

Rawstudio User Guide

Version 1.2

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Introduction

Raw Image Files

Many digital cameras, particularly high end consumer and professional models, allow the user to store images in raw, rather than the more commonly used JPEG format. Raw images contain far more information than images saved in the JPEG format, storing all the information captured by the image sensor of the camera.

When the camera saves images in the JPEG (or TIFF) format, it processes the data from the sensor, applying white balance, sharpening, and colour manipulations among others. Some of these manipulations are at the users control, for example setting different white balance modes, while others are not.

The JPEG image format is very useful for many purposes, as it provides highly compressed images (using less digital storage space), however it has some limitations. Firstly, the JPEG image format (usually) only provides a palette of 16.7 million colours. While this is adequate for many purposes, it is limiting in terms of post processing. Raw formats can typically store 16.7 billion colours (12 bit cameras) or 4.3 trillion colours (14 bit cameras). Capturing more tonal variation allows greater flexibility during post processing of digital images, such as adjusting exposure, lightening shadows, or raising in highlights. The second limitation of the JPEG format is that it (usually) employs 'lossy' compression. This means that, using advanced image processing algorithms, areas of the image which look almost the same, are averaged, and encoded only once, rather than multiple times. While this saves a lot of storage space, it results in compression artefacts (see Figure 1).



Figure 1: An extreme example of 'lossy' JPEG compression.

Rawstudio

The main difficulty when working with raw image files, is that they must be post-processed by the photographer, before being ready to share, print, or edit further. This post processing allows the photographer to tweak the exposure, change the highlights and shadows, set the white balance, and often much more.

Raw image processing typically involves loading the raw files into a software package, where edits are made, and the processed image is exported as a JPEG or TIFF. Often, this is done using proprietary software provided by the camera manufacturer.

Rawstudio is an open source software package which is designed to allow photographers to quickly sort and process their raw image files, in an intuitive and streamlined manner.

Features

Rawstudio has a number of excellent features:

- Intuitive interface
- Fast and responsive
- Quick sorting of images
- Batch processing
- Realtime histogram
- Exposure mask
- Cropping
- Straighten
- Post-exposure controls
 - Exposure
 - Saturation and hue
 - Contrast and curves
 - White balance
 - Sharpen
 - Rotation
- Full screen mode
- Colour management
- Internal processing is 16 bit

Getting Started

Layout

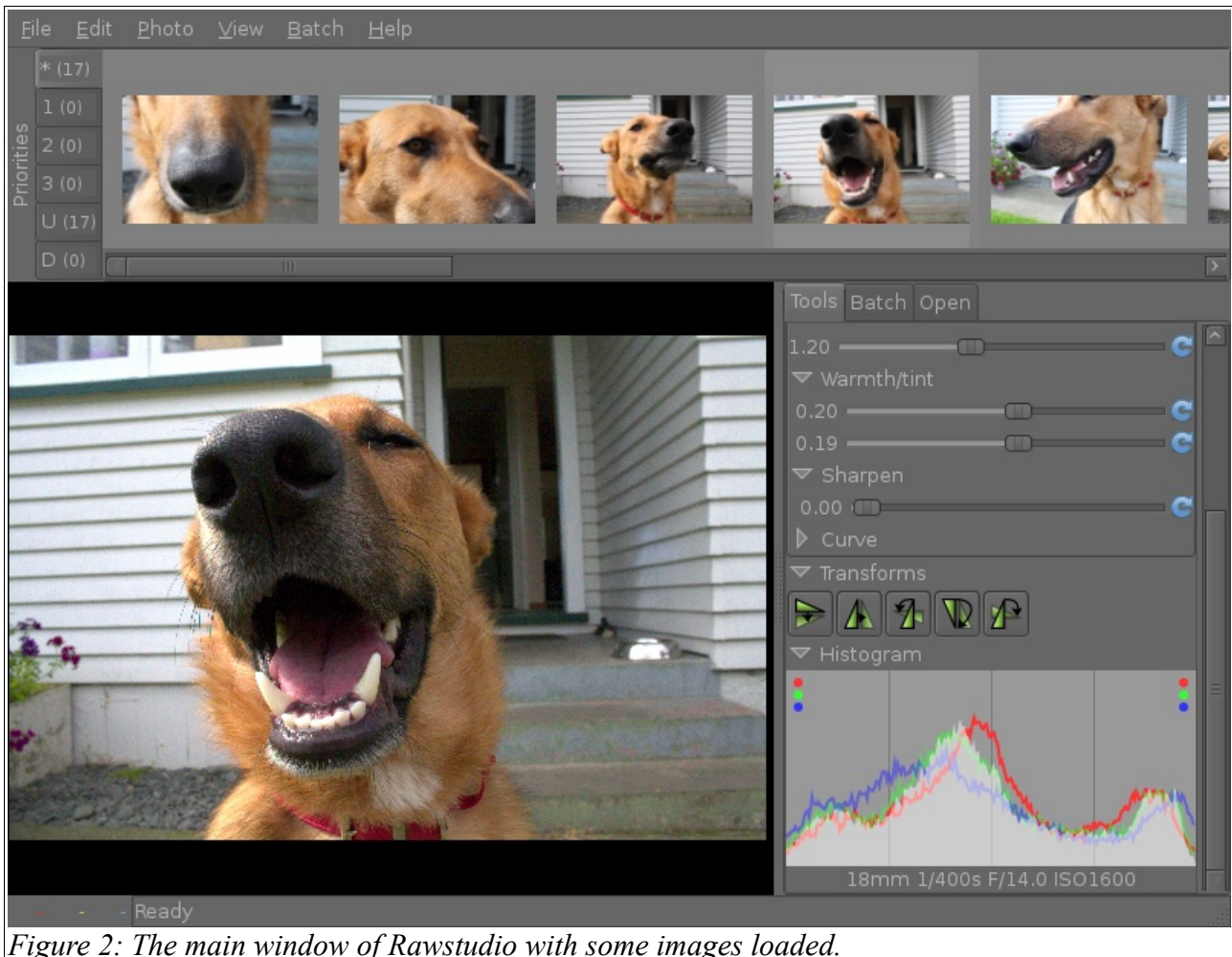


Figure 2: The main window of Rawstudio with some images loaded.

Figure 2 shows the main Rawstudio window. At the top of the window are the menus *File*, *Edit*, *Photo*, *View*, *Batch* and *Help*. Directly below these menus is the *iconbox*; this shows some of the images in the collection currently being worked on. The scroll bar below the *iconbox* allows the user to scroll through the icons to select any image to work with. At the left hand side of the *iconbox* are several tabs, clicking on these limits the pictures which are displayed in the *iconbox*. For example, clicking on the tab labelled '*1 (0)*' will show all the images currently marked as priority one. The number in brackets shows how many images are currently in any category. The tabs are:

- * All images
- 1 Priority one images
- 2 Priority two images
- 3 Priority three images
- U Unclassified
- D Images marked for deletion

To the right of the main image, is the *toolbox*. The *toolbox* contains numerous tools which will be covered in more detail later. Each tool has a small triangular symbol beside it (either ► or ▼). Clicking on the symbol ► will show a hidden tool, while clicking on the symbol ▼ will hide a currently visible tool.

At the very bottom of the *toolbox*, details of the photograph are shown, such as shutter speed and aperture size.

At the bottom of the main window is the *status area* – this shows the current status, in Figure 2 simply reading 'Ready'.

Basic Usage and Workflow

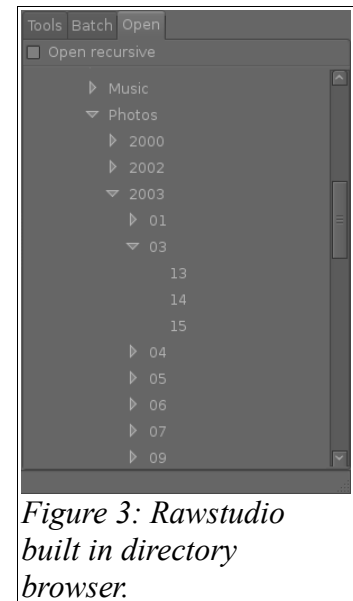
Rawstudio is designed to provide a streamlined workflow to allow rapid processing of images. The basic workflow is to open a collection of images, sort them into different priorities and discard unwanted ones, perform adjustments and corrections, then export the images for further editing, or printing, archiving etc.

It is important to understand that Rawstudio does not make any changes to the raw files, all adjustments are stored separately, meaning that there is no loss of quality until the images are exported. It should also be understood that exiting Rawstudio does not lose any data, it will open in the same state it was closed. In addition, priorities and edits made to images are stored long term, such that opening a collection of images that were processed in Rawstudio in the past, will restore the edits, adjustments and priorities which were set then.

Opening Collections of Images

There are two ways to load images into Rawstudio, firstly by opening the *File* menu and selecting *Open Directory* – this allows browsing and selection of a directory. Alternatively, Rawstudio contains a built in directory browser (see Figure 3), which allows selection of directories, and also recursive opening.

Recursive opening means that any directories within the selected directory are also opened. For example, a directory called '*Beach Shoot 07-09*' containing subdirectories called '*Samantha*' and '*James*', can be selected using the built in directory browser, and all the images, including those in '*James*' and '*Samantha*' will be opened. Note that recursive opening is not possible with the *Open Directory* command from the *File* menu.



To access the built in directory browser, click the tab labelled *Open* at the top of the toolbox (see Figure 3). Use the scroll bar on the right to scroll up and down, and the ► and ▼ symbols to open or close directories. To select a directory for Rawstudio to load, double click on any directory. To enable or disable recursive opening, tick or untick the tick-box at the top of the browser, labelled *Open recursive*.

Navigating Image Collections

Once images are loaded into Rawstudio, they are displayed in the *iconbox* (see Figure 2 on page 5). Clicking on any image will display it in the main image display area. Using the scrollbar below the *iconbox* it is possible to view all of the currently loaded images. Hovering the mouse pointer over an image in the *iconbox* displays information about that image (Figure 4).



Zooming

Right clicking (and holding the right mouse button down) on an image in the main image view opens a context menu which allows selection of zoom level, either *Zoom to fit* or *Zoom to 100%*. *Zoom to fit* zooms the image to fit in the current window, such that the whole image is visible, whereas *Zoom to 100%* zooms in to the image to show a small section of it pixel for pixel – that is, one pixel in the image occupies one pixel on the monitor, such that detailed inspection of small image areas can be made.

Prioritising and Sorting

A key part of rapid photographic workflow is sorting images; some to be deleted, some to be processed immediately and some later. Rawstudio allows images to be quickly and easily prioritised.

When a photograph is displayed in the main display area, pressing either *1*, *2* or *3* on the keyboard will give the photograph the corresponding priority. Pressing the *delete* key will mark the photograph as deleted (note that this will not delete the raw file), while pressing *0* (zero) will remove any priority (including delete). It is also possible to set the priority of the current image by going to the *Photo* menu, and then *Set Priority*.

Several images can be given the same priority by selecting more than one in the *iconbox*, this can be achieved by clicking multiple images while holding down the *Control* (Ctrl or CTRL) key. Alternatively, a range of images can be selected by selecting the image at one end of the range, then holding down the *Shift* key, and clicking the image at the other end of the range. After selecting multiple images, the priority can be set as usual.

The priority tabs on the left side of the *iconbox* (Figure 5) are used to filter which images are currently displayed in the *iconbox*. In Figure 5, the *** tab is selected, so all images (except those marked *delete*) are displayed. The number in brackets shows that there are 16 such images. Selecting the *1* tab would show all priority one images (in this case, two of them). Tabs *2* and *3* function in the same way. The *U* tab shows all currently un-prioritised images, and the *D* tab shows those marked *delete*.

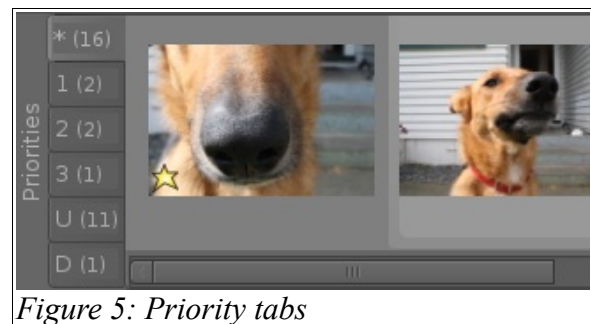


Figure 5: Priority tabs

Photographs marked for deletion can be deleted permanently by selecting *Delete flagged photos* from the *file* menu, or by pressing Control, Shift, and D on the keyboard.

Image Adjustments and Corrections

Many adjustments can be made to images in Rawstudio, most of these are performed from the *toolbox* (see Figure 2 on page 5).

Many adjustments are made via sliders, such as those shown in Figure 7. Clicking and dragging the slider adjusts the value, while clicking on the small blue circular arrows resets the slider to its original position.

It is possible to revert an edited image to its original state by selecting *Reset Settings* from the *Edit* menu.

The last adjustment may also be undone, using the *Revert Settings* option from the *Edit* menu (or using the keyboard shortcut *Control+Z*).

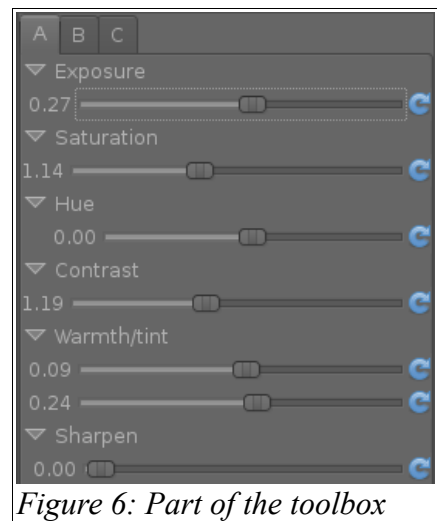


Figure 6: Part of the toolbox

In Rawstudio it is possible to have three different sets of adjustments for one image, these are represented by the *A*, *B*, and *C* tabs at the top of the *toolbox*. Each tab contains the same tools, but they can be applied independently. Clicking on the *a*, *b* or *c* tab will reveal the settings in that tab, and instantly apply those to the image in the main view. It is possible to directly compare different versions by ticking the *Split* box from the *View* menu. In split mode, selecting either the *A* or *C* tab will display that image alongside the *B* version.

The Histogram

The *histogram* which is displayed in the bottom of the *toolbox* (Figure 7), is updated in real-time as adjustments are made. Coloured circles are used in the top left to represent red green or blue channels which are currently underexposed (are outside the range of the image). The same coloured circles are used on the right to show overexposed channels. The circles fade in as the channels are just beginning to become over or underexposed. In Figure 7, the red, green and blue channels are all underexposed, and the red channel is overexposed. The blue channel is just beginning to be overexposed.

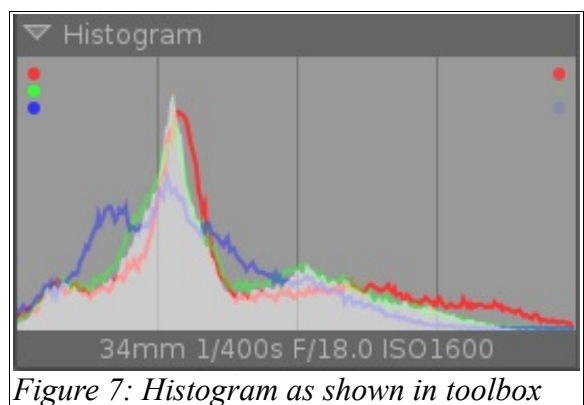


Figure 7: Histogram as shown in toolbox

Exposure

The *exposure* slider allows you to adjust the exposure of the image, essentially controlling the lightness of the image by moving the slider left and right.

Saturation

The *saturation* slider adjusts the colour saturation, sliding this all the way to the left removes all colour from the image, producing a grayscale image. It should be noted that colour adjustments, such as those made with the *tint* slider are applied before the saturation. This means that even when the image is completely desaturated, the *tint* slider will have an effect on the grayscale image produced. This can be used to select what colours are dominant in the creation of the grayscale image – similar to using coloured filters when shooting with black and white film.

Hue

The *hue* slider alters the hue of the colours in the image.

Contrast

The *contrast* slider adjusts the contrast of the image.

Warmth / Tint (White Balance)

The *warmth* slider adjusts the warmth of the image, making it cooler when dragged to the left, or warmer when dragged to the right. In addition, clicking anywhere on an image without specifying another tool, will set that point as the white reference for the white balance. If there is a white object in the image, this is a quick way to accurately set the white balance even under unusual lighting. To reset to the camera white balance press 'c' on the keyboard, to perform auto white balance, press 'a' on the keyboard. Both the camera and auto white balance options are also available through the *Photo* menu by selecting *White Balance*.

The *tint* slider adjusts the tint of the image, between this and the *warmth* slider, the white balance is controlled.

Contrast

The *sharpen* slider adds a unsharp mask to the image. As the slider is moved to the right, the intensity of the unsharp mask increases.

Transforms

The row of buttons under the *Transforms* heading is used to flip and rotate the image. From left to right the buttons perform:

- Vertical flip (over the x-axis)
- Horizontal flip (over the y-axis)
- Rotate 90° counter clockwise
- Rotate 180°
- Rotate 90° clockwise

Sharpen

The *Sharpen* slider applies an unsharp mask to the image, to increase the apparent sharpness as it is dragged to the right. Dragging all the way to the left, reducing the sharpening to 0.00, will disable the unsharp mask.

Straighten

The *straighten* tool can be accessed by clicking and holding the right mouse button on an image in the main image area, or through the *Photo* menu. Once selected, use the left mouse button to click and hold it down to drag a line on the image. The image will be rotated such that the line just dragged is made horizontal. Figure 8 illustrates how a line may be drawn on this image in order to make it straight.

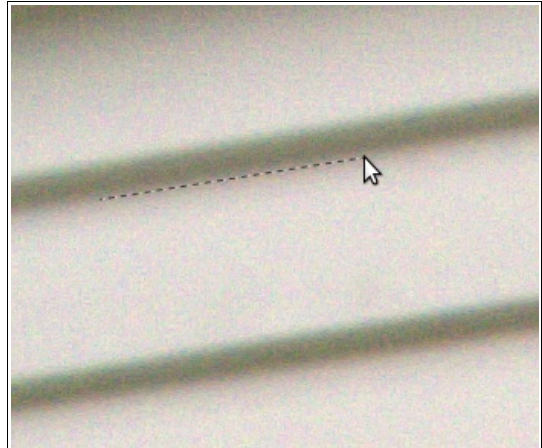




Figure 8: Drawing a line to use as the horizontal

Cropping

The *crop* tool can be accessed through the *Photo* menu, the right click context menu, or by pressing Shift and C on the keyboard. Once activated settings for the *crop* tool can be adjusted from the bottom of the *toolbox*. Several grids can be used to help frame the cropping, and aspect ratio of the crop can be constrained to allow framing for a particular print – both of these are set from the toolbox via drop-down menu boxes. A cropping rectangle is drawn on the image by clicking and holding the left mouse button, and dragging to form a frame. Once the left mouse button is released, the frame can be adjusted by clicking and dragging the corners when the mouse pointer changes to the  icon, or moved by clicking and dragging when the mouse pointer changes to the  icon.

Exporting

Single Image Exporting

Single images can easily be exported quickly. *Quick export*, available from the *file* menu or by pressing Control and 's' on the keyboard will export the current image, using the currently displayed modifications, in the currently set export format, to a directory (folder) called *exports*, inside the directory (folder) in which the raw files are contained.

Similarly, *Export As*, available from the *file* menu, or by pressing Control, Shift and 's' on the keyboard, will produce a dialogue box so that the exported file can be saved in a specific location. As with *quick export*, the current adjustments are used, by the *Export As* dialogue box allows a specific output file format to be selected, and a quality or compression to be set.

Finally, *Export to Gimp*, available from the *file* menu, or by pressing Control and 'g' on the keyboard, will use the current adjustments to generate an image, and open it in the GIMP image editor.

Batch Exporting

Combined with sorting images into priorities, batch exporting is a very powerful feature of Rawstudio. Before a batch export can be completed, images which are to be exported must be added to the queue. Images can be added to the queue via the options in the *Batch* menu. The *Add photo to batch queue* option will add the currently active photo to the batch queue, this can also be achieved with the keyboard shortcut control+b. The current image can be removed from the batch queue with the *Remove from batch queue* option (keyboard shortcut control+alt+b). The option *Add current view to queue* adds all of the images in the current view to the batch queue – for example, if the current view is priority 1 images, and this option is selected, all priority 1 images will be added to the queue. If a single image is added to the queue, the currently displayed adjustments are used, whereas if several images are added, a dialogue box asks whether to use the *A*, *B* or *C* adjustments. It is possible to export images multiple times using the *A*, *B* and *C* settings, or any combination thereof.

The batch export options are available by clicking the *Batch* tab above the *toolbox*. The options displayed allow the output directory to be specified, as well as the filename format, and the file type. The filename format accepts several wildcards, a legend for which is displayed when the + to the right of the filename text box is clicked.

The *Batch* settings also allow the images to be scaled – clicking on the *Change* button in the *Scale* area will show a dialogue box allowing a scaling factor to be applied to the images during batch queue processing.

Finally, clicking the *Start* button will start the batch processing. *Start* can also be selected from the *Batch* menu.

Rawstudio Preferences

Rawstudio preferences can be accessed through the *Edit* menu and the *Preferences* option. The preferences dialogue has three tabs at the top, corresponding to three pages of options.

General

This page contains general options, related to the look and feel of Rawstudio. The *Preview background color* option allows the colour of the background of the main image window to be set. The *Histogram height* option allows the height of the histogram in the *Toolbox* to be set in pixels. Checking the box labelled *Show filenames in iconview* causes the file names of the images to be shown below the icons in the *iconbox*. Checking the box labelled *Place cache in home directory* causes the Rawstudio cache to be placed in the home directory, this may be useful if restrictions on system space exist. The checkbox *Load 8 bit photos (jpeg, png, etc)* causes Rawstudio to open 8 bit images, as well as raw images – this is useful if it is desired to use the functionality of Rawstudio to process non-raw images.

Quick Export

This page allows default settings for the *Quick export* feature to be set. The output directory, as well as filename structure and file format can be specified. The *Save uncompressed TIFF* option allows uncompressed, full bit depth TIFF images to be saved rather than reduced bit depth images (such as jpeg).

Colors

This page allows colour management to be enabled or disabled, and colour profiles to be loaded for the input, display and export of images. This is extremely useful for precision colour work.

Rawstudio Credits

Rawstudio was written by:

Anders Brander - anders@brander.dk

Anders Kvist - anders@kvistmail.dk

Rawstudio has been translated by:

Simone Contini

Paweł Gołaszewski

Alexandre Prokoudine

Jakub Friedl

Carsten Mathaes

Edouard Gomez

Martin Egger

Krzysztof Kościuszkiewicz

Einar Ryeng

Olli Hänninen

Carlos Dávila

Patrik Jarl

Olav Lavell

Rafael Sachetto Oliveira

Paco Rivière

Rawstudio artwork was created by:

Kristoffer Jørgensen - kristoffer@vektormusik.dk

Rune Stowasser - rune.stowasser@gmail.com

Documentation Author & Legal Information

This Rawstudio documentation was written by Jonathan Musther (jon@slymail.org) and is released under the Creative Commons Attribution-Share Alike 3.0 License.