

# FixerBundle V2 (Mac OS X)

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## Introduction

The FixerBundle is a suite of four Photoshop plug-ins:

- FocusFixer V2 - pre-sharpening and focus-correction filter
- NoiseFixer V2 - removes noise and preserves detail
- ShadowFixer V2 - restores under-exposed regions of images
- TrueBlur V2 - creative filter to blur like your camera

Originally conceived as a suite of tools to enhance photographs the FixerBundle is now used world-wide by thousands of professional photographers and serious amateur photographers.

Whether you have a Hasselblad or an iPhone you will see the difference in your photographs.

No matter how good your camera, or how good your lens, the laws of physics will soften your photographs. Add to that the occasional focussing "accident" and it is easy to see why **FocusFixer** was born! When **FocusFixer** 1.0 was first released it was ground-breaking, super- computer technology. **FocusFixer** V2 continues that tradition with many new features and functions that you have asked for and a further innovative leap with the introduction of Auto-focus in FocusFixer V2 - computationally mind-boggling auto-focus after you have taken your digital photograph. The Auto-focus guides you on a single photo or gives you perfect results every time with a batch of photographs.

Smaller pixels on the imaging chip do improve sampling, but they do not gather

enough light. The result is noisy images. Noise is also a problem even with the best cameras at high-iso or low-light levels. High-tech yet simple to use, **NoiseFixer V2** will reduce greyscale noise and banish colour noise from your photographs.

**ShadowFixer** was the result of a direct request from a customer – how to really "see" into those under-exposed parts of an image. Stunningly simple to use and very effective - especially on selected regions of a photograph.

**TrueBlur** is the reverse of FocusFixer. It blurs your photos, under your creative control, just like your camera and using LensFIT technology borrowed from FocusFixer.

With Photoshop CS3, CS4, Elements 6 and Graphic Converter compatibility, Photoshop automation/batch processing, resizable large preview windows, and Auto-focus in FocusFixer V2, our plugins work the way you do, on a single photograph or a batch of photographs.

Try the FixerBundle V2 suite of plugins with the free, fully-functioning, 30 day trial. Register for the free trial and you will receive a serial number by email - just press the "Activate Trial" button on any of the FixerBundle V2 plugins and enter your name and trial serial number to see the benefits for yourself.

When your 30-day trial ends you can continue to enjoy the benefits of using the FixerBundle V2 by purchasing a full serial number from our web store and then press "Register" on the control panel of any plugin, or purchase by pressing the "Buy" button on any plugin. A full license entitles you to full email technical support, free updates to version 2.x of the software (including any new plugins added to FixerBundle V2), and we continue our policy of giving you a 50% discount on the next version.

This document is available in Photoshop. If, for example, you go to:

Photoshop->About Plug-Ins->FocusFixer V2

you will see five buttons:

- |                            |   |
|----------------------------|---|
| "Ok"                       | - returns you to Photoshop  |
| " www.fixerlabs.com "      | - takes you to www.fixerlabs.com  |
| "Check for Update"         | - tells you if there is an update available   |
| "User Guide"               | - gives you this document   |
| "Deactivate serial number" | - deactivates your serial number on that computer so that you can move your serial number to another machine. |

We have made every effort to ensure that this code is reliable in its function, and have tested it extensively, but we cannot be held responsible for any loss or damage resulting from the use of this software. Always keep a backup copy of your original photographs! If you have any questions or problems using our software we can help - just contact us via "support at fixerlabs dot com".

## **Installing FixerBundle V2**

Installation on a Mac is simple. Open the zip file that you downloaded and open the dmg file. This should place a disk on your desktop and copy the FixerLabs V2 folder from this to the Plug-ins folder of Photoshop CS3 or CS4 or Photoshop Elements 6. For Graphic Converter copy the FixerLabs V2 folder to:

`/Users/<your username>/Library/Application Support/Graphic Converter/Plug-ins`

FixerBundle is not a stand alone program, but a "plug-in" that plugs into an image editing program, eg Photoshop. For the plug-ins to work you must install them in the 'Plug-Ins' folder of your image editing program.

If you wish to install the Bundle in more than one image editor, you need to copy the files to the 'Plug-Ins' directory of another image editor

## **FixerBundle V2 System Requirements**

The FixerBundle is now supported in more host applications than ever before. You will need:

Mac OS X 10.4+  
PPC or Intel  
Photoshop CS3 or CS4  
Photoshop Elements 6  
Graphic Converter 6.3

For information on compatibility of our plug-ins with different image editing programs and platforms, please check our compatibility pages on our website:

[www.fixerlabs.com/compatibility.htm](http://www.fixerlabs.com/compatibility.htm)

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In what follows we give Guidelines on how to use each plug-in and Hints on their use.

## FocusFixer V2 (Mac)

FocusFixer V2 is *the* Photoshop plug-in to pre-sharpen, sharpen, or correct focus in all of your photographs. With its LensFIT technology it delivers perfect, sharp photographs from soft originals. Ideal for pre-sharpening and for correcting the occasional mis-focussed image.

New in FocusFixer V2:

- Photoshop automation (batch processing)
- Larger and resizable Previews
- Works on Layers
- Auto-focus
- Updated camera profiles

With its full compatibility with Photoshop automation it is now easy to use FocusFixer V2 as part of your batch processing workflow. The larger previews help you to get the sharp result you need and the Auto-focus can guide you to a stunning results or be trusted in batch processing to get a superb result every time.

FocusFixer V2 also includes algorithm updates, various minor reported bug fixes and extensions to the list of cameras supported. We are constantly updating the list of supported cameras as new cameras are released by manufacturers. If you would like to see a new, or favourite older, camera included, please contact "support at fixerlabs dot com".

FocusFixer V2 uses the innovative Lens File Information Technology (LensFIT) feature that accurately models the camera optics to give superior results. LensFIT uses EXIF data attached to the images from most digital cameras. When all the required EXIF information is present, FocusFixer V2 uses a sophisticated mathematical model of the blurring process. It also remembers the last camera used by you, which is particularly helpful if your photos are primarily taken with one camera.

Many cameras, unfortunately, do not include enough information in the EXIF data for LensFIT to be switched on automatically. Also some image editing programs may not provide enough EXIF data to FocusFixer. In these cases you can manually enter the missing information to switch LensFIT on.

If the f-number can be read from the EXIF data then it will be automatically displayed in the FocusFixer control pane, otherwise you can enter it with the pull down menu. You may also need to select the camera Make and Model. With this minimum amount of information LensFIT will build a better model of the lens and camera optical system than the default "circle-of-confusion" or Gaussian model.

FocusFixer V2 also introduces Auto-focus. This uses the LensFIT information when possible to give an assessment of the correct "Deblur" to be applied. The Auto-focus can be computed either from the part of the photograph displayed in the preview window or from the entire photograph. Focussing using camera optics is easy, after

the image has been recorded it becomes a very hard problem - FocusFixer V2 is a world-first in a commercial product to use this automatic technology - it makes it easy to find the correct deblur and to achieve perfection in sharpening.

**PLEASE NOTE:**

FocusFixer 1.0 introduced a totally new approach to sharpening "soft" images and restoring out-of-focus images using very sophisticated algorithms to achieve astonishing results. FocusFixer V2 takes this technology to a new level.

FocusFixer V2 defies the laws of optics by removing the softness produced by the very best available real lenses even when they are perfectly "in-focus". Best of all, FocusFixer V2 guides you to the best deblur to apply. The auto-focus calculations at the heart of FocusFixer V2 are computationally intensive and are relatively slow on even the latest multi-core processors. The reward is that FocusFixer V2 can enhance and restore images to give astounding results that are beyond the reach of other sharpening techniques such as un-sharp masking.

As one of our customers put it, "With FocusFixer it just looks right, with other techniques you can always tell".

## ***Hints and Guidelines for using FocusFixer*** **Getting started**

1. Open a photograph in Photoshop.
2. Use the entire image for now (or you can select a region of the image at approximately the same amount of focus blur (same depth), that you wish to restore. See notes below about images with depth variations. Use a selection tool from your image-editing program, e.g. Rectangular Marquee Tool or Lasso in Photoshop).
3. Under the Filters menu, select "FixerLabs Filters V2" and then "FocusFixer V2".
4. There are several possibilities for LensFIT, if you see:
  - a. "LensFIT: on" and "Please change f/# if necessary",  
the sophisticated model of the camera and optics is being used and requires no further input from you (unless you want to change the f/#, perhaps because your camera/lens reports the f/# incorrectly because the lens is an old favourite and not electronically connected to the camera).
  - b. "LensFIT on" and "Please change camera and f/# if necessary",  
you should check that the camera is the correct one (FocusFixer remembers the camera from the last time it was used).
  - c. "LensFIT off" and "Please enter camera Make and Model",  
and an f-number appears in the f/# box (it will be greyed out) you will be able to use LensFIT if you enter the camera Make and Model.

- d. "LensFIT off" and "Please enter the f/#",  
The camera Make and Model both read "From EXIF" and are greyed out, you can enter the f-number to use LensFIT.
- e. "LensFIT off" and "Please enter camera Make, Model and the f/#",  
then no EXIF data is present. You may be able to use LensFIT if your camera make and type are included on the pull-down menus on the dialog box and if you can enter the f-number used when the image was taken. If your camera is not listed, please email "support at fixerlabs dot com" and we will do our best to add it to the list in the next update.
- f. "LensFIT off" and "This application does not provide access to the information LensFIT requires",  
you may still use LensFIT if you enter the camera Make and Model and the f-number used to take the photo.

If you are working with photographs with "LenFIT off", FocusFixer V2 will use a simpler model of camera optics that still gives good results (the Auto-focus will not work because it requires the accuracy of LensFIT).

5. In the dialog you can move the area of the image seen in the preview by moving the cursor into the window, holding the mouse button and moving the cursor to drag the image around.
6. You can resize the FocusFixer V2 control pane by dragging the sides or a corner to see more of your image (preview updates are faster with the smallest size of preview).
7. You can zoom in and out of your image in the preview by pressing the "+" and "-" buttons.
8. The "Deblur" slider gives a numerical feedback of the radius of the "circle of confusion" in pixels (or a near equivalent if LensFIT is on). You can manually adjust the deblur if the "Set deblur automatically" check box is unchecked. If the amount of blur to be corrected is very low the correct value will be towards the left end of the slider (try a value between 0.1 and 1.5). If the amount of focus correction needed is larger try moving the slider to the right. For large blur values you will need to adjust manually.
9. You can fine control the "Deblur" amount by using the "up and down arrows".
10. If you have not selected enough Deblur with the slider the image will still look "soft". If you select too much Deblur the image will look very peculiar indeed (with creative possibilities! - at least one major international photographic prize has been won this way). There will be a point on the slider where the image looks at its clearest and sharpest with no artifacts at light/dark boundaries. The preview reverts to the original blurred image if you drag the preview by a small amount and is "FocusFixed" when you release the mouse button. This allows a quick comparison of restored and original images.

11. Just to the left of the "Deblur" slider is a checkbox marked "Set deblur automatically". This will enable the Auto-focus. When this is checked you can select either "Preview" or "Centre-weighted" then press the "Set Deblur" button.

"Preview" - the auto-focus uses the part of the image in the centre of the preview window.

"Centre-weighted" - uses the entire image but biases its result towards the centre.

Both options take a few seconds (typically about 6 for preview and 30 for centre-weighted on a PPC and up to ten times faster on an Intel Mac). When the deblur has been set automatically the numerical deblur value will appear and the deblur slider position will change. You can drag the preview window and it will appear enhanced with the value that was found when you did the "Set Deblur". In "Preview" mode you can press the "Set Deblur" button again to generate a different Deblur value for another region of your photograph.

The "Centre-weighted" deblur value is based on the entire photograph it will only be computed once - so you can drag the preview around to see the effect on different parts of the image without having to recompute the centre-weighted deblur value. The Centre-weighted mode attempts to find the most in-focus region of the photograph (biased towards the centre) and bases its estimate of the Deblur needed on that region (read more further down).

10. Adjust the "Threshold" slider to reduce noise in uniform regions. Threshold can usually be left at zero for your initial experiments.

11. Click "OK" when you are happy with the amount of "Deblur" and "Threshold".

12. At this point your image will be "FocusFixed". This may take some time depending on your processor, the amount of memory you have, and the size of your selection (typically from 10 seconds to a minute on an Intel Mac).

## **Notes on using FocusFixer**

Although FocusFixer V2 can perform very well it does need the original image to be of good quality. It restores focus blur; it was not designed to restore images corrupted by motion blur or by JPEG compression artifacts.

You should apply no sharpening before FocusFixer V2. If your camera gives JPEG or TIFF images turn in-camera sharpening off if possible (almost any method of sharpening using Photoshop will be better than in-camera sharpening). If converting from raw apply no sharpening in the conversion. No prior sharpening is a necessary condition because FocusFixer V2 will see the sharpened image as the actual data and simply amplify the sharpening. FocusFixer builds a model of the image formation process through the lens to the camera and this cannot "guess" at any sharpening that may have previously been applied. FocusFixer is designed to remove lens softness and it cannot see this clearly if it is masked behind other processing (that has modified the MTF).

Apply FocusFixer V2 to high quality images before you apply any other processing. Uncompressed TIFF or files derived from raw work best - JPEG compression should be avoided, although the higher the JPEG quality the better the result images will be. Some low-end cameras, even at their highest quality setting, may not allow FocusFixer to restore your images to its fullest potential – try it first! (JPEG introduces artifacts that FocusFixer will amplify). We suggest that any form of brightness/contrast, "curves", noise removal, "upsizing" or other processing should be performed after FocusFixer. You can try Auto Levels, Auto Contrast, and Auto Color – FocusFixer will sometimes work after these have been applied if they help you to see what you are doing, although it is always best to apply FocusFixer first.

FocusFixer V2 can be used with Photoshop batch processing. Here it is best used with the Auto-focus and "Centre-weighted" (Preview mode has no real meaning in this context). You can record the processing in a Photoshop Action in the normal way. You need to process images from one type of camera (the type used and specified in the "record" phase of the Photoshop action). FocusFixer V2 will use the Make and Model used at record time and will read the f-number from each image in the batch. If an f-number is not available from the exif, or the camera Make and Model were not known when the action was created, FocusFixer V2 will use a simpler model of the optics that nevertheless produces excellent results.

The automatic deblur has a number of points to watch. Flat regions with no detail do not give good results in "Preview" mode and the "Centre-weighted" mode will look for image regions with interesting detail, biased towards the centre of the photograph. For "Preview" mode and photographs with people, eyes work well, as they have plenty of detail at many different orientations and sizes. In "Centre-weighted" mode the algorithm can sometimes be distracted by brightly silhouetted features such as branches against the sky. In general, the Centre-weighted automatic deblur will estimate a deblur value that is slightly lower than we humans would choose, invariably though it is right and the human estimation of the deblur is just too high.

You can apply sharpening after FocusFixer has been used in Auto-deblur mode. FocusFixer will literally have taken out the softness due to the physics of a lens, it will also take out low levels of blur. What it has been trained to do is to not over-sharpen - that is your prerogative.

FocusFixer V2 produces very little in the way of edge artifacts (unless your image has been sharpened in-camera or jpeg effects are visible). With noisy original photographs the "Threshold" slider can help reduce the visibility of noise in the sharpened image. Set the "Threshold" slider to some value greater than zero and this will remove noise artifacts in uniform regions of the image after the image has been "FocusFixed". With good original images it is normal to leave the "Threshold" slider at zero.

FocusFixer is useful in a number of circumstances:

Firstly, as a pre-sharpening tool for in-focus but "soft" images, FocusFixer can remove the blur introduced by the physics of the best (in-focus) lens with stunning effect. It can be used to advantage in this way on all of your digital photographs.

Secondly, FocusFixer V2 can be used to correct photographs where the original focussing was in error. If you are correcting focus blur (rather than general "softness") the selection to be restored should be at an approximately constant depth, i.e. have the same amount of focus blur. If there are regions at significantly different depths then restore them individually.

A quick note about deblur on an entire image. FocusFixer V2 can be thought of as "subtracting" blur from an image. For this reason, it is undesirable to subtract more blur than was originally in the image (or any part of the image), when this happens the blur goes "negative" and you will see artifacts and in extreme cases very strange results. The best way to use FocusFixer V2 on an entire image is to find the most in-focus (or sharpest) part of the image and use that image region to determine the optimum deblur (either manually or automatically).

The results only become strange if you adjust the deblur in a part of the image where the blur is relatively high and then apply this setting to parts of the image where the blur is relatively low - you are effectively subtracting too much blur from these sharper regions. The aim should always be to keep the blur everywhere zero or positive - this avoids artifacts. Relatively blurred regions of the image will then have some blur subtracted, but still remain soft; the slightly blurred regions will also have this amount of blur removed and you can be left with the pleasing result of zero blur (perfect) sharpness in these regions of the photograph and depths effects due to image focus being preserved in your processed result.

A final comment on deblur. The "Deblur" slider on FocusFixer V2 can be set close to zero. The deblur setting is a measure of how in-focus the photo is. A deblur value of nearly zero means your photograph was recorded with a lens that was in-focus, ie the best possible focus you can get with those lens settings. Of course, the physics of a lens still means that the lens will soften the image to some extent (the higher the f-number the greater the softening for in-focus subjects). The point to note is that FocusFixer V2 will still improve a photograph even if the deblur slider is set to near zero.

FocusFixer V2 can also be used manually to restore large amounts of defocus in high quality images - faces will become recognizable people, number plates will become readable, etc. If you need to work with images that are so blurred that the "Deblur" slider hits the right-hand end of its travel and still does not provide enough "FocusFixing" (you are really in trouble), please contact "support at fixerlabs dot com". There are examples on our web site of FocusFixer restored images where the amount of blur ranges from slight to extreme.

FocusFixer V2 is optimised for the visible light spectrum and conventional digital photography. If you have special requirements, eg for monochromatic light, infra-red, ultra-violet, microwave imaging, very high f-numbers, or other specialist imagers, please contact "support at fixerlabs dot com" and we will be happy to work with you.

FixerLabs are very interested in your experiences with FocusFixer V2 and would be delighted to have your detailed comments, suggestions, and anecdotes about how FocusFixer has helped you (please email us at "support at fixerlabs dot com"). If you feel able to share any of your images (before and after FocusFixer) with us, we would

be even more delighted! Please let us know if you will allow us to use any of your results on our web site (we would happily acknowledge your contribution).

# NoiseFixer V2 (Mac)

NoiseFixer V2 is a Photoshop plug-in that removes colour and luminance noise from images and preserves the detail. It works with 8-bit RGB and 16-bit RGB images.

Now with Photoshop automation and larger resizable previews NoiseFixer V2 makes it easy for you to include noise reduction in your batch workflow and easier to adjust the colour and luminance noise suppression.

NoiseFixer V2 also includes algorithm updates and various minor reported bug fixes.

## PLEASE NOTE:

NoiseFixer V2 uses very sophisticated algorithms to achieve astonishing results. The algorithms used are computationally demanding and considerable effort has been made to accelerate the code to make execution times reasonable.

## **Hints and Guidelines for using NoiseFixer V2**

### **Getting started**

1. Open an image file in Photoshop.
2. Use the entire image or select a region of the image with the Rectangular Marquee Tool (for example).
3. Under the Filters menu, select "FixerLabs Filters V2" and then "NoiseFixer V2".
4. In the dialog you can move the small area of the image seen in the previews by moving the cursor into the window, holding the mouse button and moving the cursor to drag the image around.
5. You can resize the NoiseFixer V2 control pane by dragging the sides or a corner to see larger previews.
6. You can zoom In or Out to see more of your image in the preview by pressing the "+" or the "-" buttons.
7. A good region of the image for working with NoiseFixer V2 will usually have a large region of uniform colour and brightness, noise will be most apparent here. It is also useful to be able to see some features with plenty of detail at the same time as the uniform part of the image. (You want to adjust the settings to remove as much of the noise as possible whilst leaving the detailed features of the image untouched).
8. NoiseFixer V2 gives you four previews. Top left is the colour (chrominance) part

of the image. Top right is the black and white (grey level, or luminance) part of the image. Bottom left is the original image and bottom right is the result after NoiseFixer V2.

9. There are two slider controls. The first is under the Colour preview. As this is moved to the right any colour noise visible in a uniform region will fade away. Check the result image to ensure that only noise has been removed. Adjust the slider for the best result (typically in the range 20 to 70).

10. The second slider control is under the Luminance (greyscale, or black and white) image. Adjust this slider in the same way as the colour one for the best grayscale noise removal whilst leaving as much image detail as required (typically in the range 5 to 15, though it can be much higher for some noisy images).

11. Click "OK" when you are happy with the amount of noise removal.

12. At this point your image or selected area of the image will be "NoiseFixed". This may take a few seconds depending on your processor, the amount of memory you have, and the size of your selection (typically from 10 to 30 seconds, longer on a very large image).

## Notes on using NoiseFixer V2

NoiseFixer V2 can perform magic, it works with the very best cameras all the way down to camera phones. It removes noise that is an inevitable consequence of the physics of digital imagers, scanners, or film. It was not designed to restore images corrupted by JPEG compression artifacts, although it may help with some JPEG images. NoiseFixer was specifically designed to remove image noise and to leave image detail untouched.

Noise is typically most obvious in dark regions of an image. Here the amount of light reaching the imager is least and the effects in terms of noise will be at their worst (poorest signal to noise ratio for Poisson noise).

Colour noise appears as "blotches" of colour on the general background colour. Colour noise is easier to eliminate than luminance (greyscale or brightness noise) as we humans see exquisite details in greyscale whilst our colour vision has poor resolution. NoiseFixer will remove these blotches very effectively leaving the background colour intact. A typical slider setting may be about half way on the colour slider (50 +/- 30).

The luminance (grey level) noise generally appears much finer in structure – hence the need to separate the processing of the colour and luminance. Careful adjustment of the luminance slider is often required to balance the requirement to remove the noise without removing desired detail. A typical slider setting may be 10 +/- 5.

FixerLabs are very interested in your experiences with NoiseFixer V2 and would be delighted to have your detailed comments, suggestions, and anecdotes about how NoiseFixer has helped you (please email us at "support at fixerlabs dot com"). If you feel able to share any of your images (before and after NoiseFixer V2) with us, we would be even more delighted! Please let us know if you will allow us to use any of your results on our web site (we will happily acknowledge your contribution).

# ShadowFixer V2 (Mac)

ShadowFixer V2 is a Photoshop plug-in that restores under-exposed regions of a photograph. It works with 8-bit RGB and 16-bit RGB images.

Now with Photoshop automation and larger previews ShadowFixer V2 makes it possible for you to include shadow correction in your batch workflow and easier to adjust the exposure for those dark regions of your photographs.

ShadowFixer V2 also includes minor algorithm updates and various reported bug fixes.

## ***Hints and Guidelines for using ShadowFixer V2*** **Getting Started**

1. Open an image file in Photoshop.
2. ShadowFixer V2 is designed to work on an entire image or a selection of an image.
3. Under the Filters menu, select FixerLabs Filters V2 and then ShadowFixer V2.
4. In the dialog you can move the area of the image seen in the previews by moving the cursor into the window, holding the mouse button and moving the cursor to drag the image around.
5. You can resize the ShadowFixer V2 control pane by dragging the sides or a corner to see larger previews.
6. You can zoom In or Out to see more of your image in the preview by pressing the "+" or the "-" buttons. It is a good idea to view more of the image by zooming out (click "minus") to 50% or even 25%.
7. Centre the preview over one of the areas that is dark and that you wish to make lighter.
8. ShadowFixer V2 gives you two previews, Before and After.
9. There are two slider controls. The first controls the radius of the filter applied to the image. The second controls the amount of "ShadowFixing" that will be applied. To start with, set the Radius slider to 100.
10. Adjust the Amount slider from zero to give the effect you desire. The setting is very dependent on the image you are working on and the degree of "ShadowFixing" you need. Adjust the Radius slider to change the effect. In addition to the dark regions being made lighter, you may notice some sharpening of the image.

11. You may wish to adjust the brightness and contrast of your result with Photoshop's built in tools. Often Auto Contrast will suffice.
12. Click "OK" when you are happy with the amount of shadow removal.
13. At this point your image or selected area of the image will be "ShadowFixed". This may take a few seconds depending on your processor, the amount of memory you have, and the size of your image (typically from 10 to 30 seconds).

## **Hints on using ShadowFixer**

Although ShadowFixer can perform magic it works best when the original image is of high quality. ShadowFixer works well with images from a reasonably good digital camera. Low quality JPEG images already have artifacts that may be amplified by ShadowFixer.

ShadowFixer V2 makes dark regions of images lighter, but we have to consider other properties of images to fully understand the results, in particular noise.

All cameras produce noise in their images. Noise is a term used to describe fluctuations in the amount of light recorded in an image that varies from point to point. There are many sources – possibly the two most important are noise that does NOT depend on the image (mainly due to camera electronics), and noise that does depend on the image (due to the camera chip counting individual photons of light as they arrive). The effect of these fluctuations is that dark regions of an image are noisy – they have poor signal to noise ratio. ShadowFixer V2 will make these regions lighter, and inevitably this will also make the noise that is already there more visible. So expect "ShadowFixed" images to be noisier where they were once dark. Often though this effect is small compared with the dramatic way that a dark face (for example) is brought out of the shadows.

There is a solution to the noise problem should it be an issue with your images: use NoiseFixer V2 to reduce the noise levels before you apply ShadowFixer. NoiseFixer first, followed by ShadowFixer is the correct order to apply the filters (according to our understanding of the science). The only drawback is that in dark regions of the original image it may be difficult to see the noise – if this is the case for your image, reverse the order and apply ShadowFixer, then NoiseFixer. We suggest you experiment to see which technique gives the best results for you.

FixerLabs are very interested in your experiences with ShadowFixer and would be delighted to have your detailed comments, constructive criticisms, suggestions, and anecdotes about how ShadowFixer has helped you (please email us at "support at fixerlabs dot com"). If you feel able to share any of your images (before and after ShadowFixer) with us, we would be even more delighted! Please let us know if you will allow us to use any of your results on our web site (we would acknowledge your contribution).

## TrueBlur V2 (Mac)

TrueBlur is a Photoshop plug-in that focus blurs or softens images and adds noise in a realistic way. It works with 8-bit RGB and 16-bit RGB images.

Photoshop automation and larger previews have been added to TrueBlur V2 to make it easy for you to include camera-realistic blurring or softening in your batch workflow and easier to adjust the settings for your photographs.

TrueBlurV2 also includes minor algorithm updates, various reported bug fixes, and the latest LensFIT camera profiles. If you would like to see a particular camera included, please contact "support at fixerlabs dot com".

### **Hints and Guidelines for using TrueBlur Getting started**

1. Open an image file in Photoshop.
2. Use the entire image or select a region of the image with the Rectangular Marquee Tool (for example).
3. Under the Filters menu, select FixerLabs Filters V2 and then TrueBlur V2.
4. There are several possibilities for LensFIT, ideally you want LensFIT to be on. If you see:
  - a. "LensFIT: on" and "Please change f/# if necessary",  
the sophisticated model of the camera and optics is being used and requires no further input from you (unless you want to change the f/#, perhaps because your camera/lens reports the f/# incorrectly because the lens is an old favourite and not electronically connected to the camera).
  - b. "LensFIT on" and "Please change camera and f/# if necessary",  
you should check that the camera is the correct one (FocusFixer remembers the camera from the last time it was used).
  - c. "LensFIT off" and "Please enter camera Make and Model",  
and an f-number appears in the f/# box (it will be greyed out) you will be able to use LensFIT if you enter the camera Make and Model.
  - d. "LensFIT off" and "Please enter the f/#",  
The camera Make and Model both read "From EXIF" and are greyed out, you can enter the f-number to use LensFIT.
  - e. "LensFIT off" and "Please enter camera Make, Model and the f/#",

then no EXIF data is present. You may be able to use LensFIT if your camera make and type are included on the pull-down menus on the dialog box and if you can enter the f-number used when the image was taken. If your camera is not listed, please email "support at fixerlabs dot com" and we will do our best to add it to the list in the next update.

f. "LensFIT off" and "This application does not provide access to the information LensFIT requires",  
you may still use LensFIT if you enter the camera Make and Model and the f-number used to take the photo.

If you are working with photographs with "LenFIT off", TrueBlur V2 will use a simpler model of camera optics that still gives good results (the Auto-focus will not work because it requires the accuracy of LensFIT).

5. In the dialog you can move the small area of the image seen in the previews by moving the cursor into the window, holding the mouse button and moving the cursor to drag the image around.
6. You can resize the TrueBlur V2 control pane by dragging the sides or a corner to see more of your image (preview updates are faster with the smallest size of preview).
7. You can zoom In or Out to see more of your image in the preview by pressing the "+" or the "-" buttons.
8. It is useful to be able to see some features with plenty of detail at the same time as a uniform part of the image. (You may want to adjust the settings to achieve the correct amount of blur and be able to judge the right amount of noise to add).
8. TrueBlur V2 gives you two previews. On the left is the original image. On the right is the image after it has been blurred and has had noise added.
9. There are two slider controls. The first controls the amount of blur. If enough EXIF information is present TrueBlur V2 will use a very accurate model of the blurring process ("LensFIT On") that reflects the properties of the lens and camera used to take the picture. If this EXIF information is not present you may be able to enter the camera Make, Model and the f-number used when the picture was taken. In the absence of this information TrueBlur will use a model of the blurring process that is a good approximation to optical blur.
10. The second slider controls the amount of noise to be added to the blurred image. This simulates the noise generated by cameras. (Noise is usually regarded as a bad thing that is difficult to avoid, but in this context may be essential to make the blurred part of the image look natural and blend into the rest of the image. Without added noise the blurred part of the image will look "flat", or "plastic", and stand out from the rest of the image which will have "natural" camera noise).
11. Click "OK" when you are happy with the amount of blur and noise.

12. At this point your image, or selected area of the image, will be "TrueBlurred". This may take a few seconds depending on your processor, the amount of memory you have, and the size of your selection (typically from 1 to 30 seconds, longer on a larger image).

## Hints and Tips on using TrueBlur V2

TrueBlur V2 will work well with images of almost any quality and is designed to be a creative tool – it adds focus blur and noise. Both of these are very hard to remove and very easy to add to real images.

Blurring parts of an image may be of immense value to direct visual attention away from some regions (more blurred) towards sharper regions of an image. It may be used to simulate depth of field effects and may be combined with FocusFixer for interesting effects. For example, imagine a shot of two people, one standing in front of the other, with the camera focused on the far person. You can use TrueBlur and FocusFixer to effectively move the focal plane forward to the near person: use TrueBlur to blur the far face, and FocusFixer to put the nearer face into focus.

FixerLabs are very interested in your experiences with TrueBlur V2 and would be delighted to have your detailed comments, suggestions and anecdotes about how TrueBlur has helped you (please email us at [support@fixerlabs.com](mailto:support@fixerlabs.com)). If you feel able to share any of your images (before and after TrueBlur) with us, we would be even more delighted! Please let us know if you will allow us to use any of your results on our web site (we would acknowledge your contribution).

We thank you for your interest in the **FixerBundle V2**

The **FixerLabs V2** team.  
[www.fixerlabs.com](http://www.fixerlabs.com)