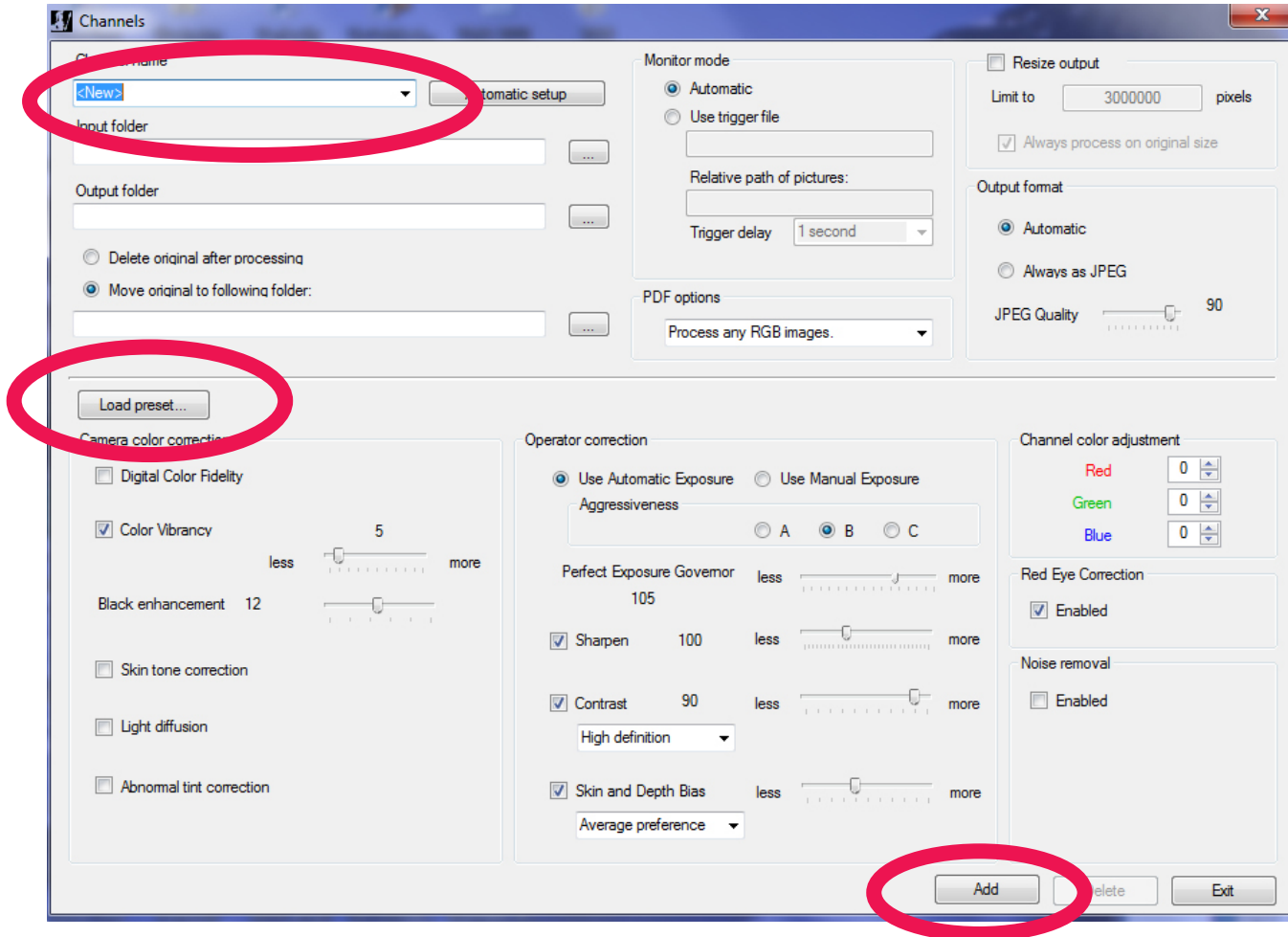
Additional Adjustments

Additional Adjustments

a. Adding a new channel (and preset)

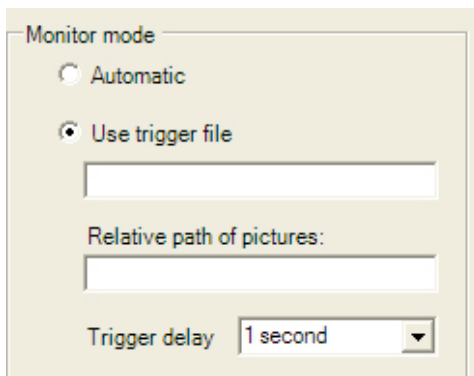
Why would I want to do this? Well, let's say you wanted to tweak our presets for one of your customers that has his or own preferences. You would then create a custom preset and then associate it to a new channel.

To add a new preset, simply choose "presets" from the system menu, adjust the algorithms/slider bars to your liking, and then press the "Add" button and type in a name. Next, go to the "channels..." menu type a new channel name, and then associate a preset to go with it as indicated below:



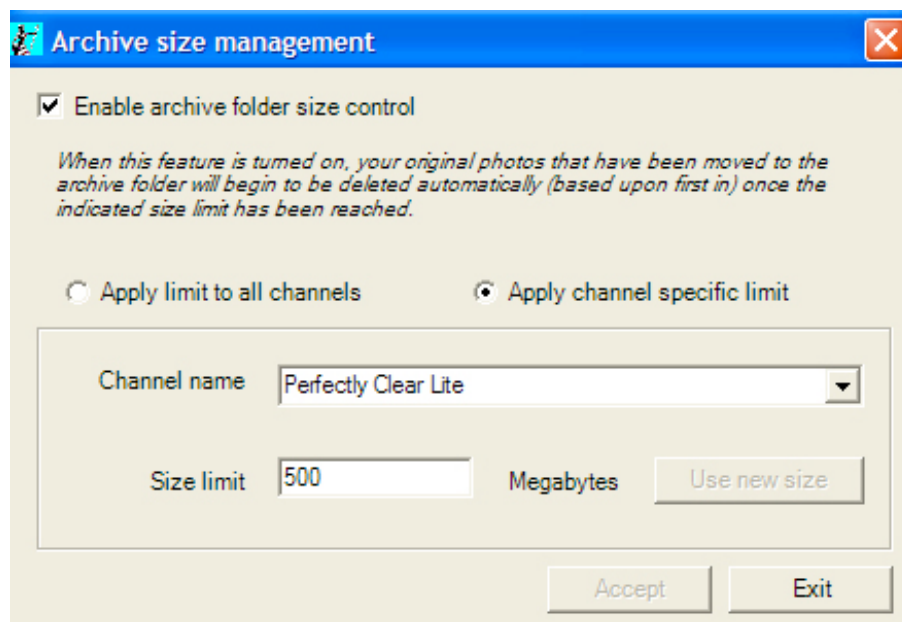
Then press the automatic setup button to automatically choose the name and location for your channels. Press the "Add" button to complete the process.

b. Trigger Files



In some instances workflows are organized as folders, with each separate order being separated by trigger files (sometimes these trigger files contain information about the order). When these folders are automatically being streamed into our "In" folders, it is often necessary to wait until the entire order has been sent before we begin processing. In this case, select the "Use trigger file" (located under the "Channels" option under "System"). You can also specify the name of the trigger file and the relative path and choose a time delay.

c. Archive Size Management



You can manage the number of files (ie - size) being stored in the “Original Folders” (the folders that the original photos are moved to after processing) and delete pictures, based upon first in once the archive size limit has been reached. To activate this feature, simply click the “Enable archive folder size control” radio button. This screen is loaded by selecting “Archive Size Management” from the “System” menu.

You can apply the size limit to all folders (channels) or have different limits for different folders (channels). In the example shown above, once the size of the “Perfectly Clear Lite” Original folder reaches 500 MB, then photos will begin to be deleted based upon which ones arrived first.

If you automatically keep a back-up of your customers’ photos before sending to our software, then you would probably want to disable this feature since it isn’t relevant.

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