VueScan User's Guide

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Getting started with VueScan

VueScan is a powerful scanning tool that's aimed at helping you get the most out of your scanner and producing stunning results from your scanned photos.

It's packed with loads of useful and powerful features and currently supports more than 4300 scanners from 35 scanner manufacturers on Windows, Mac OS X and Linux.

The following tutorial is designed to familiarise you with the software and its user interface, and to help you scan your first photos and slides.

You'll find useful hints and tips here on how to carry out *common tasks* (p. 12) such as batch scanning and scanning to PDF files.

Getting to know VueScan

If you've used a scanner before, you've probably encountered something that looks a little similar to VueScan. But it's still worth taking a little time to get used to where everything is before diving in.
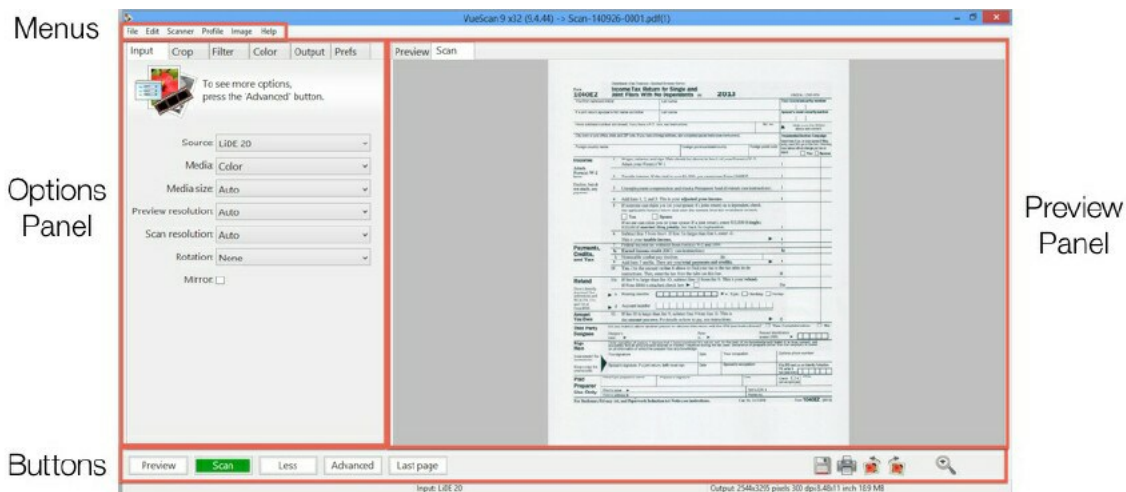
- The most important area is the *Preview panel* (p. 9). This is where your scanned document appears after it is scanned. You use this area to prepare your images before scanning them at full resolution

- Settings are adjusted using the controls in the left hand panel. This is called the **Options panel**. It has tabs running along the top. These are used to change the type of settings being adjusted

- The *action buttons* (p. 46) are at the bottom of the window. Use these to scan, preview and carry out other essential tasks

- The *menus* (p. 38) at the top of the window can be used to access more advanced functions. These are described in more detail in *appendix B* (p. 38)

Basic Workflow

You can do most things in VueScan by simply pressing the *Scan button* (p. 46).

You can also see more options using *Input | Options* (p. 49) and you can choose   additional options before pressing the *Preview button* (p. 46) or *Scan button* (p. 46).

The basic process for scanning one image can be summed up in three simple steps (for an explanation of the more advanced functions, see the appendices in this manual):

Load your image

1. Place your photo face down inside the scanner or load your slide/negative into your slide scanner

2. For photos, set *Input | Media* (p. 50) to "Color"
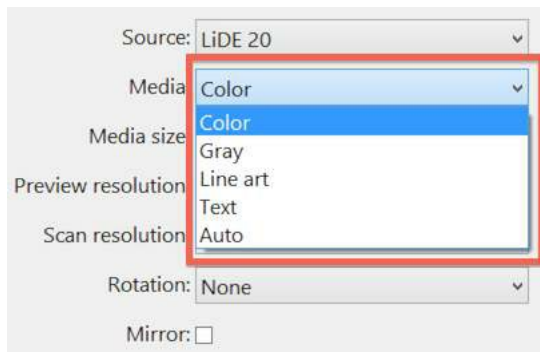
3. For slides or negatives, set *Input | Media* (p. 50) to "Image", "Color Negative" or "B&W negative"

    ### Preview and crop

1. Click the *Preview button* (p. 46). This produces a quick, low resolution snapshot for you to work on, before carrying out a full resolution scan
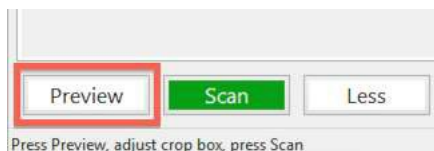
2. When the preview has finished your image will be displayed in the *Preview panel* (p. 9)

3. **Click and drag** the mouse to draw a box around the image. This ensures the scanner does not waste time scanning blank areas

Scan and save

1. Click the *Scan button* (p. 46)

Press Preview, adjust crop box, press Scan
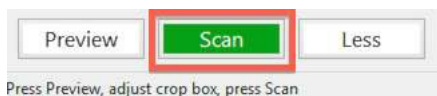
2. Wait for the scan to finish. This varies depending on your scanner, the speed of your computer and the resolution you are scanning at

3. Once the scan is complete it is automatically named and saved in the location specified by *Output | Default folder* (p. 81)

Common tasks

Scanning to a multi-page PDF file

Ever wanted to be able to scan in and send a multi-page document to a colleague, or a long magazine article to a friend overseas? Use VueScan's multi-page PDF feature, and you won't have to send them as individual image files any more.

Here's how to do it:

Adjust output settings

1. Select the *Input tab* (p. 48) at the top of the *Options panel* (p. 9)
2. Set *Input | File type* (p. 63) to PDF.

Scan the first page

1. Place the documents in the document feeder or on the glass
2. Click the *Scan button* (p. 46) to start a new PDF file

Scan each page in succession

1. Place additional documents in the document feeder or on the glass
2. Click the *Scan+ button* (p. 47)
3. Repeat until you have no more pages to scan
4. Click the *View button* (p. 47) to view the multi-page PDF file

Scanning two-sided documents with a single-sided document feeder

Have you ever needed to scan two-sided documents, but your document feeder only scans one side at a time?   Use VueScan's *PDF | Interleave* (p. 43) command and you can scan two-sided (duplex) documents with your scanner.

Here's how to do it:

Adjust output settings

1. Select the *Input tab* (p. 48) at the top of the *Options panel* (p. 9)
2. Set *Input | File type* (p. 63) to PDF.

Scan the front sides

1. Place the documents in the document feeder front-side up
2. Click the *Scan button* (p. 46) to start a new PDF file

3. The PDF file now contains pages 1,3,5,7,9

Scan the back sides

1. Place the documents in the document feeder back-side up

2. Click the *Scan+ button* (p. 47) to append to the PDF file

3. The PDF file now contains pages 1,3,5,7,9,10,8,6,4,2

Rearrange the pages

1. Use the *PDF | Interleave* (p. 43) command to rearrange the pages

2. The PDF file now contains pages 1,2,3,4,5,6,7,8,9,10

3. Click the *View button* (p. 47) to view the multi-page PDF file

Scanning many photographs in a batch

If you have a whole pile of prints of the same size that you want to scan, you can reduce the amount of time it takes. All you have to is to follow these simple steps:

Load and preview first image

1. Place the photo with its short edge against the short, bottom edge of the scanner

2. Set *Crop | Crop size* (p. 64) to the smallest size that will contain the picture

3. Follow **steps 1 and 2** in the *Basic Workflow* (p. 9) section to preview your first photo

Press Preview, adjust crop box, press Scan
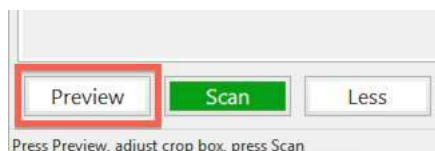
Scan and repeat

1. Click the *Scan button* (p. 46)

2. Remove the photo

3. Place another photo on the scanner in exactly the same position

4. Click the *Scan button* (p. 46) again

5. Repeat until the job is done

Press Preview, adjust crop box, press Scan
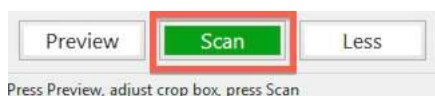
or... Use VueScan's auto repeat facility

1. This automates the batch scanning process completely, so you don't have to keep

clicking the *Scan button* (p. 46)

2. On the *Options panel* (p. 9) select the *Input tab* (p. 48)

3. Set *Input | Auto repeat* (p. 58) to a 5 sec delay

4. Click the Scan button. Once VueScan has completed the first scan, place the next image in the exactly the same position.

5. Wait - VueScan will start the next scan in five seconds

6. Repeat until you're done, then click the *Cancel button* (p. 47)
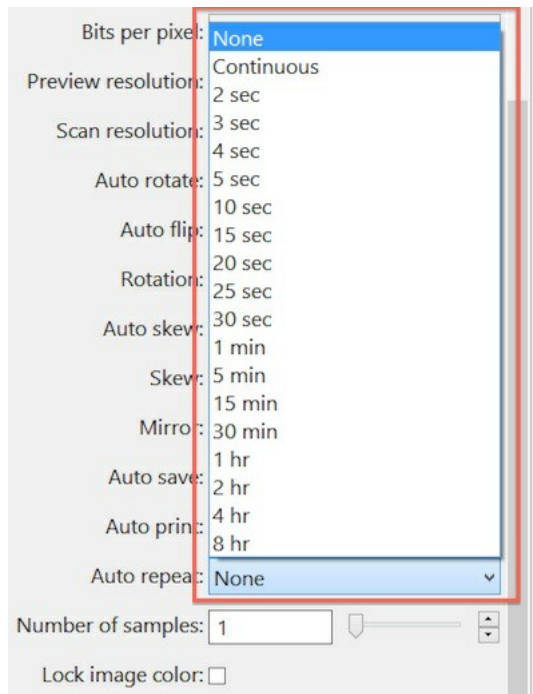
In each case, VueScan will carry out a full scan of the images, saving each one automatically as it is processed.

Turn VueScan into a 'photocopier'

VueScan can be used to send images and documents directly to your printer, effectively turning it into a photocopier.

Here's how to do it:

1. Follow **steps 1, 2 and 3** of the *Basic Workflow* (p. 9) part of this tutorial to preview and scan your image

2. Click the *Print button* (p. 48) beneath the *Preview panel* (p. 9)

300 dpi 6.84x8.23 inch 11.4 MB
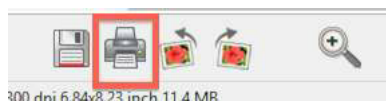
3. Click **Print** to finish the job
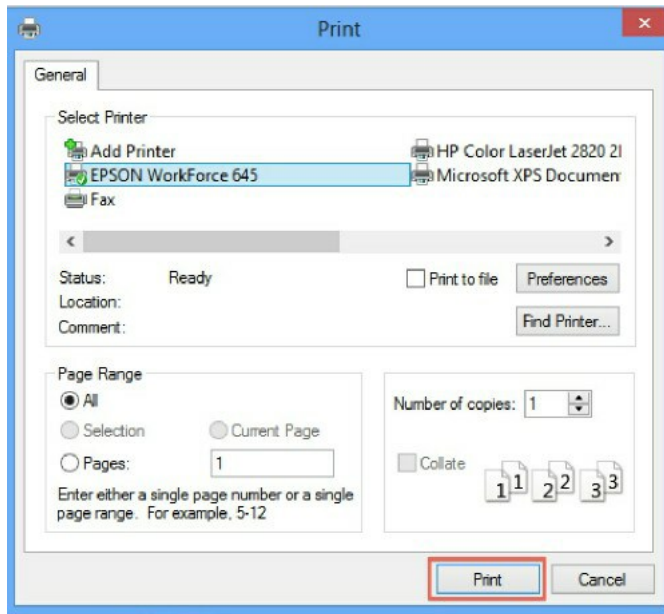
Saving files

VueScan automatically saves each image or document you scan automatically and puts it in a default folder.

You can change this, however, if you want to organize your images differently.

It's very easy to set up:

Choose folder

1. Select the *Output tab* (p. 79) on the *Options panel* (p. 9)

2. Click the **@** button next to the *Output | Default folder* (p. 81) option

3. Use the **Browse For Folder** window to choose where you want to save your image. Click **OK**
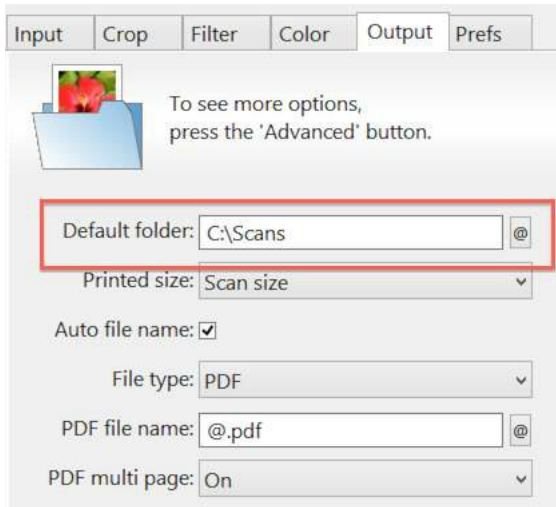
Name your image

1. In the **File name** box, delete what's there already and type in a name for the image

2. Add a plus sign on the end of the name after some digits - VueScan will then save each subsequent scan, automatically numbering each one in sequence

3. For instance **image01+.jpg** will produce: **image01.jpg, image02.jpg, image03.jpg**... and so on
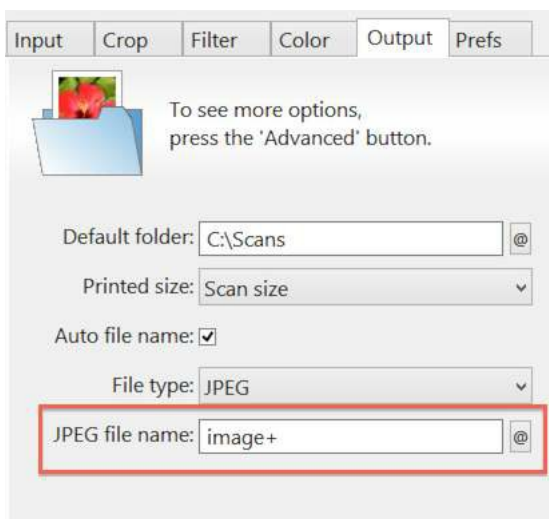
Choosing different resolutions

Depending on what you want to do with your documents and images, you may need to scan them at different resolutions.

The best way to decide on the resolution to scan your images at is to make use of VueScan's presets. These allow you to quickly pick the correct resolution for the task at hand:

Select output media

1. Select the *Input tab* (p. 48) on the *Options panel* (p. 9)

2. If you want to output the image to a printer go to the next step, otherwise click the *Scan button* (p. 46) now

   Select output size

1. Select the *Output tab* (p. 79) on the *Options panel* (p. 9)

2. Choose the size you want to print at from the *Output | Printed size* (p. 81) option
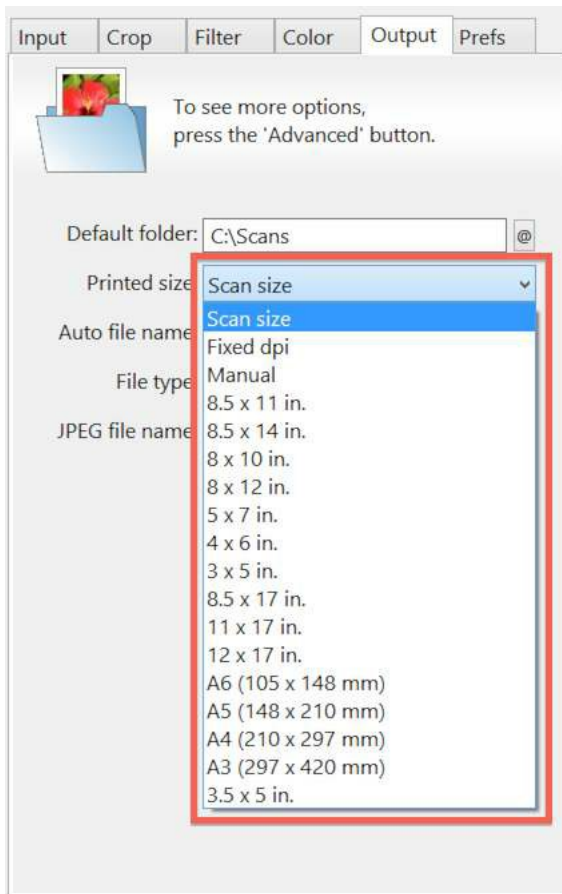
Quick settings

Each task so far has been carried out using the basic, default settings. These are fine for scanning photos on a flatbed scanner.

If you want to scan documents, magazine articles slides or negatives, however, you need to use different settings.

Here's a quick guide to setting up VueScan for different types of media:

Color slide

1. Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2. Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3. Set *Input | Source* (p. 49) to your scanner

4. Set *Input | Mode* (p. 50) to "Transparency"

5. Set *Input | Media* (p. 50) to "Image"

Black and white business document

1. Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2. Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3. Set *Input | Source* (p. 49) to your scanner

4. Set *Input | Mode* (p. 50) to "Flatbed" (optional - depends on scanner)

5. Set *Input | Media* (p. 50) to "Text"

Color magazine article

1. Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2. Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3. Set *Input | Source* (p. 49) to your scanner

4. Set *Input | Mode* (p. 50) to "Flatbed" (optional - depends on scanner)

5. Set *Filter | Descreen* (p. 71)

Black and white film

Traditional black and white (silver halide)

1. Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2. Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3. Set *Input | Source* (p. 49) to your scanner

4.   Set *Input | Mode* (p. 50) to "Transparency"

5.   Set *Input | Media* (p. 50) to "B/W negative"

Chromogenic black and white (or C-41 color processed)

1.   Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2.   Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3.   Set *Input | Source* (p. 49) to your scanner

4.   Set *Input | Mode* (p. 50) to "Transparency"

5.   Set *Input | Media* (p. 50) to "Color negative"

Black and white reversal film

1.   Choose *File | Default options* (p. 39) from the *File menu* (p. 38) to reset VueScan

2.   Select *Input tab* (p. 48) on the *Options panel* (p. 9)

3.   Set *Input | Source* (p. 49) to your scanner

4.   Set *Input | Mode* (p. 50) to "Transparency"

5.   Set *Input | Media* (p. 50) to "Image"

Hints and tips

Scan images only once

If you want to try different ways of processing a negative or slide, you don't need to scan it more than once. The raw scan data for both preview and scan is kept in memory. Just adjust the settings and use the *File | Save image* (p. 38) command on the *File menu* (p. 38) to save the image once more.

Be discriminating

The best way to save time when scanning in a lot of photos is to first make some hard decisions about   what you scan. A good rule of thumb is that you should only scan one out of five pictures from a roll   of film. Most people can go through a set of 36 photos or slides and quickly see the 7 or 8 that they   would like to scan.

Of course, if these are the only existing photos of your parent's wedding, then you probably want to   scan them all. Otherwise, be discriminating - nobody needs to scan out of focus pictures of a cousin's   friend's back garden from 10 years ago (smile).

Use JPEG files

Save disk space by scanning all photos and slides using the JPEG file format. Few people will see much   difference between JPEG files and file types such as TIFF and BMP, but JPEG files take up only 10 per   cent of the disk space of these other file types. With VueScan, set *Output | JPEG file* (p. 84) to do this.

Back up to CD

After every day's work, burn every image you've scanned to a CD, label the CD, and then make sure you   can read the images from the CD. Burn two sets of CD's, keep one set for yourself, and store a master   copy separately.

Alternatively, upload the images to a cloud service, and for good luck use two different cloud vendors.

Only use the master copy if your main copy has problems, otherwise don't touch it again. If friends   or relatives want a copy, make them a copy from your main copy.

CD's can fail, wear out, get scratched, get lost, get eaten by the dog - so always keep two copies!   Cloud vendors can go out of business - use two different ones.

Use default options

The default options have been designed to work well with most images and on most systems. If you're having problems scanning, reset all the options to their default values by choosing the *File | Default options* (p. 39)command from the *File menu* (p. 38). Now try changing one option at a time and re-doing the scan.

It's also a good idea to reset to defaults whenever you start a new job. This means you can start with a clean slate each time.

Use TIFF if archiving or editing files from VueScan

Each time an image is saved as JPEG, some information about the image is lost, even at the highest quality (and lowest compression) levels. This effect is compounded if you save a file, then make some changes and save again. So if you plan on editing or otherwise modifying your images at a later date, JPEG isn't the ideal choice

Instead, use TIFF, which stores all of the data of an image without any loss, even when compressed. TIFF is a good choice for archiving files, and for image operations in image editing applications like Photoshop(TM). The downside of TIFF is the file size. Even when compressed the files are much larger than JPEGs.

Burn TIFF files to high quality CD-R or DVD disks for permanent archival.

Reduce *Crop | Preview area* (p. 69) on flatbed scanners to improve scan times

A lot of time involved in scanning is taken up with the movement of the scan head (for flatbed scanners) or the media holder (for film scanners). The following tip will produce quicker scans.

Position the media in landscape orientation on the scanner (place the long edge of the photo, for example, against the short, bottom edge of the scanner). This reduces the area that needs to be   covered by the scanner head.

Scanning text from paper for use with OCR software

To get the best results when scanning printed documents, set *Input | Media* (p. 50)to "Text". This will ensure the result is limited to black and white, which will reduce noise. Typically OCR packages expect TIFF file format; set *Output | TIFF file* (p. 82). You may also find the *Output | TIFF multi page* (p. 83) and *Output | PDF multi page* (p. 86) option useful, as multiple pages will be saved in a single file.

Turn off rotation if scanning with limited memory

If you save images that are significantly larger than the amount of memory on your computer, set the *Input | Rotation* (p. 56) to None. This will make the cropping much faster.

APPENDIX A: Advanced tools and techniques

Most of the common tasks have already been covered in the previous section. The next section explains how to take advantage of some of VueScan's more advanced features.

Adjusting Color Balance
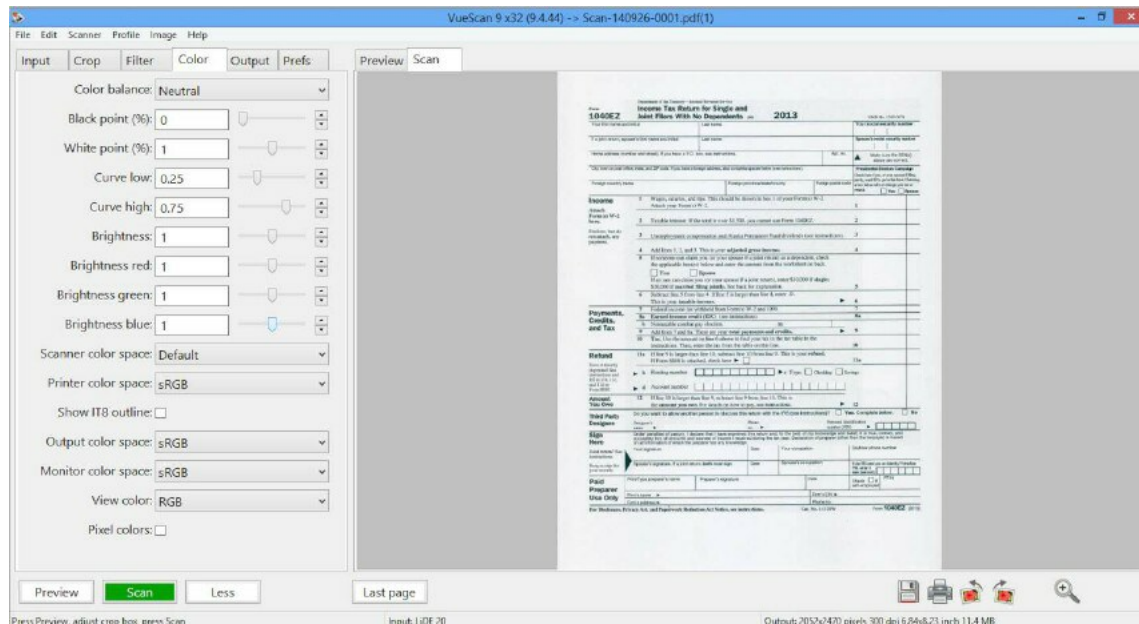
Correct color balance is critical for any image to look convincing. Neutral colors should remain neutral and other colors lifelike.

VueScan's default setting for *Color | Color balance* (p. 72) ("White balance")   is able to do this automatically for the vast majority of scans. We say for the vast majority because if you've taken a shot with unusual lighting, it can confuse the white balance algorithm.

The light from a sunset, for example, may be adjusted so that the ground appears grey instead of orange and scans of flowers may appear less intense.

To solve this:

- Change *Color | Color balance* (p. 72) from "White balance" to "Neutral"

- If you're scanning slides, then make sure you've set *Input | Media* (p. 50) to "Image"

You can set the value of the neutral color yourself by using the manual setting, but be aware this may seem counter intuitive as decreasing the red neutral color, for example, will increase the overall red color of the image.

It's easier to use the right mouse button, click on a neutral color (ie shade of gray) to update the color balance (use control key with Mac OS X). You can reset the color balance to White Balance by double-clicking on the image with the right mouse button (use control key with Mac OS X).

Histograms

Histograms are graphs that display the distribution of tones and colors in the scanned image. Dark tones are indicated at the left end of the x-axis   of the graph, light tones at the right end, and midtones are in the middle.

There are four different histogram graphs available in VueScan and these can be displayed in the *Options panel* (p. 9) by selecting   one of the *Image | Graph ...* (p. 43) options from the *Image menu* (p. 38).

Here's a description of what each one does:

- **Graph raw:** displays the tone and color histogram from before any adjustments have been made
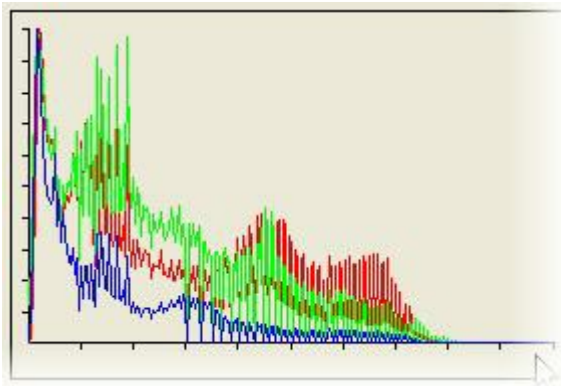
- **Graph image:** displays the tone and color histogram after you have made adjustments using the two graphs below...
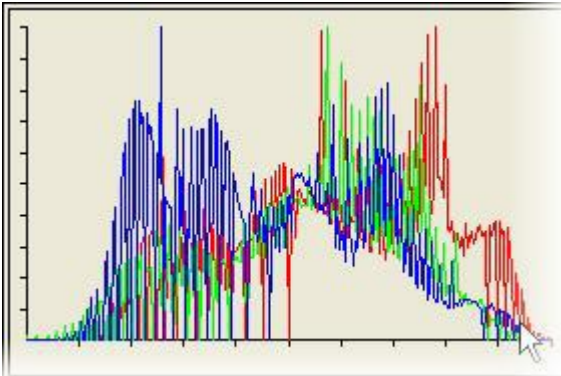
- **Graph b/w:** allows you to set the black point and white point thresholds. This works in a similar way as the levels tool in image editors such as Photoshop(TM). Drag the arrows at the base of the graph to make adjustments
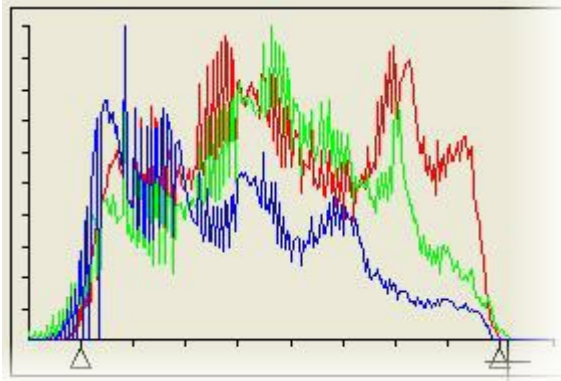
- **Graph curve:** similar to the Curves tool in image editors such as Photoshop(TM), this allows you to fine tune highlights, midtones and shadows. Drag the arrows at the base of the graph to make adjustments
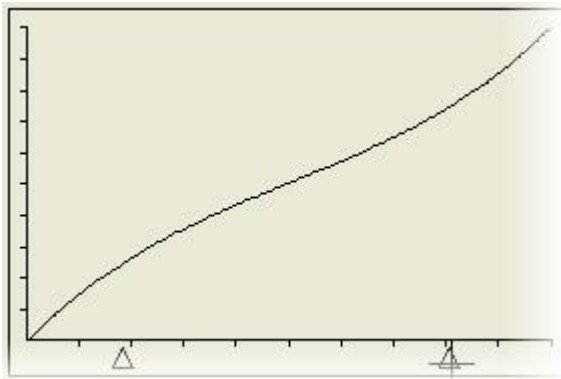
Calculating DPI for negatives

The following shows a basic formula for scaling a negative up to print size. It is important to note that a 35mm frame will correctly scale proportionately to a 4x6in and 8x12in print.**

Scaling formula: (final image width X printer DPI)/original size = scanner resolution

For example, if you want to print a 4x6in print at 300 dpi on the printer from a 35mm negative, first calculate the width:

4in x 300 printer DPI = 1200, then divide by original 0.9448 inch = 1270 (custom scanner dpi)

Then, just to be sure, calculate the height:

6 inch x 300 dpi = 1800, then divide by original 1.417 inch = 1270 (custom scanner dpi)

To scale to either 5x7 inch or 8x10 inch you should calculate using the larger dimension to avoid having to crop the photo (eg 7 for 5x7 and 10 for 8x10). Use the lower value if you want exactly 5x7 inch or 8x10 inch but plan on cropping in your photo editor.

** A 35mm frame is 24x36 mm. This is approximately equivalent to 0.9448x1.417 inch.

Using Raw Scan Files

If you're scanning several images in one go, scan each image once and save the raw CCD data file. You can then re-process these scans in a variety of ways without having to scan the image again. This minimises film handling and is the fastest way to re-process all the scans if you want to try different options.

For batch scanning:

- Select *File | Default options* (p. 39) from the *File menu* (p. 38).

- Set the options on the *Input tab* (p. 48) of the *Options panel* (p. 9) for the source and media you're using

- Set *Crop | Preview area* (p. 69) to "Default", *Crop | Crop size* (p. 64) to "Maximum"

- In the *Output tab* (p. 79) un-check all the options except for *Output | Raw file* (p. 90)
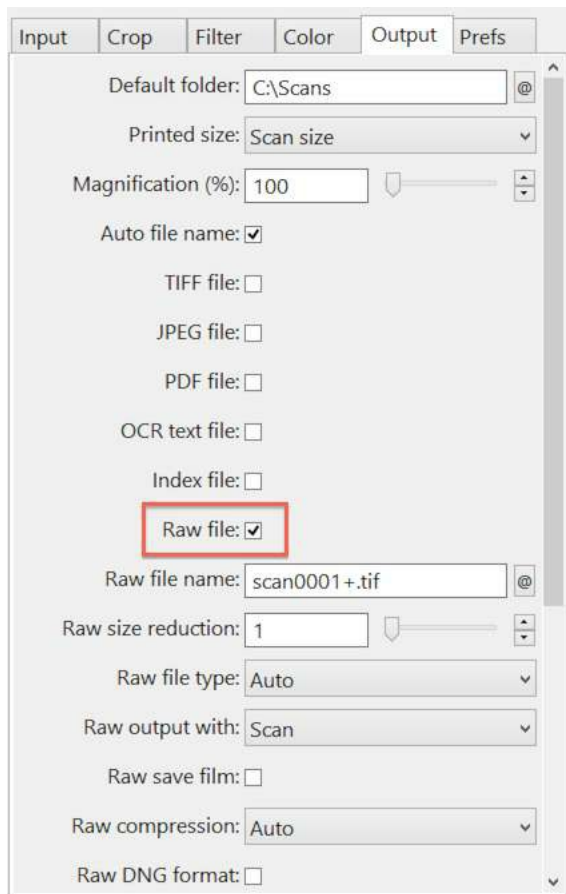
As each image is scanned, files with sequential numbering such as "scan0001.tif, scan0002.tif", etc. will be created. You can change the folder and file names by changing the *Output | Raw file* (p. 90) name option.

To re-process these raw files:

- Set the *Input | Source* (p. 49) option to "File", and set *Input | Files* (p. 50)to point to the

starting file in the series (eg scan0001.tif)

- Use the *File | Default options* (p. 39) command to set all the other options to their default values, then set up the other options as if you were scanning the images

- Set *Input | Batch scan* (p. 52) to "All" to scan all files, or set it to "List" and manually set the frame numbers. For instance, if you set this to 1-3,5,7, then scan0001.tif, scan0002.tif, scan0003.tif, scan0005.tif and scan0007.tif will be processed when you press the Scan button.
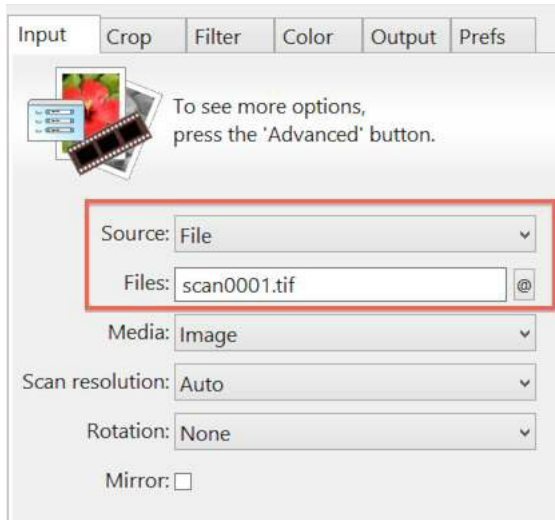
You may also want to follow the procedure in the Advanced Workflow Suggestions section of this User's Guide for locking the exposure and film base color for the entire roll of film. This will give the best quality scans.

Advanced Workflow Suggestions

If you're scanning several frames from the same roll of film, the following procedure will optimally set the CCD exposure and film base color (i.e. mask color):

Set *Input | Options* (p. 49) to 'Professional'.

1. Set *Input | Media* (p. 50)

2. Insert film with a transparent area

3. If *Input | Lock exposure* (p. 61) is visible, clear *Input | Lock exposure* (p. 61)

4. Press the *Preview button* (p. 46)

5. Adjust cropping if necessary

6. If *Input | Lock exposure* (p. 61) is visible, set *Input | Lock exposure* (p. 61)

7. Press the *Preview button* (p. 46) again

8. If *Input | Lock film base color* (p. 62) is visible, set *Input | Lock film base color* (p. 62)For

step #2 above, use a film frame that has an area that would print as pure black for negative, or pure white for slides.

Regardless of the lighting conditions, shutter speed and aperture of each frame, you should use these fixed values for exposure and film base color for scanning all frames on the roll of film. Once you have the exposure and film base color fixed, you can scan the whole roll of film using these values.

- If you're using the same lighting for all the frames on the roll (or a subset of the frames), you can lock the color balance by scanning the brightest frame in the series and then setting the *Input | Lock image color* (p. 62)option. This will lock the black and white points for the scene, and will produce consistent colors for all the frames in the series. This is also useful if you're scanning panoramic scenes that have all been taken with the same lighting, shutter speed, and aperture, or if you're scanning a series of studio shots taken with the same lighting, shutter speed, and aperture.

- To optimize workflow, scan to raw files and experiment later with color correction. Make sure you first set *Input | Lock exposure* (p. 61)before scanning a roll of film.

- If you're saving raw scan files, you can turn off *Output | TIFF file* (p. 82) and *Output | JPEG file* (p. 84). You may also want to capture the entire preview area instead of the auto-cropped area by clearing*Crop | Auto offset* (p. 65) and *Crop | Auto rotate* (p. 67) and setting*Crop | Crop size* (p. 64) to "Maximum".

- For quicker batch scanning, set *Input | Lock exposure* (p. 61) and clear *Crop | Auto offset* (p. 65) and *Crop | Auto rotate* (p. 67). This will stop the Scan button from creating a preview.

Scanner Profiling with IT8 Targets
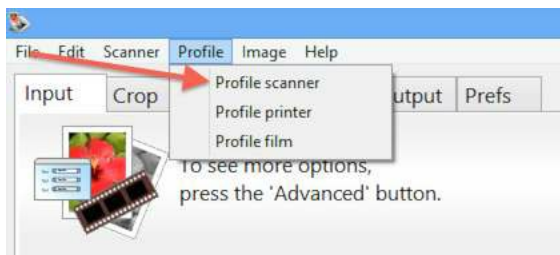
Scanner profiling is the process of determining the precise color characteristics of a scanner or digital camera. VueScan uses IT8 targets (also called Q60 targets) to do this.

IT8 targets are included with many scanners. You can also obtain IT8 targets from this source:

        Wolf Faust: http://www.targets.coloraid.de/

To profile your scanner or digital camera with an IT8 target:

1. Set *Input | Task* (p. 49) to "Profile scanner"

2. Click the **'@'** button next to *Color | Scanner IT8 data* (p. 77) and choose the IT8 description file that came with your IT8 target

3. Click the **'@'** button next to *Color | Scanner ICC profile* (p. 77) and choose where you want to write the ICC profile

4. Press the *Preview button* (p. 46)

5. If necessary, rotate the preview image so that the grey scale is at the bottom and the letters and numbers can be read normally

6. Adjust size of the VueScan cropping mask until it matches the IT8 target image

7. You may need to readjust the target on the scanner platten and press the *Preview button* (p. 46) again if the image is at an angle

8. Choose *Profile | Profile scanner* (p. 41) from the drop-down menu

9. The ICC profile will be saved to the file name you specifiedIf you've previously made an ICC profile for your scanner, you only need to do the following:

1. Set *Color | Scanner color space* (p. 76) to "ICC profile"

2. Set *Color | Scanner ICC profile* (p. 77) to file name of ICC file

VueScan normally reads and writes the ICC profile for the scanner using the file scanner.icc. Alternatively, you can type the file name of the ICC profile into *Color | Scanner ICC profile* (p. 77).

Every IT8 target has an associated data file that describes the exact color of each square in the target. You can select this file by clicking on the **'@'** button next to *Color | Scanner IT8 data* (p. 77).

Note that the settings in the Color tab do not affect the profiling. To see if the profiling works correctly, you should set *Color | Color balance* (p. 72)to "Neutral".

The *Color | Scanner IT8 data* (p. 77) filename is only used in the profiling process.   It is not used when scanning.

The settings in the color tab are not applied to RAW files.   This means that ICC profiles are not applied when producing RAW files.   However, ICC profiles can be applied later when processing the RAW files with VueScan.

Printer Profiling with IT8 Targets
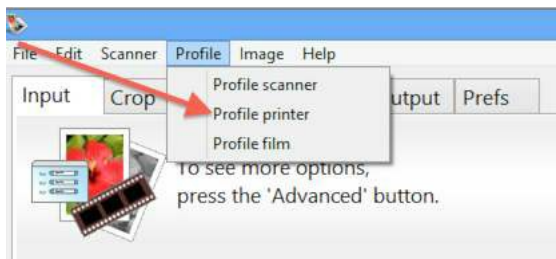
Printer profiling is the process of determining the precise color characteristics of a printer. This profile is unique to each paper type and each change to the printer setup options.

To profile your printer with an IT8 target:

1. Profile your scanner (see above)

2. Set *Input | Task* (p. 49) to "Make IT8 target"

3. Press the *Scan button* (p. 46), this will create a print with your printer

4. Insert printout into scanner

5. Set *Input | Task* (p. 49) to "Profile printer"

6. Press the *Preview button* (p. 46)

7. If necessary, **rotate the preview image** so that the grey scale is at the bottom and the letters and numbers can be read normally

8. **Adjust size of the VueScan cropping mask** until it matches the IT8 target image

9. You may need to readjust the target on the scanner platten and press the *Preview button* (p. 46) again if the image is at an angle

10. Choose *Profile | Profile printer* (p. 42) from the drop-down menu

11. The ICC profile will be written to the file specified by *Color | Printer ICC profile* (p. 77)

If you've previously made an ICC profile for a printer, you only need to do the following:

1. Set *Color | Printer color space* (p. 76) to "ICC profile"

2. Set *Color | Printer ICC profile* (p. 77) to the file name of the ICC file

VueScan normally reads and writes the ICC profile for a printer using the file printer.icc. Alternatively, you can type the file name of the ICC profile into *Color | Printer ICC profile* (p. 77).

Film Profiling with IT8 Targets
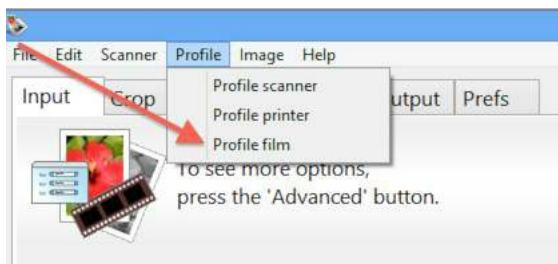
Film profiling is the process of determining the precise color characteristics of color negative film. To do this, you need to take a picture of an IT8 target and scan this frame. Make sure the picture is rectangular on the film.

You can obtain an A4-sized camera target from:

```
Wolf Faust:   http://www.targets.coloraid.de/
```

To profile your film with an IT8 target:

1. Profile your scanner (see above)

2. Set *Input | Task* (p. 49) to "Profile film"

3. Copy the IT8 description file that came with your target into the folder described by *Output | Default folder* (p. 81), and rename the copy film.it8

4. Press the *Preview button* (p. 46)

5. If necessary, **rotate the preview image** so that the grey scale is at the bottom and the letters and numbers can be read normally

6. **Adjust size of the VueScan cropping mask** until it matches the IT8 target image. You may need to readjust the target on the scanner platten and press Preview again if the image is at an angle

7. Choose *Profile | Profile film* (p. 42) from the **drop-down menu**

8. The ICC profile will be saved to the file specified by *Color | Film ICC profile* (p. 77)

If you've previously made an ICC profile for a roll of film, you only need to do the following:

1. Set *Color | Film color space* (p. 76) to "ICC profile"

2. Set *Color | Film ICC profile* (p. 77) to the file name of the ICC file

VueScan normally reads and writes the ICC profile for film using the file film.icc. Alternatively, you can type the file name of the ICC profile into *Color | Film ICC profile* (p. 77).

Every IT8 target has an associated data file that describes the exact color of each square in the target. You can select this file by clicking on the **'@'** button next to *Color | Film IT8 data* (p. 77).

Both the .icc and .it8 files are normally located in the folder described by *Output | Default folder* (p. 81).

How VueScan Works
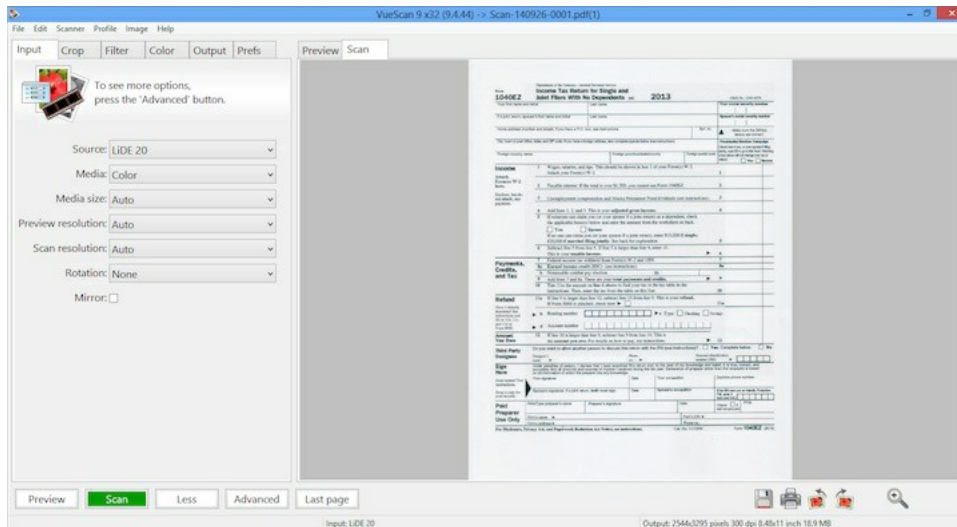
VueScan does two different things: it scans an image, and then it processes the raw data from the scanner to produce a color-corrected image. These two things are done in steps, and it's useful to understand each of the steps when scanning and processing.

The *Preview button* (p. 46) and *Scan button* (p. 46) perform both the scanning and processing steps. The *Save button* (p. 47) starts from the raw CCD data in memory and only performs the processing step.

Scanning

Scanning an image involves: optionally focusing the scanner, setting up the exposure time for the CCD area to be scanned, number of bits per sample, number of samples per pixel, scan resolution, and then reading the raw CCD data into VueScan's memory buffer.

If single-pass multi-scanning is enabled, each line of data from the CCD is read multiple times and combined (averaged) while being stored in the memory buffer. If multi-pass multi-scanning is enabled, the whole scan area is read multiple times and combined (averaged) in the memory buffer.

There is no scaling or color correction of the raw CCD data in the scanning step. Some scanners either always or sometimes convert 10-bit or 12-bit CCD data to 8 bits before transferring it to VueScan, and then VueScan converts it back to 10-bit or 12-bit CCD data. This is done using the same gamma correction table specified by the sRGB standard.

When the *Input | Source* (p. 49) option is set to "File", the raw CCD data is read from a TIFF or JPEG file and stored in the memory buffer, just as if it had been read directly from a scanner.

When the preview image is scanned, the exposure time is fixed at 1.0, the area to be scanned is the full preview area, and the scan resolution is set to a value that produces approximately 1 million pixels.

When the full scan is done, the exposure time is either computed from the preview or from the manual setting and the area to be scanned is a subset of the preview area (determined by the cropping). If the scan resolution is Auto, a scan resolution is chosen that produces approximately 4 million pixels.

When the preview or scan is performed, the raw data is put into a memory buffer. If the *Output | Raw file* (p. 90) option is enabled and *Output | Raw output with* (p. 92) is set to "Preview" or "Scan", the raw data is written to a TIFF file at the same time as it's put into the memory buffer.

Processing

The processing steps are performed for both the preview and the full scan.

The first step uses the infrared data for a first attempt at dust removal (if enabled). This reads the whole image from the memory buffer to characterize the relationship between the color channels and the infrared channel. Then it reads each line once, correcting it for dust spots and passing each line to the subsequent steps for further processing.

The next step is applying the cleaning filter. This filter removes dust spots by using the infrared data to identify and remove dust spots and then filling in the spots with image data adjacent to the dust spots. This filter also reduces the appearance of film grain using a sigma filter.

Note: infrared data is only available from scanners that have an IR channel. If the channel is not present the infrared cleaning options will be skipped.

If saving files, the *Output | Raw file* (p. 90) option is enabled and *Output | Raw output with* (p. 92) is set to "Save", the data at this stage is written to a TIFF file. This raw data can subsequently be re-processed by setting the *Input | Source* (p. 49) option to "File".

Note: that the data from the infrared channel, if present, is saved as part of the raw file.

Next, the restore colors and restore fading filters are applied (if enabled). This reads the whole image once to detect the original colors of the image and then reads each line once to correct for color shifts and dye fading.

The next step is performing corrections for film media. This reads the whole image once to compute the intensity of the film base, and then reads each line, corrects it based on film characteristics, and passes each line to the subsequent steps for further processing.

At this point sharpening with an unsharp mask is performed if the *Filter | Sharpen* (p. 71) option is enabled.

The last step is color correction. The whole image is read once, and the options from the Color tab are used to convert to the final colors of the saved images. The inputs to this step are 16-bit linear light samples, and the outputs from this step are gamma corrected samples.

Once the image data has been corrected, the preview image data is displayed in the Preview tab or the scan image data is optionally displayed in the Scan tab or written to a TIFF file, a JPEG file, a PDF file, an OCR text file and/or an index file.

Scanning Color Negative Film

Color negative film is able to capture a much wider range of intensities than slide film, and this can create a problem when scanning negative film.

Slide film maps a density range of 0:2.7 to an intensity range of 1:500, but negative film maps a smaller density range of 0:2.4 to a larger intensity range of 1:4000.

Imagine taking a picture of a typical outdoor scene with a bright blue sky with fluffy clouds along with a person standing in the shade under a tree. Further, imagine taking this picture with both slide film and negative film.

When taking this picture with slide film, the photographer has to set the exposure to either capture the details of the sky and clouds, or set the exposure to capture the details of the person standing in the shade under the tree. Once the picture is taken of one of the two intensity ranges, there's no way to get back the other intensity range after developing the film. However, when taking this picture with an automatic camera using negative film, the camera will usually set the exposure so that both the details in the clouds and in the shadows are captured.

The decision of whether to capture the intensity range of the clouds or the person in the shadows is made by the photographer when using slide film, but it's usually made by a computer in the film minilab when printing the negative. Most minilabs will print this type of scene with details in the shadows and the sky clipped to white without any cloud or sky detail.

One way to solve this problem is to manipulate the brightness of the image using the *Color | Brightness* (p. 75) or *Color | White point (%)* (p. 74)option to manipulate the negative image so that both the bright and dark parts of the image show detail when scanned.

Scanning Black/White Negative Film

If you're scanning black/white negative film, first check to see if the film looks gray or orange to the naked eye. If it looks gray, set *Input | Media* (p. 50) to "B/W negative" and if it looks orange, set it to "Color negative". Then go to the *Color tab* (p. 72)and choose a Black/White film type. If you can't find a film type that exactly matches the film you're using, experiment with the Kodak T-Max settings.

On most scanners, setting *Input | Media* (p. 50) to "Color negative" will increase the green exposure time by 2.5x and the blue exposure time by 3.5x. This results in adjusting for the green and blue absorption by the orange mask of the film. If the film doesn't have an orange mask, then using "Color negative" will result in a raw scan file that looks very cyan.

Maximizing Image Quality

After you've decided on the resolution of your finished image (or alternatively the pixel dimensions of your finished image), how do you maximize the image quality? There's one thing you can do which involves longer scanning times, but capturing more raw data for each pixel in the finished image.

The basic idea is scanning each pixel more than once and averaging the pixels. Each doubling of the number of pixels increases the effective number of useful bits of data by one. For instance, if you have a 10-bit scanner like the Nikon LS-30 and you read the CCD 4 times at each pixel position, you get effectively 12 bits of useful image data.

There are several ways of achieving multiple image samples. The first is single-pass multi-scanning. Some scanners are capable of reading each pixel position multiple times before advancing the scan head to a new position. The second technique is multi-pass multi-scanning, which most scanners are capable of (however, some can't accurately reposition each scan pass, so this may not always work well).

Another useful way of getting multiple image samples is to scan at a higher resolution and then average adjacent blocks of pixels. For instance, scanning at 2700 dpi and averaging every 2x2 block of pixels will result in a higher-quality 1350 dpi scan than just scanning at 1350 dpi. In this example Scanning at 1350 dpi throws away every other pixel and every other scan line, while scanning at 2700 dpi and setting*Output | TIFF size reduction* (p. 83) to "2" will result in averaging 2x2 blocks of pixels and increasing the number of effective bits of resolution by 2 bits.

Note that multi-scanning is the only way to increase the quality at the highest resolution, and that using *Output | TIFF size reduction* (p. 83)or *Output | JPEG size reduction* (p. 84) is a better way of producing quality scans at lower resolutions.

File Formats

VueScan reads raw CCD sensor data from scanners and can write this to a raw TIFF file for later reprocessing. The final cropped data can be stored in any combination of TIFF, JPEG, PDF and OCR text files. Index prints are stored as a Windows BMP file.

The raw and cropped TIFF files can have six different formats, each with a different number of samples per pixel and bits per sample. A grayscale image has one sample per pixel, a normal color image has three (red, green, blue), and scans from a scanner with an infrared channel have four samples per pixel (red, green, blue, infrared).

VueScan internally keeps all samples in 16-bit linear format, even when a scanner only supports 10-bit samples, but to minimize the disk usage, various TIFF file formats are supported:

```
 1 bit B/W 1 bit per pixel 1 sample per pixel 1 bit per sample
 8 bit Gray 1 byte per pixel 1 sample per pixel 8 bits per sample
16 bit Gray 2 bytes per pixel 1 sample per pixel 16 bits per sample
24 bit RGB 3 bytes per pixel 3 samples per pixel 8 bits per sample
48 bit RGB 6 bytes per pixel 3 samples per pixel 16 bits per sample
64 bit RGBI 8 bytes per pixel 4 samples per pixel 16 bits per sample
16 bit Infrared 2 bytes per pixel 1 sample per pixel 16 bits per sample
```

If you want to process the full bit depth of an image in Photoshop(TM), use the 48 bit RGB setting for the Crop TIFF file. Note that some other image editing tools cannot process 48 bit TIFF files; in this case use 24 bit which is more widely compatible.

Note that the raw scan files are stored in linear format when using more than 8 bits per sample, and stored in gamma 2.2 format when using only 8 bits per sample. The saved TIFF files are always gamma corrected according to the*Color | Output color space* (p. 76)used (1.8 for Apple RGB, ColorMatch RGB, ProPhoto RGB and ECI RGB and 2.2 for all other color spaces). Note that the raw scan files stored in linear format will look dark when viewed - this is normal.

Note that both the raw TIFF file and the crop TIFF file can be compressed. VueScan uses CCITT Group-IV compression for 1-bit files, and LZW compression otherwise. This may be slower to write, but takes around 40% less disk space. The size of JPEG files can be controlled with the *Output | JPEG quality* (p. 85)option, with useful values ranging from 75 (very compressed, medium quality) to 95 (less compression, high quality).

Film types
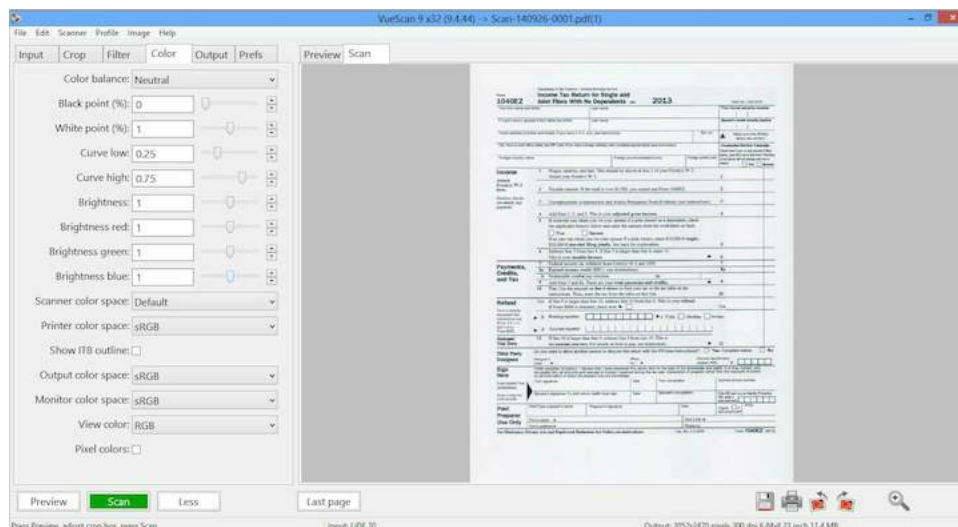
VueScan contains information about the color sensitivity of many different types of film.   Use the table below to identify the types of film from the labels and the colors of the stripes over the sprocket holes.

If you're using film types that aren't in this table, particularly some of the newer Fuji films, try experimenting with the Kodak Gold and Kodak Advantix settings - these seem to work well.

(Films such as Kodak Gold have different types of emulsions indicated by the Generation (Gen) code on the film.   You can usually see this on the film itself in the writing on the film near the sprocket holes.)

```
Vendor    Brand Name      Film Type            Label on Film/Stripe1Color/Stripe2Color
--------  --------------  -------------------  -------------------------------------------
3M        Scotch HR       200 Gen 2            3M CP-200/NONE/BLUE DOTS
3M        Scotch HR       400 Gen 2            3M CP-400/BLUE DOTS/NONE
3M        ScotchColor     AT 100               3M CP 100 3 18-7/GREEN DOTS/NONE
3M        ScotchColor     AT 200               3M CP 200 3 18-9/GREEN DOTS/NONE
3M        ScotchColor     ATG-1 200            3M ELP 200 66-5/NONE/NONE
3M        ScotchColor     ATG 400/EXL 400      3M F CP400 66-10/RED DOTS/NONE
3M        ScotchColor     HR2 400              3M CP 400 18-8/RED DOTS/NONE
AGFA      AGFACOLOR       OPTIMA 125           AGFA OPTIMA 125/GREEN SQUARE/NONE
AGFA      AGFACOLOR       OPTIMA 200           AGFA OPTIMA 200/GRN SQUARES/NONE
AGFA      AGFACOLOR       PORTRAIT 160         AGFA PORTRAIT 160/GREEN SQUARE/NONE
AGFA      AGFACOLOR       Ultra 50             AGFA ULTRA 50 Triangles/NONE/GREEN
AGFA      AGFACOLOR       XRG 100              AGFA XRG 100/GREEN SQUARE/NONE
AGFA      AGFACOLOR       XRG/XRS 200          AFGA XRG 200 Pairs of Squares/GREEN/NONE
AGFA      AGFACOLOR       XRG/XRS 400          AFGA XRG/XRS 400 Pairs of Squares/GREEN/NONE
AGFA      AGFACOLOR       XRS 1000 Gen 2       AGFA XRS 100 Triplets of Squares/GREEN/NONE
AGFA      AGFACOLOR       XRS 400 Gen 1        XRS 400 Gen 1/MAG SQRS/NONE
AGFA      AGFACOLOR       XRS 400 Gen 2        XRS 400 Gen 2/MAG SQRS/NONE
AGFA      AGFACOLOR       XRS/XRC 100          AGFA XRS 100/GREEN SQ/NONE
FUJI      NHG             400                  FUJI NHG/NONE/NONE
FUJI      NPS             160S (PRO)           FUJI NPS 160/NONE/NONE
FUJI      Reala           100 (JAPAN)          FUJI REALA/GREEN/NONE
FUJI      Reala           100 Gen 1
FUJI      Reala           100 Gen 2            FUJI REALA CS-2/BLUE/GREEN
FUJI      SHR             400 Gen 2            FUJI 400/NONE/NONE
FUJI      Super G         100                  FUJI G-100/NONE/GREEN DASHES
FUJI      Super G         200                  FUJI G-200/GREEN DASHES/GREEN DASHES
FUJI      Super G         400   Gen 1
FUJI      Super G         400   Gen 2          FUJI G-400/NONE/GREEN DASHES
FUJI      Super HG        100                  FUJI HG100 CN-2/GREEN/GREEN
FUJI      Super HG        100 Gen 2            HG 100/NONE/GREEN
FUJI      Super HG        1600 Gen 1           FUJI HG1600 CU1/BLUE/NONE
FUJI      Super HG        200                  FUJI HG200 CA-1/NONE/GREEN
FUJI      Super HG        400                  FUJI HG400 CH-1/NONE/GREEN
FUJI      Super HR        100 Gen 1            FUJI 100/GREEN/NONE
FUJI      Super HR        100 Gen 2            FUJI 100/GREEN/NONE
FUJI      Super HR        1600 Gen 2           FUJI 1600/NONE/BLUE
FUJI      Super HR        200 Gen 1            FUJI 200/GREEN/NONE
FUJI      Super HR        200 Gen 2            FUJI 200/NONE/NONE
FUJI      Super HR        400 Gen 1            FUJI 400/GREEN/NONE
ILFORD    XP2             400                  ILFORD XP2/NONE/NONE
KODAK     ADVANTiX        100-2                ADVANTIX 100-2 KODAK 100-2/NONE/ NONE
KODAK     ADVANTiX        100                  ADVANTiX 100 KODAK 100/NONE/NONE
KODAK     ADVANTiX        200-2                ADVANTIX 200-2 KODAK 200-2/NONE/NONE
```

```
KODAK    ADVANTiX      200                    ADVANTiX 200 KODAK 200/NONE/NONE
KODAK    ADVANTiX      200                    ADVANTiX 200 KODAK 200/NONE/NONE
KODAK    ADVANTiX      400                    ADVANTiX 400 KODAK 400/NONE/NONE
KODAK    ADVANTiX      Black & White + 400 ADVANTIX BW KODAK BW/NONE/NONE
KODAK    Commercial    200                    COMMERCIAL 200-2 CO 200-2 KODAK/NONE/NONE
KODAK    EKTACOLOR     GOLD 160  GPF          KODAK GPF 5124/GREEN/GREEN
KODAK    EKTACOLOR     GOLD 400 Prof EGP-4 KODAK 5087 [or] 6087 EGP-4/NONE/NONE
KODAK    EKTACOLOR     GOLD II 400  EGP-4  KODAK 5087 [or] 6087 EGP-4/NONE/NONE
KODAK    EKTACOLOR     Gold II 400 Prof    Kodak 5087 EGP/NONE/NONE
KODAK    EKTACOLOR     PRO GOLD 160  GPX   KODAK GPX KODAK FILM/NONE/NONE
KODAK    EKTAPRESS     1600 Gen 1       PPC KODAK 5030 PPC/NONE/NONE
KODAK    EKTAPRESS     GOLD 100 Gen 1  PPA KODAK 5115 PPA/NONE/NONE
KODAK    EKTAPRESS     GOLD 400      PPB-3 KODAK 5113 PPB/NONE/NONE
KODAK    EKTAPRESS     GOLD II 100 Prof    KODAK 5115 PJA-1/NONE/NONE
KODAK    EKTAPRESS     GOLD II 1600 Prof   KODAK 5030 PJC-1/NONE/NONE
KODAK    EKTAPRESS     GOLD II 400 Prof G5 KODAK 5113 PJB-2/NONE/NONE
KODAK    EKTAPRESS     GOLD II Multspd PJM KODAK PJM/NONE/NONE
KODAK    EKTAPRESS     Multspd Prof PJM-2  KODAK PJM-2/NONE/NONE
KODAK    EKTAPRESS     PJ100                  KODAK PJ100/NONE/NONE
KODAK    EKTAPRESS     PJ400                  KODAK PJ400/NONE/NONE
KODAK    EKTAPRESS     PJ800-2                KODAK PJ800-2/NONE/NONE
KODAK    EKTAPRESS     PJ800                  KODAK PJ800/NONE/NONE
KODAK    EKTAPRESS     PLUS 100 Prof PJA-1 KODAK 5115 PJA-1/NONE/NONE
KODAK    EKTAPRESS     PLUS 1600 Pro PJC-1 KODAK 5030 PJC-1/NONE/NONE
KODAK    EKTAPRESS     PLUS 200 Prof       KODAK 5016 PJZ/NONE/NONE
KODAK    EKTAPRESS     PLUS 400 Prof PJB-2 KODAK 5113 PJB-2/NONE/NONE
KODAK    EKTAR         100 Gen 1              EKTAR 100-1 | KODAK 3101/MAGENTA/2-MAGENTA
KODAK    EKTAR         100 Gen 2              KODAK CX 100|2 | EKTAR 100-2/2 MAGENTA/MAGENTA
KODAK    EKTAR         100 Gen 3  CX          EKTAR 100-3 KOD|K CX 100-3/NONE/NONE
KODAK    EKTAR         100 Gen 3  SY          EKTAR 100-3 KODAK SY 100-3/NONE/NONE
KODAK    EKTAR         1000 Gen 1             KODAK 5110 | EKTAR 1000-1/NONE/2-GREEN
KODAK    EKTAR         1000 Gen 2             EKTAR 1000-2 KODAK 1000-2/NONE/NONE
KODAK    EKTAR         125 Gen 1              KODAK 5101 | EKTAR 125-1/NONE/2-MAGENTA
KODAK    EKTAR         25                     KODAK 25 EKTAR 25/NONE/2-BLUE
KODAK    EKTAR         25 Professional PHR KODAK 5327 PHR/NONE/NONE
KODAK    FUNTIME       100 FA                 FUNTIME 100 KODAK FA 100/NONE/NONE
KODAK    FUNTIME       200 FB                 FUNTIME 200 KODAK FB 200/NONE/NONE
KODAK    FUNTIME       200 FB Gen 2           KODAK FB 200-2 79-2/NONE/NONE
KODAK    GOLD          100 Gen 2              KODAK 5095 | GOLD 100-2/MAGENTA/MAGENTA
KODAK    GOLD          100 Gen 4              GOLD 100-4 KODAK 100-4/MAGENTA/GREEN
KODAK    GOLD          100 Gen 6              GOLD 100-6 KODAK FILM/MAGENTA/NONE
KODAK    GOLD          1600 Gen 1             KODAK 5091 | GOLD 1600-1/YELLOW/NONE
KODAK    GOLD          200 Gen 1              KODAK GOLD 200-1 5096 | GOLD 200-1/GREEN/GREEN
KODAK    GOLD          200 Gen 2              KODAK 5096 | GOLD 200-2/BLUE/GREEN
KODAK    GOLD          200 Gen 4              GOLD 200-4 KODAK 200-4/GREEN/GREEN
KODAK    GOLD          200 Gen 6              GOLD 200-6 KODAK FILM/GREEN/NONE
KODAK    GOLD          400 Gen 1              KODAK GOLD 400-1 5097 | GOLD 400-1/BLUE/BLUE
KODAK    GOLD          400 Gen 2              KODAK 5097 | GOLD 400-2/BLUE/NONE
KODAK    GOLD          400 Gen 3              KODAK 400-3 | GOLD 400-3/BLUE/2-BLUE
KODAK    GOLD          400 Gen 5              KODAK 400-5 GOLD 400-4/BLUE/NONE
KODAK    GOLD          400 Gen 6              GOLD 400-6 KODAK FILM/BLUE/BLUE
KODAK    GOLD          800 Gen 1              83-14 GOLD 800 83-14 KODAK 800/NONE/NONE
KODAK    GOLD          III 100  Gen 4         GOLD 100-4 KODAK 100-4/MAGENTA/GREEN
KODAK    GOLD          III 200 Gen 4          GOLD 200-4 KODAK 200-4/GREEN/GREEN
KODAK    GOLD          III 400 Gen 5          KODAK 400-5 GOLD 400-4/BLUE/NONE
KODAK    GOLD          Max 800 Gen 2          GOLD 800-2 KODAK FILM/NONE/NONE
KODAK    GOLD          Plus 100 Gen 3         KODAK 100-3 | GOLD 100-3/GREEN/MAGENTA
KODAK    GOLD          Plus 100 Gen 4         GOLD 100-4 KODAK 100-4/MAGENTA/GREEN
KODAK    GOLD          Plus 100 Gen 5         GOLD 100-5 100-5 KODAK/MAGENTA/MAGENTA
KODAK    GOLD          Plus 200 Gen 3         GOLD 200-3 | KODAK 200-3/GREEN/NONE
KODAK    GOLD          Super 200 Gen 4        GOLD 200-4 KODAK GOLD 200-4/GREEN/GREEN
KODAK    GOLD          Super 200 Gen 5        GOLD 200-5 200-2 KODAK/NONE/GREEN
KODAK    GOLD          Ultra 400 Gen 4        KODAK 400-4 | GOLD 400-4/NONE/WIDE BLUE
KODAK    GOLD          Ultra 400 Gen 5        KODAK 400-5 GOLD 400-4/BLUE/NONE
KODAK    Internegative +10\% Contrast       Increases contrast 10\%
KODAK    Internegative +20\% Contrast       Increases contrast 20\%
KODAK    Internegative +30\% Contrast       Increases contrast 30\%
KODAK    Internegative +40\% Contrast       Increases contrast 40\%
KODAK    KODACOLOR     100 Print Gen 4        GOLD 100-4 KODAK 100-4/MAGENTA/GREEN
KODAK    KODACOLOR     200 Print Gen 4        GOLD 200-4 KODAK GOLD 200-4/GREEN/GREEN
KODAK    KODACOLOR     400 Print Gen 5        KODAK 400-5 GOLD 400-4/BLUE/NONE
KODAK    KODACOLOR     CII                    KODAK SAFETY FILM 5035/NONE/GREEN
KODAK    KODACOLOR     DA 100 Gen 5           KODAK DA-5 KODAK FILM/NONE/2 MAGENTA
KODAK    KODACOLOR     II                     KODAK SAFETY FILM 5075/GREEN/GREEN
KODAK    KODACOLOR     VR 100 Gen 1           KODAK CP 100 5094/NONE/NONE
KODAK    KODACOLOR     VR 100 Gen 2           5094/NONE/NONE
KODAK    KODACOLOR     VR 1000 Gen 1          KODAK CF 1000 5090/NONE/YELLOW
KODAK    KODACOLOR     VR 1000 Gen 2          KODAK CF 1000 5090 | VR1000 | KODAK 5090/YELLOW/YELLOW
KODAK    KODACOLOR     VR 200  Gen 4          VR 200-4 KODAK VR 200-4/NONE/NONE
KODAK    KODACOLOR     VR 200 / 5093
KODAK    KODACOLOR     VR 200 Gen 1           KODAK CL 200 5093/NONE/GREEN
KODAK    KODACOLOR     VR 200 Gen 2           VR200-2 | KODAK 5093/NONE/NONE
KODAK    KODACOLOR     VR 200 Gen 5           KODAK VR 200-5 79-2/NONE/NONE
KODAK    KODACOLOR     VR 400 Gen 1           KODAK CM 400 5079/NONE/BLUE
KODAK    KODACOLOR     VR 400 Gen 2           79-4 VR 400 KODAK FILM/NONE/NONE
KODAK    KODACOLOR     VRG 100 Gen 1          KODAK CA 100 5095/MAGENTA/GREEN
KODAK    KODACOLOR     VRG 100 Gen 2          KODAK CA 100 5095 | VRG 100 | KODAK 5095/MAGENTA/MAGENTA
KODAK    KODACOLOR     VRG 200 Gen 1          KODAK CB 200 5096 | VRG 200 | KODAK 5096/GREEN/GREEN
KODAK    KODACOLOR     VRG 400 Gen 1          KODAK CC400 5097 | VR-G 400 | KODAK 5097/BLUE/BLUE
KODAK    MAX ZOOM      800-3                  Kodak GT 800-3/NONE/NONE
KODAK    PORTRA        160NC                  KODAK 160NC/NONE/NONE
KODAK    PORTRA        160VC                  KODAK 160VC/NONE/NONE
KODAK    PORTRA        400NC                  KODAK 400NC/NONE/NONE
KODAK    PORTRA        400VC                  KODAK 400VC/NONE/NONE
KODAK    PORTRA        800                    Kodak Supra 800/NONE/NONE
```

```
KODAK     Pro            100 PRN             KODAK PRN 6329 or 4329/NONE/NONE
KODAK     Pro            400  PPF-2          KODAK 5080 [or] 6080 PPF-2/NONE/NONE
KODAK     Pro            400 MC  PMC         KODAK 5059 [or] 6059 PMC/NONE/NONE
KODAK     Prof Color Neg 100                 /NONE/NONE
KODAK     ROYAL          GOLD 100            ROYAL 100 KODAK RA 100/NONE/NONE
KODAK     ROYAL          GOLD 100 Gen 2      ROYAL 100-2 RA KODAK FILM/NONE/NONE
KODAK     ROYAL          GOLD 1000           ROYAL 1000 KODAK RF 1000 KODAK FILM/NONE/NONE
KODAK     ROYAL          GOLD 200            ROYAL 200 RB 200 KODAK/NONE/NONE
KODAK     ROYAL          GOLD 200 Gen 2      ROYAL 200-2 RB KODAK FILM/NONE/NONE
KODAK     ROYAL          GOLD 25         RZ  ROYAL 25 KODAK RZ 25 KODAK FILM/NONE/NONE
KODAK     ROYAL          GOLD 25 Copystand   ROYAL 25 KODAK RZ 25 KODAK FILM/NONE/NONE
KODAK     ROYAL          GOLD 400            ROYAL 400 KODAK RC 400/NONE/NONE
KODAK     ROYAL          GOLD 400 Gen 2      ROYAL 400-2 RC KODAK FILM/NONE/NONE
KODAK     SUPER GOLD     100  Gen 4          GOLD 100-4 KODAK 100-4/MAGENTA/GREEN
KODAK     SUPER GOLD     1600 GF Gen 2       GOLD 1600-2 KODAK GF 1600-2/NONE/NONE
KODAK     SUPER GOLD     200 Gen 4           GOLD 200-4 KODAK 200-4/GREEN/GREEN
KODAK     SUPER GOLD     400 Gen 5           KODAK 400-5 GOLD 400-4/BLUE/NONE
KODAK     Supra          100                 Kodak Supra 100/NONE/NONE
KODAK     Supra          400                 Kodak Supra 400/NONE/NONE
KODAK     Supra          800                 Kodak Supra 800/NONE/NONE
KODAK     T-MAX          100 Professional    KODAK TMX 5052/NONE/NONE
KODAK     T-MAX          3200 Professional   KODAK TMZ 5054/NONE/NONE
KODAK     T-MAX          400 Professional    KODAK TMY 5053/NONE/NONE
KODAK     T-MAX          T400 CN             KODAK T400 CN/NONE/NONE
KODAK     TMAX-100       D-76 CI = .40       D-76 Developer Contrast Index = .40
KODAK     TMAX-100       D-76 CI = .50       D-76 Developer Contrast Index = .50
KODAK     TMAX-100       D-76 CI = .55       D-76 Developer Contrast Index = .55
KODAK     TMAX-100       D-76 CI = .70       D-76 Developer Contrast Index = .70
KODAK     TMAX-100       D-76 CI = .80       D-76 Developer Contrast Index = .80
KODAK     TMAX-100       TMAX CI = .40       TMAX Developer Contrast Index = .40
KODAK     TMAX-100       TMAX CI = .50       TMAX Developer Contrast Index = .50
KODAK     TMAX-100       TMAX CI = .55       TMAX Developer Contrast Index = .55
KODAK     TMAX-100       TMAX CI = .70       TMAX Developer Contrast Index = .70
KODAK     TMAX-100       TMAX CI = .80       TMAX Developer Contrast Index = .80
KODAK     TMAX-400       D-76 CI = .40       D-76 Developer Contrast Index = .40
KODAK     TMAX-400       D-76 CI = .50       D-76 Developer Contrast Index = .50
KODAK     TMAX-400       D-76 CI = .55       D-76 Developer Contrast Index = .55
KODAK     TMAX-400       D-76 CI = .70       D-76 Developer Contrast Index = .70
KODAK     TMAX-400       D-76 CI = .80       D-76 Developer Contrast Index = .80
KODAK     TMAX-400       TMAX CI = .40       TMAX Developer Contrast Index = .40
KODAK     TMAX-400       TMAX CI = .50       TMAX Developer Contrast Index = .50
KODAK     TMAX-400       TMAX CI = .55       TMAX Developer Contrast Index = .55
KODAK     TMAX-400       TMAX CI = .70       TMAX Developer Contrast Index = .70
KODAK     TMAX-400       TMAX CI = .80       TMAX Developer Contrast Index = .80
KODAK     ULTRA Zoom     800-3               Kodak GT. 800-3/NONE/NONE
KODAK     VERICOLOR      400 PLUS Prof VPH-2 KODAK 3059 [or] 9059 VPH-2/NONE/NONE
KODAK     VERICOLOR      400 PROF       VPH  KODAK 5028 VPH/BLUE/MAGENTA
KODAK     VERICOLOR      400 Prof  VPH-2     KODAK 5028 [or] 6028 VPH-2/NONE/NONE
KODAK     VERICOLOR      HC 100 Prof VHC-2   KODAK VHC-2 3329 [or] 8329/NONE/NONE
KODAK     VERICOLOR      HC 4329        VHC  KODAK VHC 4329
KODAK     VERICOLOR      HC 6329        VHC  KODAK VHC 6329
KODAK     VERICOLOR      III Pro             KODAK 5026 VPS/NONE/MAGENTA
KODAK     VERICOLOR      L 4013         VPL  KODAK VPL 4013
KODAK     VERICOLOR      L 6013         VPL  KODAK VPL 6013
KONICA    IMPRESSA       50                  IMPRESSA/RED & GREEN/NONE
KONICA    KONICA COLOR   SR-G 160            KONICA COLOR SR-G 160/NONE/NONE
KONICA    KONICA COLOR   SR-G 3200           KONICA SR-G 3200 DASHES/GREEN/3 GREEN
KONICA    KONICA COLOR   SUPER SR 400        KONICA COLOR SUPER SR 400/GREEN/GREEN
KONICA    KONICA COLOR   SUPER SR100         KONICA COLOR SUPER SR100/MAGENTA/MAGENTA
KONICA    KONICA COLOR   SUPER SR200 GEN 1   KONICA SUPER SR 200 THREE DASHES/NONE/GREEN
KONICA    KONICA COLOR   SUPER SR200 GEN 2   KONICA SUPER SR 200 DASHES/MAGENTA/3 GREEN
KONICA    XG             400                 KONICA X400/NONE/GRN DIAMONDS
POLAROID  POLAROID       CP 200              POLAROID CP 200/GREEN DOTS/NONE
POLAROID  POLAROID COLOR HD2 100             POLAROID COLOR HD2 100/MAGENTA/MAGENTA
POLAROID  POLAROID COLOR HD2 200             POLAROID COLOR HD2 200/MAGENTA/GREEN
POLAROID  POLAROID COLOR HD2 400             POLAROID COLOR HD2 400/GREEN/GREEN
```

APPENDIX B: Buttons, menus and options reference

The following sections describe, in detail, what each and every one of VueScan's controls and options do.

Menus
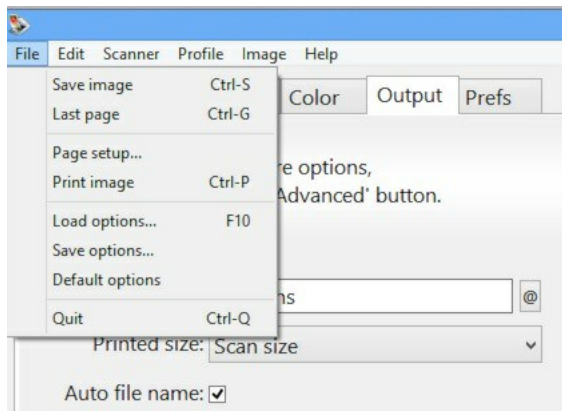
There are a number of commands that can be chosen from the menus in the menu bar which are described below.

File | Save image

Same as pressing the *Save button* (p. 47).

File | Save image+

Same as pressing the *Save+ button* (p. 48).

File | View

Same as pressing the *View button* (p. 47).

File | Page setup

This command lets you control how the scanned image is placed on the printed page.

File | Print image

This command prints the current preview or scan.

File | Load options

This command lets you load the current options settings from a file.

File | Save options

This command lets you save the current options settings to a file.

File | Default options

This command sets all options for the current scanner and scan mode to their default values.

File | Quit

This command causes VueScan to exit.   The current option settings will be saved to vuescan.ini.

On Mac OS X, this command is in the VueScan menu.
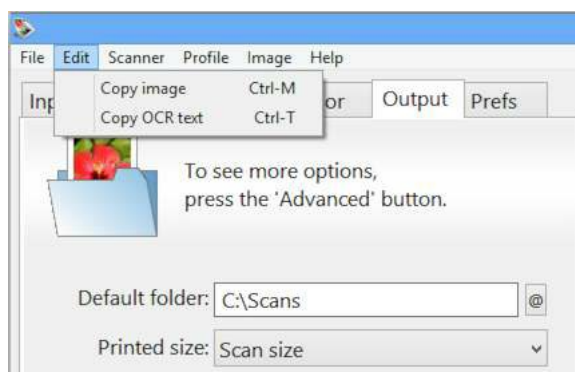
Edit | Copy image

This command copies the current image to the clipboard.

If you've created a preview but not a scan, the section of the preview inside the crop box is used, otherwise the most recent scan is used.

Edit | Copy OCR text

This command is for Optical Character Recognition (OCR) on the current image and copies the text to the clipboard.

You need to set *Input | Media* (p. 50) to "Text" or "Microfilm" for this to work.

If you've created a preview but not a scan, the section of the preview inside the crop box is used, otherwise the most recent scan is used.   However, if *Input | Preview resolution* (p. 54) is set to "Auto" or something less than 300 dpi, this may not work very well.
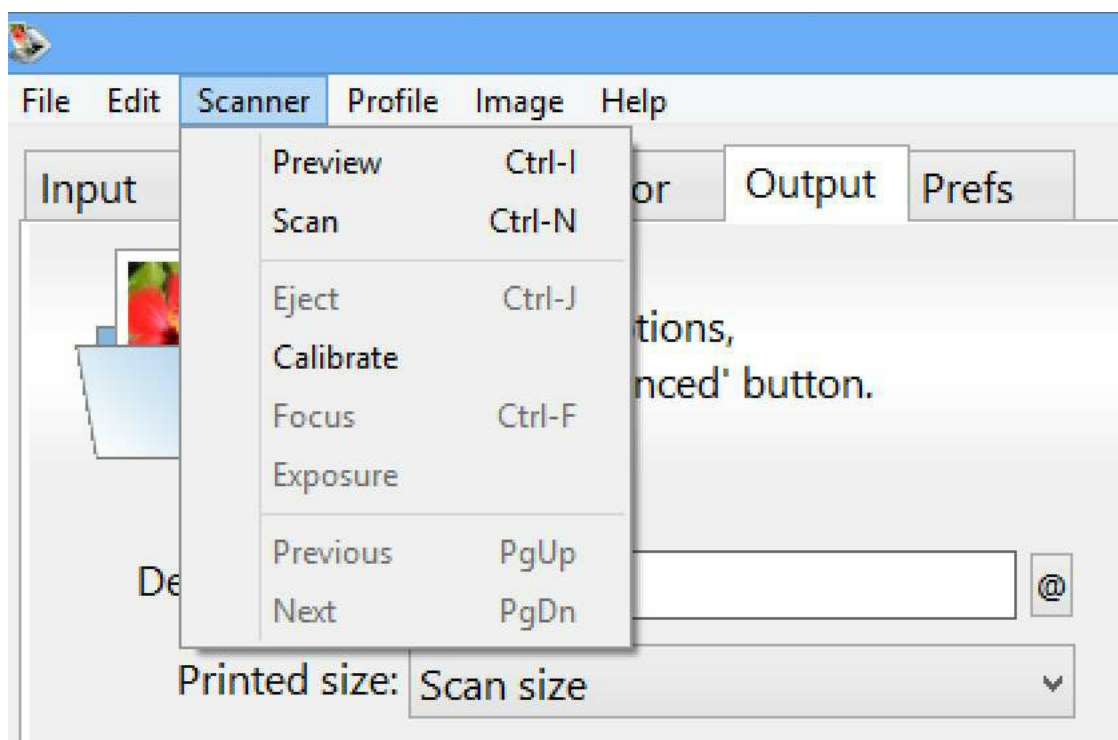
Scanner | Preview

> Same as pressing the *Preview button* (p. 46).

Scanner | Scan

> Same as pressing the *Scan button* (p. 46).

Scanner | Scan+

> Same as pressing the *Scan button* (p. 46).

Scanner | Eject

> Ejects film from a film scanner or paper from a document feeder.

Scanner | Calibrate

> This command causes a scanner calibration on those scanners that support it.
> Generally, calibration compensates for   three things:

- Lighting is usually uneven from one side of a scan to another

- Each CCD element has a slightly different sensitivity to light

- The dark voltage level of each CCD element is slightly different

When properly calibrated, the scanner should theoretically   produce the same values for each pixel, if an image that is a single tone and color were scanned.

Sometimes the calibration data gets stored inside the scanner memory, sometimes it's done once for every scan and sometimes VueScan stores the calibration data in a file when the "Scanner | Calibrate" command completes.

If you've got one or two narrow streaks appearing in the scan direction, try doing a scan with the scanner turned on its side.   This can dislodge particles from the light path.

Scanner | Focus

This command focuses the scanner.   The center of this focus area is displayed on the preview with a small animated box, and can also be changed with the *Crop | Focus X offset* (p. 69)and *Crop | Focus Y offset* (p. 69) options (options displayed only when the scanner is capable of this).

Scanner | Exposure

This command computes the optimal values for *Input | RGB exposure* (p. 61)and *Input | Infrared exposure* (p. 61).   It uses the pixels inside the crop box in the Preview tab to compute these values.

Scanner | Previous

Decreases *Input | Frame number* (p. 53) by 1.

Scanner | Next

Increases *Input | Frame number* (p. 53) by 1.
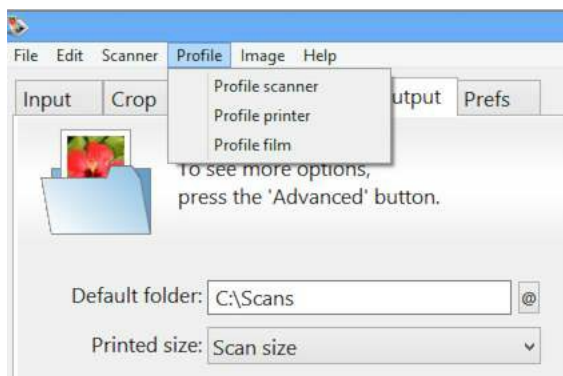
Profile | Profile scanner

See the section in this User's Guide describing ICC profiling of scanners, printers and film.

Profile | Profile printer

> See the section in this User's Guide describing ICC profiling of scanners, printers and film.

Profile | Profile film

> See the section in this User's Guide describing ICC profiling of scanners, printers and film.
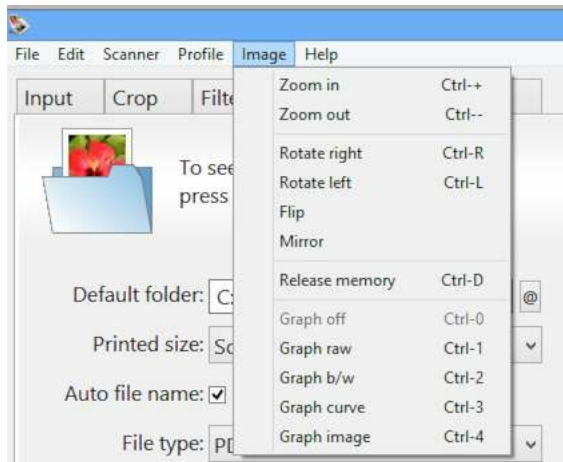
Image | Zoom In

> Same as pressing the *Zoom In button* (p. 48).

Image | Zoom Out

> Same as pressing the *Zoom Out button* (p. 48)

Image | Rotate left

> Rotates the image 90 degrees counterclockwise

Image | Rotate right

> Rotates the image 90 degrees clockwise

Image | Flip

> Rotates the image 180 degrees

Image | Mirror

> Mirrors the image left to right

Image | Release memory

This command releases the memory used by VueScan to store the most recent scans and previews.   This can be useful if you need more memory for another program.

You can control how much memory VueScan will use by setting the *Prefs | Image Memory (MB)* (p. 102) option if your system is short on memory.

Image | Graph off

This command turns off any image graph that's being displayed.

Image | Graph raw

This command displays a histogram of the intensities of the raw scan data.

Image | Graph b/w

This command displays a histogram with the black/white points.

Image | Graph curve

This command displays the current correction curve.

Image | Graph image

This command displays the histogram of the current image after correction by the black/white points and the curve.

PDF | Reverse

This command reverses the order of the pages.   For instance, if there are eight pages 12345678 this command will change the pages to 87654321.

This is useful when a stack of pages was scanned in reverse order.

PDF | Interleave

This command reorders front/back scans by interleaving front/back pages - i.e. ffffbbbb gets reordered to fbfbfbfb. For instance, if there are eight pages 13578642 this command will change the pages to 12345678.

This is useful for scanning the front of each page in a document feeder, and then feeding the papers through the document feeder again.

PDF | Separate

This command reorders front/back scans by separating front/back pages - i.e. fbfbfbfbfb gets reordered to ffffbbbb. For instance, if there are eight pages 12345678 this

command will change the pages to 13578642.

This is useful for un-doing the effect of *PDF | Interleave* (p. 43).

PDF | Swap even/odd

This command reorders front/back scans by swapping front/back pages - i.e. bfbfbfbf gets reordered to fbfbfbfb. For instance, if there are eight pages 12345678 this command will change the pages to 21436587.

This is useful to correct for scanning a stack of papers with the pages in the wrong orientation.

PDF | Delete

This command lets you delete the last page from a PDF file.
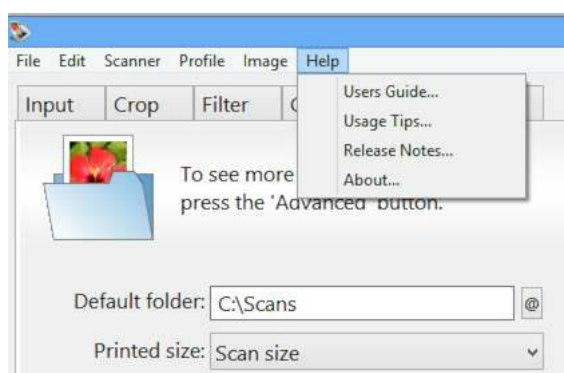
Help | Help Center

This command displays the VueScan Help Center.

Help | Users Guide

This command displays the VueScan User's Guide, in html format.

Help | Usage Tips

This command displays usage tips for using VueScan.

Help | Release Notes

This command displays the contents of the VueScan Release Notes.

Help | Problem Report

This command lets you enter a Problem Report.

Help | Update VueScan

This command lets you download the latest version of VueScan if a newer version is available.

Help | Remove VueScan

This removes the vuescan.ini and vuescan.log files, and deletes the folder they're in (if empty).   This doesn't delete any .ini files you've created.

If an administrator account is used to remove VueScan, the global registration info will be removed, otherwise the registration info for the user removing VueScan will be removed.

On Windows and Mac OS X, the VueScan Photoshop plugin will be removed, the TWAIN data source will be removed and the registry will be cleaned up.

On Windows, any device drivers that VueScan installed will be removed.

Help | About

This command displays the version number and three boxes for entering your e-mail address, serial number and customer number from the purchase receipt.

This command is in the VueScan menu on Mac OS X and is in the Help menu on Windows and Linux.

The e-mail address, serial number and customer number are saved in:

```
Mac OS X:               /Users/yourname/.vuescanrc

Linux                   ~/.vuescanrc

Windows XP and earlier:  Registry HKEY_CLASSES_ROOT\VueScan\license

Windows Vista and later: Registry
HKEY_CURRENT_USER\Software\VueScan\license
```

If you're running VueScan as Administrator when you enter the serial number, then the e-mail address, serial number and customer number will be saved to the following location also.   This lets all users share the same serial number.

```
Mac OS X:               /Users/Shared/.vuescanrc (if writable)

Linux                   /etc/.vuescanrc (if writable)

Windows Vista and later: Registry
HKEY_LOCAL_MACHINE\Software\VueScan\license
```

On Mac OS X, if you want all users to have the same serial number, you can manually move this file to either of these files:

```
/Library/Application Support/VueScan/.vuescanrc
```

```
/Network/Library/Application Support/VueScan/.vuescanrc
```

Buttons
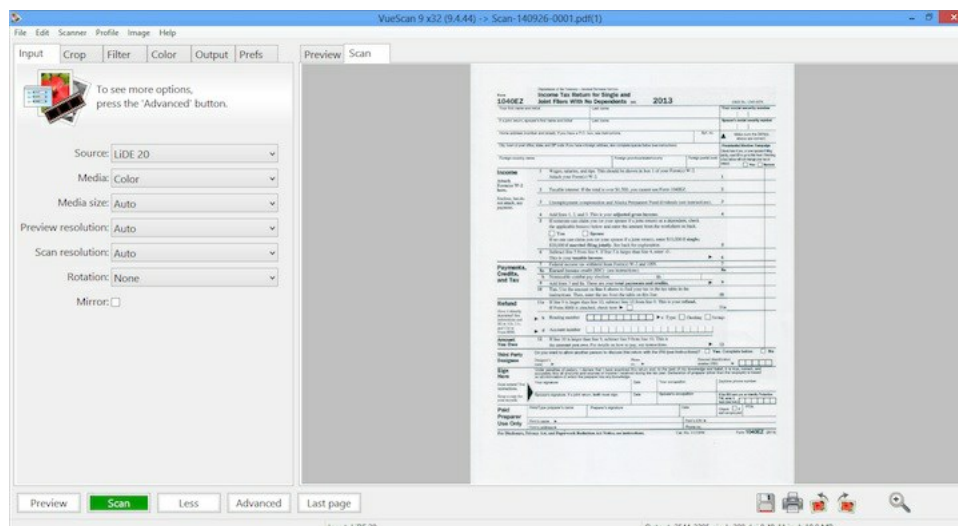
There are a number of buttons that can be used to initiate or cancel scanning.

Preview button

This button does a quick preview scan of the area described by *Crop | Preview area* (p. 69) and displays it in the Preview tab.

A preview scan is usually created at a lower resolution and is therefore faster. From the preview you can set your cropping, filtering and color balance options that will be applied to the final scan.

Want to preview more than one frame at a time? Then use the *Input | Batch scan* (p. 52) option. Several previews can be in memory at the same time, and you can change which preview you are viewing by changing the number in *Input | Frame number* (p. 53).

If you're scanning from disk, and specify the starting file in numbered series (e.g. scan0001.tif) you can use the Frame number to select a file. For example, if *Input | Files* (p. 50) is set to "scan0001.tif" and *Input | Frame number* (p. 53) is 12, VueScan will look for the file "scan0012.tif" when Preview is pressed.

Other options for specifying numbering schemes for VueScan files are documented on the *Output tab* (p. 79) help topics.

Scan button

This button performs the scan, displays the image in the Scan tab and optionally saves

to the file type(s) selected in the *Output tab* (p. 79).

If a preview scan is not available, VueScan will perform a preview in order to calculate exposure and crop area.   If*Input | Lock exposure* (p. 61) is set and *Crop | Auto offset* (p. 65) and*Crop | Auto rotate* (p. 67) are not set, no preview will be created.

You can scan more than one frame at a time by using the *Input | Batch scan* (p. 52) option.

If you're scanning from disk, and specify the starting file in   numbered series (e.g. scan0001.tif) you can use the Frame number to select a file.   For example, if *Input | Files* (p. 50) is set to "scan0001.tif" and*Input | Frame number* (p. 53) is 12, VueScan will look for the file "scan0012.tif" when Scan is pressed.

Other options for specifying numbering schemes for VueScan files are documented on the *Output tab* (p. 79) help topics.

Scan+ button

This button is used to indicate that the scan should be added to a multi-page file, in PDF, TIFF or OCR Text format.   It's exactly the same as the *Scan button* (p. 46) except that it indicates that the scan should be appended to a multi-page file.

View button

This button will bring up a viewer for the first file name that's displayed in the menu bar. This is often simpler than having to switch to the operating system to do this.

It's also used to display multi-page files whenever you'd like to view them.

Email button

This button lets you e-mail the most recent scan.   This is often simpler than bringing up your e-mail program and attaching the scan to your e-mail.

Cancel button

This button is displayed when a scan is in progress. When you press it, the scan is stopped and batch scanning is stopped.

Save button

This button causes the most recent preview or scan to be saved as TIFF, JPEG, PDF, OCR text, Index and/or Raw   files, as specified on the *Output tab* (p. 79).   If you have just created a preview, the preview will be saved; if you have just done a scan the scan will be saved.   The only difference will be the resolution of the output file(s) as specified in *Input | Preview resolution* (p. 54)and *Input | Scan resolution* (p. 55) -- Crop, Filter, and Color settings will be applied to both previews and scans.

You'll probably just want to save the result of the scan.   By setting *Input | Auto save*

(p. 57) to "Scan", files will be saved   automatically when you press the Scan button.

Want to make some adjustments to your final scan? You can change the   crop, filter, or color settings, without having to re-scan.   Simply make the adjustments -- VueScan will refresh the scan in memory and the *Save button* (p. 47) will cause a new file(s) to be saved.

Save+ button

This button is exactly the same as the *Save button* (p. 47) except that it indicates that the scan should be appended to a multi-page file.

Print button

This button causes the most recent preview or scan to printed.

Rotate L button

Rotates the image left (counter-clockwise).

Rotate R button

Rotates the image right (clockwise).

Zoom Out button

This button zooms out of the image in the Preview tab, or if the Scan tab is displayed it zooms out of the image in the Scan tab.   The zoom is a factor of two.

Zoom In button

This button zooms into the image in the Preview tab, or if the Scan tab is displayed it zooms into the image in the Scan tab.   The zoom is a factor of two.

Previous frame button

This button goes to the previous frame.

Next frame button

This button goes to the next frame.

Input tab
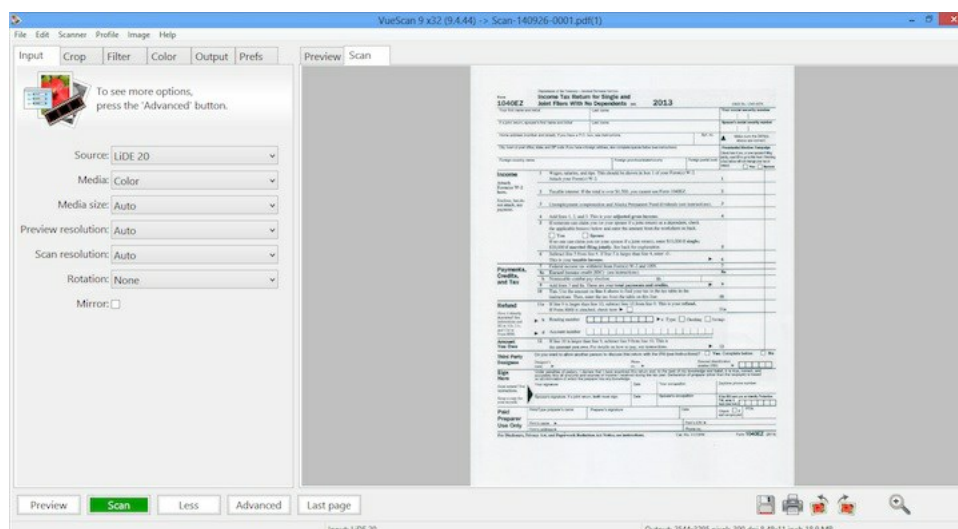
This tab contains the options that control the inputs to VueScan from scanners, raw scan files and digital camera files.

Input | Options

Use this to indicate whether you want to see a simplified subset of the options ('Basic'), or all the Standard Edition options ('Standard') or all the Professional Edition options ('Professional');

Standard Option: This option is always displayed.

Input | Task

Use this option to indicate the task you're performing.   Choose from "Scan to file", "Copy to printer", "Profile scanner", "Profile printer", "Profile film" and "Make IT8 target".

A brief reminder of how to do each task is displayed in the lower left corner of the window.

Standard Option: This option is always displayed.

Input | Source

If you've got more than one scanner on your system,   this lets you specify which scanner you want to use.

A special "scan from" source is from a disk file.   On the *Output tab* (p. 79),   VueScan provides a special option to save the raw output of a regular scan to a file.   This option lets you read that raw file as though you   were scanning it.

If you set this option to "File", then you'll be able to enter a file name in the *Input | Files* (p. 50) option.   The name can be a TIFF file from a previous scan, a JPEG or TIFF file from a digital camera, or a raw file from a digital camera.

Standard Option: This option is displayed when there's more than one scanner.

Input | Files

Specify the name of an image file that VueScan will read when you set the "Source" option to "File".   Usually this is a raw scan file you created with VueScan or a file from a digital camera.

Disk files can be scanned just like a normal scanner.   The *Input | Preview resolution* (p. 54) and *Input | Scan resolution* (p. 55)options work just as you'd expect, so do the preview   and crop options.

Disk files can be TIFF, JPEG, or raw files from digital cameras. These files are typically the output of a raw scan, but they can be any valid JPEG, TIFF or raw digital camera file.

You can also use the file dialog (press the **'@'** button) to select multiple files, or you can separate multiple file names with a semicolon.

Standard Option: This option is displayed when *Input | Source* (p. 49) is set to "File".

Input | Mode

Use this option to specify the type of scan you want to make. This is automatically sensed on some scanners, but you may need to set it manually on others.

VueScan uses this option for two things:

1) To indirectly indicate whether the scan data comes from reflective media or transmissive media.   *Input | Media* (p. 50) will be   automatically set to the most recent setting for the selected   mode.

2) To indicate the color space of the scan data (i.e. the color characteristics of the CCD and light that exposed it)

Standard Option: This option is displayed when the scanner has more than one mode and the scanner mode can't be sensed by VueScan.

Input | Media

There are two lists of media, depending on whether you're scanning paper (reflective media) or film (transmissive media).

Reflective media

When scanning paper, *Input | Media* (p. 50) is used to control whether the final image is color or black/white,   continuous tone (photo), or bi-level (text).

When *Filter | Descreen* (p. 71) is set, a descreen filter will be applied.   You can control the strength of the descreen filter with the *Filter | Descreen dpi* (p. 71) option.

Transmissive media

When scanning film, this option indicates whether you're using positive film (i.e. slides), color negative, or black/white negative film. This option causes the default film type to be changed, but also sets up the scanner for scanning orange-colored media (i.e. color negatives) by exposing the green and blue channels more than the red channel.

If you choose "Image", no film correction is applied, so the cropped file will be comparable to the   image on the film.   If you select "Negative film" or "Slide film", the cropped image will be comparable to the original scene that was photographed.   When you use either film option, the Color tab then lets you choose the film manufacturer, the brand,   and film type to enable VueScan to refine the result further.

The difference between "Image" and "Slide film" is subtle.   If you take the same picture with Kodachrome and Ektachrome film and then scan them with the "Slide film" setting, VueScan will try to make the resulting scan look the same (i.e. to resemble the original scene).   Use the "Image" setting and the resulting scans will look different to reflect the differing color characteristics of Kodachrome and Ektachrome film.

If you then took the same picture with Kodak Gold color negative film and scanned it using the "Negative film" setting, the resulting scan should look close to what you would get from using the "Slide film" setting and scanning the Kodachrome and Ektachrome slides (i.e. all three should look like the original scene).

VueScan contains sensitometric data for 200 types of negative   film and 4 types of slide film. If you've got something different, choose Kodachrome for K14 process slides, and Ektachrome for E6 slides.

Standard Option: This option is always displayed except when *Input | Bits per pixel* (p. 51) is set to 1.

Input | Microfilm zoom

This option is displayed when scanning microfilm or microfiche.   It indicates how much you need to zoom to restore the microfilm/microfiche image to it's original size.   Most microfilm uses a zoom value from 8 to 14.

Professional Option: This option is displayed when scanning transparent media and *Input | Media* (p. 50) is set to "Microfilm".

Input | Media size

This option is used with flatbed scanners to specify the size of the reflective media you're scanning.

If set to "Auto", the full size of the flatbed will be previewed and the location and size of the media automatically determined.

If a specific size is chosen, no preview is necessary when you press the Scan button. This will save a significant amount of time.

Standard Option: This option is displayed when using reflective media (i.e. paper).

Input | Bits per pixel

This option specifies how many bits per pixel are read from the scanner. The more bits that are read, the higher quality the image, but the slower the transfer speed at full resolution. If you specify a value that the scanner isn't capable of, the closest valid option is used instead.

Scanning at 24-bit resolution can add gaps to the final image histogram (compared to 48-bit resolution), but it can also speed up scanning with some scanners and often the end result is virtually indistinguishable from 48-bit scans.

If this option is set to "Auto", the *Input | Media* (p. 50)option controls the number of bits per pixel and samples per pixel used in a scan.

Professional Option: This option is always displayed.

Input | Make gray from

This option specifies how to make the gray color from the scanner's red, green, blue and infrared sensors.

The default, "Auto", either uses the scanner hardware to convert from the color CCD to gray, or converts in VueScan, mostly from the green channel.

Otherwise, the gray color is taken from either the red, green, blue or infrared channels. Using the red or infrared channel can be useful when scanning older, degraded black/white negatives that are silver based.

Professional Option: This option is displayed when scanning with 8-bit or 16-bit gray.

Input | Batch scan

If you set this option to "All", pressing either the Preview or Scan button will preview or scan all the frames in the scanner. By setting it to "List", you can specify a list of frames to preview or scan.

If you set this option to "Auto" and you're using the *Crop | Multi crop* (p. 66)option, VueScan will automatically detect the list of frames that are visible in the preview.

Note that you can change this to "Off" during a long-running batch scan, this will then stop scanning when the current frame is completed (this is a better way to stop than by pressing the *Cancel button* (p. 47)button, as this will leave files half-written).

Batch scanning also works when scanning from disk files. In this case, the "All" option refers to all disk files named using a series of numbers (e.g. scan0001.tif, scan0002.tif, etc.). If the "scan0001.tif" file in the series is specified as *Input | Files* (p. 50), the *Input | Frame number* (p. 53) will cause VueScan to reference the file with the same number.

Standard Option: This option is displayed when the scanner is capable of batch scanning or when you set *Crop | Multi crop* (p. 66).

Input | Batch list

You can specify multiple frames by selecting multiple frame numbers, or a range of

frames like "1-3", or a combination of both (i.e. "1,3,5-7" causes frames 1,3,5,6,7 to be scanned).

You can also add an additional rotation to any frame or range of frames by putting a letter along with each frame number. Use "N" for no rotation,   "L" for left, "F" for flip, "R" for right, and "D" for default rotation. The letters may be in upper or lower case.

For example, adding "3r" to the batch list means scan frame 3 and rotate it 90 degrees to the right, "2L" says to scan frame 2 and rotate it 90 degrees to the left, "1F,2L,4R" says to scan frame 1 flipped, frame 2 rotated to the left, and frame 4 rotated to the right. If no letter is specified (or if "D" is used), then the last rotation setting in the batch list will apply for all subsequent frames.

Using Batch list, you can also preview a group of images in one   step, rotate and crop each previewed frame, and then scan all the frames in the batch.   The process is:

- Specify the batch list. For example, specify "1-6" to specify 6   frames in a film holder.

- Preview the batch. All six frames will be previewed.

- Change *Input | Frame number* (p. 53) to view each previewed frame. Adjust rotation and cropping for the frame.   When done, move to the next frame.

- Scan the batch. VueScan will create a series of cropped files (e.g. "crop0001.tif", "crop0002.tif" ... "crop0006.tif").

  Standard Option: This option is displayed when *Input | Batch scan* (p. 52)is set to "List".

Input | Frame number

If you have a film scanner that can move the film holder, you can use this option to select which slide or negative frame you want to scan.   This option will only be displayed if your scanner supports it.

There are several advanced uses of *Input | Frame number* (p. 53) to consider   when setting *Input | Source* (p. 49) to "File" or using the*Crop | Multi crop* (p. 66) option.

When scanning from disk files, VueScan will consider a number at the end of the *Input | Files* (p. 50) as the starting point in a series, and *Input | Frame number* (p. 53) to reference a file relative to that starting point.   So if you have scanned a whole roll   of film and have raw files "scan0001.tif" through "scan0030.tif" you   may specify "scan0001.tif" as *Input | Files* (p. 50), and then use Frame   number to work on different scanned files as though they were frames. Frame number 18 would then use the disk

file "scan0018.tif" as the   source when you press Preview or Scan.

Frame number may also be used if you have set up *Crop | Multi crop* (p. 66). Frames are counted from top to bottom, then left to right.

Standard Option: This option is displayed when the scanner has hardware that supports this, or when using *Crop | Multi crop* (p. 66).

Input | Frame offset

This option sets an offset for the start of the each frame on a film strip on the Nikon LS-30, LS-40, LS-2000, LS-4000, LS-8000, LS-9000 scanners, the Canon FS4000 when the strip film adapter is used, and the SprintScan 120 when the Medium Format adapter is used.

Use this option if there is some leader on the film strip, or if you're scanning panoramic frames and need to scan what would otherwise be the gap between 35mm frames. This option can be either a positive or negative number.

The units for this option are normally millimeters, but this can be changed with the *Prefs | Crop units* (p. 95) option.

Standard Option: This option is displayed when the scanner is capable of frame offsets.

Input | Frame spacing

This option sets the spacing between frames for some film scanners that support this in hardware. It is not available for most film scanners or flatbed scanners. This is the distance between the starting positions of two consecutive frames.

The units for this option are normally in millimeters, but this can be changed with the *Prefs | Crop units* (p. 95) option.

Standard Option: This option is displayed when the scanner is capable of frame spacing.

Input | Preview resolution

Use this option to specify the resolution the scanner will use when performing the preview scan.

If set to "Auto", a resolution will be chosen that results in a preview with roughly one million pixels.   The exact number of pixels depends on the resolutions your scanner is able to produce.

If set to "Custom", the resolution is selected by the *Input | Preview dpi* (p. 55) option.

You can also select a specific preview resolution from the list.

Lower resolutions may take less time to scan, and will use less memory.   The preview resolution needs only to be enough for you to determine appropriate cropping, filter

settings,   color settings and so on; the result of the final scan is determined by Scan resolution and other settings, not Preview resolution.

Standard Option: This option is displayed when the scanner is capable of scanning the same paper or film twice.

Input | Preview dpi

If *Input | Preview resolution* (p. 54) is set to "Custom", the scanner will use a hardware-supported resolution that is greater than, or equal to, this value.   VueScan will rescale the image to the requested resolution.

Note that this uses simple rescaling, so if quality is an issue, you should use an external image editor to rescale the image.

Standard Option: This option is displayed when *Input | Preview resolution* (p. 54) is set to "Custom".

Input | Scan resolution

Use this option to specify the resolution the scanner will use when performing the final scan.

If set to "Auto", a resolution will be chosen based on whether it's a reflective scan or a film scan. The exact number of pixels depends on   the resolutions your scanner is able to produce -- the number of pixels is displayed in the status area of the VueScan window.

If set to "Custom", the resolution is selected by the *Input | Scan dpi* (p. 55) option.

You can also select a specific scan resolution from the list.

Standard Option: This option is always displayed.

Input | Scan dpi

If *Input | Scan resolution* (p. 55) is set to "Custom", the scanner will use a hardware-supported resolution that is greater than or equal to this value.   VueScan will rescale the image to the requested resolution.

Note that this uses simple rescaling, so if quality is an issue, you should use an external image editor to rescale the image.

Standard Option: This option is displayed when *Input | Scan resolution* (p. 55) is set to "Custom".

Input | Auto rotate

VueScan will detect the orientation of text images when the media type is set to Text, Color text or Microfilm.   When the image is scanned, this option causes the image to be analyzed and the page is rotated to be upright.

Professional Option: This option is displayed when scanning Text, Color text or Microfilm.

Input | Auto flip

If this option is set, the page orientation is flipped every time an image is saved.   This is to allow easier scanning of books and magazines.

Professional Option: This option is always displayed.

Input | Rotation

This option describes the orientation of the images in the Preview and Scan tabs and in TIFF, JPEG, PDF, Index and Raw files. This is relative to the unrotated image that comes from the scanner.

Don't have much memory on your system? Set this option to "None" and rotate the image later with an image viewer - this will make the cropping faster.   Using "Right" rotates 90 degrees clockwise, using "Flip" rotates 180 degrees, and using "Left" rotates 90 degrees counterclockwise.

Note that rotation happens after mirroring.

Standard Option: This option is always displayed.

Input | Auto skew

Use this option to automatically compute the skew angle for images that aren't quite straight.

Professional Option: This option is always displayed.

Input | Skew

Use this option to rotate the image by a small angle to correct for images that aren't quite straight.   The angle is specified in degrees, plus or minus two degrees.

Professional Option: This option is displayed when auto skew isn't enabled.

Input | Mirror

This option mirrors images left/right before rotating. This lets you position your film emulsion side up or down.

Professional Option: This option is always displayed.

Input | Auto focus

Set this option to enable a focus before doing a preview or scan (or both).   The scanner will focus on the point specified by *Crop | Focus X/Y offset* (p. 69).   This

location is visually represented by an animated cross-hair in the Preview   tab after a preview scan is created.

Set to "Preview" so that focus will only be done once if the scan   is to be created directly after the preview.   Otherwise, set to "Always" or to ensure the most accurate focus (as in some cases the heat   generated by the preview can cause the media to bend).

If you have locked exposure and turned off auto-cropping (see "Advanced Workflow Suggestions") no preview will be performed. In this case, you must focus at scan time, so either "Scan" or "Both" will ensure focusing.

Professional Option: This option is displayed when the scanner is capable of auto focus.

Input | Focus

Set this option to a value between -1 and 1 to manually change the device focus.   The nominal value for most scanners is 0.

Professional Option: This option is displayed when the scanner is capable of auto focus and when *Input | Auto focus* (p. 56)is set to "Manual".

Input | Auto scan

If this option is set to "Preview" or "Scan" and if the scanner can sense when an image is inserted, VueScan will simulate pressing either the *Preview button* (p. 46) or*Scan button* (p. 46) when an image is inserted.

This option is reset to "None" if you press the *Cancel button* (p. 47)

Professional Option: This option is displayed when the scanner can sense inserted media or when the scanner is capable of addressing frames separately.

Input | Auto save

If this option is set to "Preview" or "Scan", VueScan will save files after a preview or scan is completed.   If set to "None" files will be saved only after pressing the *Save button* (p. 47).

In most cases, this option should be set to "Scan".

Professional Option: This option is displayed when TIFF, JPEG, PDF, OCR Text, Index or Raw files are being saved.

Input | Auto print

If this option is set to "Preview" or "Scan", VueScan will print after a preview or scan is completed.   If set to "None" scans will be printed only when you choose the "File | Print image" command.

In most cases, this option should be set to "Scan".

Professional Option: This option is always displayed.

Input | Auto lamp off

This option controls when the lamp in the scanner is turned on and off.   It is only displayed when a scanner that is capable of controlling the lamp independently from the scan is selected.

```
Option     Startup    Exit       Auto lamp off
=======    =======    ====       =============
None       no action  no action  none
Always     no action  lamp off   end of scan
5 minutes  lamp on    lamp off   5 minutes
Exit       lamp on    lamp off   none
```

When "None" is selected, the lamp is turned on at the start of a scan and is never turned off.

When "Always" is selected, the lamp is turned off at the end of a scan and turned off when VueScan exits.

When "5 minutes" is selected, the lamp is turned on when VueScan starts, turned off when VueScan exits, and turned off 5 minutes after the end of a scan.

When "Exit" is selected, the lamp is turned on when VueScan starts and turned off when VueScan exits.

Professional Option: This option is displayed when the scanner's lamp can be controlled.

Input | Auto eject

This option controls when the media is ejected (assuming the scanner is capable of ejecting media).   It can be ejected after a preview, or a scan, or when VueScan exits.

The media can be ejected manually with the "Scanner | Eject" command.

When *Input | Batch scan* (p. 52) is set, ejection will occur after the batch is complete.

Professional Option: This option is displayed when the scanner hardware can eject the media.

Input | Auto repeat

This option will simulate repeatedly pressing the *Scan button* (p. 46) after a time delay.

Professional Option: This option is always displayed.

Input | Number of samples

This option is available for scanners that support multi-sampling.   As the scanner head passes over the media it makes multiple exposures for each location.   The results for all samples are averaged.

This is a useful feature because any one exposure may be inaccurate, resulting in noise in the output.   Noise will appear as one pixel whose color or tone is different than surrounding pixels.   By taking multiple samples and averaging the results, the effect of inaccurate exposure is reduced.

This option will slow down scanning because the scanner is doing more. You should experiment with your scanner to see which balance of speed and accuracy is appropriate.

Number of samples is similar to Number of passes.   Multi-sampling is   preferable as the scanner head is positioned once, which ensures that   the same area will be exposed for each sample.   Multi-sampling is available only on a limited number of scanners.

Professional Option: This option is displayed when the scanner is capable of multi-sampling.

Input | Number of passes

This option provides a similar function as the Number of samples option, but does not require the scanner to provide hardware support for multi-sampling.   Each pass causes a full scan.   After all passes are complete, the results are averaged, and the average is saved.

This is a useful feature because any one exposure may be inaccurate, resulting in noise in the output.   Noise will appear as one pixel whose color or tone is different than surrounding pixels.   By taking multiple passes and averaging the results, the effect of inaccurate exposure is reduced.

This option will slow down scanning because the scanner is doing more. You should experiment with your scanner to see which balance of speed and accuracy is appropriate.

On multiple passes the scanner head needs to be repositioned precisely   at the same location as where it started on the previous pass.   Some   scanners do not support this operation.   Others do, but reposition   incorrectly, which will cause a blurred result.

Professional Option: This option is displayed when the scanner is capable of scanning the same image more than once and when not scanning from a file.

Input | Grain dissolver

This option is only displayed when using the Minolta Scan Elite 5400. It causes a translucent material to be inserted in the light path, which makes the light source more diffuse.   It can slightly reduce the appearance of film grain at the cost of longer scan times.   By default, this option is turned off.

Professional Option: This option is displayed when the scanner has a grain dissolver.

Input | Frame alignment

This option is only displayed when using a Nikon LS-30, LS-40, LS-50, LS-2000, LS-4000 or LS-5000 with the strip film adapter.   It causes VueScan to align the start of the frames by scanning the area between the first and second frames on the strip and then finding the initial 2 mm of clear leader.   By default, this option is turned on.

Professional Option: This option is displayed when the scanner has a strip film adapter inserted.

Input | Fine mode

This option is used to improve the scan quality on some scanners.

When using the Nikon CoolScan 5000 (LS-5000), CoolScan 8000 (LS-8000) or CoolScan 9000 (LS-9000), this option causes only one CCD line to be used, which makes scans take longer but sometimes improves the scan quality of very dark media.

When using some Brother, Canon, Fujitsu, HP and Samsung scanners, this option disables in-scanner JPEG compression of scans, which makes scans take longer but sometimes improves the scan quality by eliminating subtle JPEG artifacts.

Professional Option: This option is displayed with some Nikon scanners and some scanners that support in-scanner JPEG compression.

Input | Show texture

This option is used to emphasize the texture in paper scans. It does this by turning on a lamp that illuminates the paper from an angle, throwing a shadow where there's texture.

It currently is enabled on the Epson Perfection V600 and V800/V850.

Professional Option: This option is displayed with some Epson scanners.

Input | Overscan

This option is used to scan a few extra millimeters around the image.   This is useful when scanning photos or postcards when you want to get every bit of the image in the scan.

Professional Option: This option is displayed when the scanner has a document feeder that supports this in hardware.

Input | Double feed detect

This option is used to detect when more than one page at a time feeds into a document feeder. Sometimes pages or photos stick together when feeding into a document feeder, and the scanner will stop scanning when this happens so you can feed the pages again and restart the scan (with the Scan+ button).

Professional Option: This option is displayed when the scanner has a document

feeder that supports this in hardware.

Input | Multi exposure

This option provides a way to get additional detail from the darker parts of the scanned image.   It is available on scanners that are able to increase the CCD exposure time.

A first pass is performed as usual with the normal RGB exposure. This will be an appropriate exposure for the image as a whole.   Then a second pass is performed with a longer exposure, which can reveal   additional detail in dark areas not captured in the first pass.   VueScan then merges the results of the two by choosing from either the first or second exposure pass.

Professional Option: This option is displayed when the scanner can control the CCD exposure time and when scanning slide film (not Color negative, B/W negative or Microfilm).

Input | Lock exposure

Set this option to lock the CCD exposure values to auto-exposure values computed for the most recent preview or scan, or as adjusted manually with the *Input | RGB exposure* (p. 61) option.

This option can save time when scanning a batch of images with similar characteristics, e.g. a roll of film.

If you turn on this option and also clear *Crop | Auto offset* (p. 65)and *Crop | Auto rotate* (p. 67), then the *Scan button* (p. 46) will not perform a preview scan.   This can save time when batch scanning.

Note that locking the CCD exposure values doesn't lock the brightness of the final images - it only locks the brightness of the raw scan files.   To lock the brightness of the final images, use the *Input | Lock image color* (p. 62) option.

See the "Advanced workflow suggestions" section of this User's Guide for more information.

Professional Option: This option is displayed when the scanner can control the CCD exposure time.

Input | RGB/Infrared exposure

On scanners that are able to vary the CCD exposure time, this option lets you multiply the exposure time by a user-specified value. This can be useful when scanning very dark slides with bright highlights and you want to get more detail from the dark areas.

There's seldom any reason to increase these values from those computed by the auto exposure.

If the CCD is over-exposed when scanning color negative film, then the film base color gets messed up and the dark areas of the image (the bright parts of the negative) will lose detail.

Note that these exposure values do not directly control the brightness of the final image - this is controlled by options in the Color tab.   These exposure values control the brightness of the raw scan file only.

Professional Option: This option is displayed when the scanner can control the CCD exposure time and the *Input | Lock exposure* (p. 61)option is on.   The infrared CCD exposure time is only displayed if the hardware is also capable of infrared scanning.

Input | Red/Green/Blue analog gain

On Nikon scanners, this option multiplies *Input | RGB exposure* (p. 61)by the per-color analog gain.   You can change the analog gain options to change the ratio of the CCD exposure times for the red, green and blue channels.

Note that "analog gain" is Nikon's term for CCD exposure time. It doesn't actually vary the analog gain within the scanner.

Professional Option: This option is displayed when the scanner is capable of separately controlling analog gain.

Input | Lock film base color

This option locks the color of the film substrate to values calculated at the most recent preview or scan. These values are displayed in the "Color | Film base color" fields when this option is set.

Negative film has an orange tone that needs to be compensated for to produce the positive image.   You can see this orange color by looking at an unexposed (clear) area of developed negative film.

For a given film type and roll of film (all of which is developed under the same conditions), this correction will be the same for all frames, so only needs to be set once.

This option is only available after *Input | Lock exposure* (p. 61) is set,   and then after a preview or scan.

This option can save time when scanning a batch of images with similar characteristics, e.g. a roll of film.

See the "Advanced workflow suggestions" section of this User's Guide for more information.

Professional Option: This option is displayed when using the Advanced Workflow Procedure in this User's Guide.

Input | Lock image color

This option locks the black and white point used in the most recent preview or scan. This is useful after scanning the first image of a series and you want to make the lighting consistent in future scans (especially when scanning panoramas).   This option is only displayed if you first set the *Input | Lock exposure* (p. 61) option and the *Input | Lock film base color* (p. 62) option.

See the "Advanced workflow suggestions" section of this User's Guide for more information.

Professional Option: This option is displayed when using the Advanced Workflow Procedure in this User's Guide.

Input | Blank page removal

This option causes blank pages from a document feeder to not be saved or printed.

Professional Option: This option is displayed when using a document feeder.

Input | Default folder

This is a mirror of the *Output | Default folder* (p. 81) option.

Input | File type

This is a mirror of the *Output | File type* (p. 82) option.

Input | TIFF file name

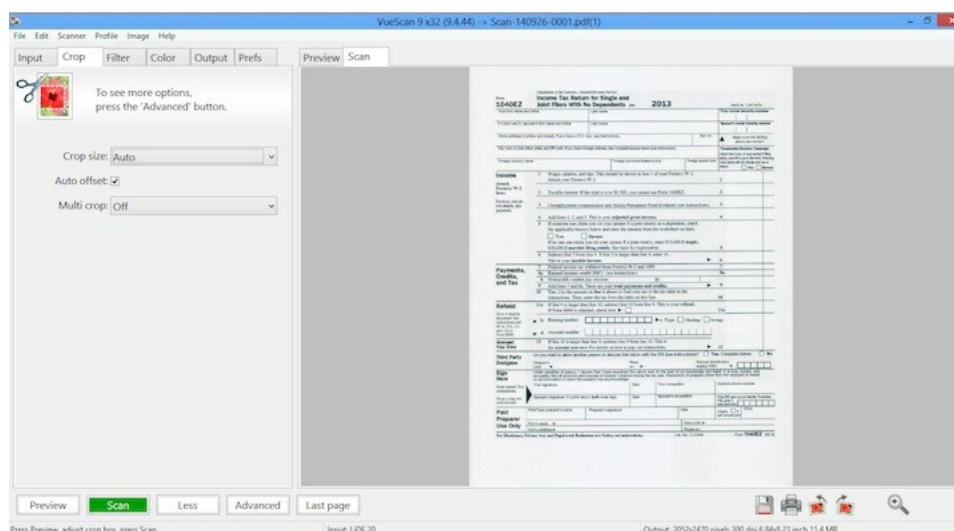This is a mirror of the *Output | TIFF file name* (p. 82) option.

Input | JPEG file name

This is a mirror of the *Output | JPEG file name* (p. 84) option.

Input | PDF file name

This is a mirror of the *Output | PDF file name* (p. 86) option.

Crop tab

The crop tab lets you specify full automatic cropping, full manual cropping and a range of options between. Note that VueScan also lets you change these values by using the mouse on the preview image.

The crop area is displayed as a blinking dashed line (marching ants) that defines the area for subsequent VueScan operations.   Position the mouse over the blinking line and drag to reposition any edge.   Hold down the shift key and click and drag anywhere within the crop area to reposition the entire crop area (or drag the center of the crop area with the mouse). Click the scan tab for VueScan to display the result of the cropping automatically.   The scan tab will use the data from the preview if a full scan has not yet been performed.

The area included in the crop is important in two ways. First, this is the area of the scan that will be included in the output files.   Second, this area is used to calculate color   balance, histogram, and other settings.

Be sure not to include the border around the edge of an image as part of the crop as this may cause these settings to be calculated incorrectly.*Crop | Buffer (%)* (p. 68) can also be used to prevent inadvertent inclusion of data outside of the desired frame in color settings.)

Crop | Crop size

This option specifies the method used to determine the size of the cropped image:

Manual

Lets you enter all of the crop sizes manually.   This option will also be selected if you have adjusted the crop size or position using the mouse on the preview window.

Auto

Analyzes the image and uses built-in rules to find the edges automatically. This setting works well most of the time if you want to capture the whole image.

Maximum

Sets the crop size to be the same as the size of *Crop | Preview area* (p. 69). This is particularly useful when saving the raw scan data to files as it ensures that everything the scanner reads will be saved.

(specific sizes)

Sets the crop area to known dimensions.   If a specific size is selected, the *Crop | Crop orientation* (p. 67) option will be available.

Standard Option: This option is always displayed.

Crop | X/Y size

This is the size of the image area that you are cropping.   If set to zero, the entire scanned area will be used.

Standard Option: This option is displayed when *Crop | Crop size* (p. 64) is set to "Manual".

Crop | Auto offset

Setting this option will automatically offset the crop box.   It will find the best placement for it to capture as much of the image as possible.

To save time when batch scanning, clear this option and *Crop | Auto rotate* (p. 67) and set *Input | Lock exposure* (p. 61).   Then when you press "Scan" it will perform a scan without additionally creating a preview.

Professional Option: This option is displayed when *Crop | Crop size* (p. 64) is set to anything except "Maximum".

Crop | X/Y offset

This is the offset in the preview area of the start of the image data.

These positions are relative to the upper left-hand corner of the preview area.   See *Crop | Preview area* (p. 69).

Standard Option: This option is displayed when *Crop | Auto offset* (p. 65) is displayed and not set.

Crop | Multi type

This option is used with 35mm film scanners to indicate that multiple 35mm film sizes should be used.   If turned off, the cropping will search for only 24x36mm sizes, and if turned on, will also look for 10x13mm, 24x18mm, 28x28mm, 28x36mm, and 40x40mm.

Professional Option: This option is displayed when scanning slides with a 35mm film scanner .

Crop | Multi crop

This option is used with some flatbed scanners that have a black plastic mask that holds multiple slides or film strips. It can also be used to scan multiple snapshots on a flatbed scanner.

If set to Auto, it automatically finds the places in the preview that contain the selected type of image.

If set to Custom, you can set up the *Crop | X/Y images* (p. 66), *Crop | X/Y spacing* (p. 66), *Crop | X/Y padding* (p. 66), and *Crop | X/Y linked* (p. 67) options.

If set to another option, it will use a pre-computed grid for many types of black plastic masks for each scanner.   If there isn't a built-in grid for your particular scanner, it will try to guess the shape of this grid.

Standard Option: This option is displayed if the scan area is large enough to hold more than one image.

Crop | X/Y images

Set these options to set up a grid for scanning separate images.   Each image within the grid can be cropped and rotated independently.

Professional Option: This option is displayed when *Crop | Multi crop* (p. 66) is set to "Custom".

Crop | X/Y spacing

These values can be set when *Crop | X/Y images* (p. 66) is set to a value greater than 1.   See *Crop | X/Y images* (p. 66).

Set the approximate width (X spacing) and height (Y spacing) of each element in the grid defined by *Crop | X/Y images* (p. 66).   For example, 8 4x6 photos on a 12x16 flatbed scanner would have X spacing of 6 inches and Y spacing of 4 inches.

Professional Option: This option is displayed when *Crop | Multi crop* (p. 66) is set to "Custom".

Crop | X/Y padding

If these values are set to 0, then the grid is centered, otherwise this is an offset to the first box in the grid.

Professional Option: This option is displayed when*Crop | Multi crop* (p. 66) is set to "Custom".

Crop | X/Y linked

This option indicates that all frames in the horizontal or vertical direction move together when one of the frames is offset.   This usually indicates strip film in a horizontal or vertical orientation.

Professional Option: This option is displayed when*Crop | Multi crop* (p. 66) is set to "Custom".

Crop | Show multi outline

Turn this option off if you don't want to see the lines around the multi-crop boxes.

Professional Option: This option is displayed when*Crop | Multi crop* (p. 66) is used.

Crop | Auto rotate

Setting this option will automatically rotate the crop box.   It will find the best placement for it to capture as much of the image as possible.

This option only functions when the crop box fits inside the preview area both horizonally and vertically. Some slide scanners let you put the slide in landscape or portrait mode, and this option rotates the image to either portrait or landscape orientation to match the image.

To save time when batch scanning, clear this option and*Crop | Auto rotate* (p. 67) and set *Input | Lock exposure* (p. 61).   Then when you press "Scan" it will perform a scan without additionally creating a preview.

Standard Option: This option is displayed when *Crop | Crop size* (p. 64)is set to anything except "Maximum" and when *Crop | Multi crop* (p. 66)isn't used.

Crop | Crop orientation

Use this option to control whether the size specified in the*Crop | Crop size* (p. 64) option is oriented in portrait or landscape view.

Standard Option: This option is displayed when *Crop | Crop size* (p. 64) is set to a specific size and not auto rotating, or when *Crop | Crop size* (p. 64) is set to "Auto" and *Crop | Multi crop* (p. 66) isn't used.

Crop | Lock aspect ratio

This option forces the crop box to keep a constant aspect ratio while one (or two) edges are being dragged by the mouse.

This ratio is always greater than one, and is the ratio of the longest edge to the shortest edge of the crop box.

If set to "Off", the aspect ratio isn't locked.

If set to "Image size", the aspect ratio is computed using the *Output | Printed size* (p. 81) option.

If set to "Manual", the *Crop | Aspect ratio* (p. 68) option will appear and you can manually set the aspect ratio of the crop box.

Professional Option: This option is always displayed.

Crop | Aspect ratio

If *Crop | Lock aspect ratio* (p. 67) is set to "Manual", use this option to manually set the ratio of the longest edge   to the shortest edge of the crop box.   For instance, if you plan on printing an image on 4x6 paper, the aspect ratio should be 1.5 (6 divided by 4).

Professional Option: This option is displayed when *Crop | Lock aspect ratio* (p. 67) is set to "Manual".

Crop | Border (%)

This instructs VueScan to enlarge the image beyond the edge of the crop box.   This added border is ignored when   computing the color balance of the image.

This option is useful for adjusting the size or position   of the crop box that may have cut off parts of the image you   want to keep.   Because border will extend the effective area that   is cropped, it will tend to include areas of white (or black) in the resulting image; if these parts of the image were not ignored when computing color balance, they could skew the results.

Border is a percentage relative to the dimensions of the   cropped area, up to the maximum size of the preview area.

Border can also be set as a negative value in order to reduce the size of the image.

Compare this option to *Crop | Buffer (%)* (p. 68).

Professional Option: This option is always displayed.

Crop | Buffer (%)

This causes VueScan to ignore some image data just inside the edge of the crop box of the image when computing   the color balance of the image.   Unlike *Crop | Border (%)* (p. 68), the buffer does not affect the size of the image.

This option is useful to account for sizing or positioning errors   of the crop box that incorrectly include parts of the image from   its outer edges.   These white or black areas can significantly skew the calculation of color balance if not ignored.

Buffer is a percentage relative to the dimensions of the   image area.   Because it includes a *Crop | Border (%)* (p. 68) it should always be set slightly higher than Border.

Compare this option to *Crop | Border (%)* (p. 68).

Professional Option: This option is always displayed.

Crop | Preview area

The preview area is the subset of the total scan area that gets scanned to produce a preview.   This option can be set manually, set to the same as the last preview, set to the crop box, set to the default or set to the maximum possible.

Note: if you set a smaller preview area, the scanner head will move only far enough to cover that area.   This can reduce the amount of time needed to scan, especially on flatbed scanners.   Because the stepper motor that moves the scan head is often the factor that limits speed, it also makes sense to orient images in landscape (and set the preview area accordingly).

Professional Option: This option is always displayed.

Crop | Preview X/Y offset/size

These options describe the size of the preview area. They are relative to the upper left-hand corner of the image, negative, or slide.

Professional Option: This option is displayed when*Crop | Preview area* (p. 69) isn't set to "Maximum".

Crop | Focus X/Y offset

This option determines where the auto focus is centered.   This position is displayed on the preview as a small animated box.

Film tends to curl along its length, as well as across its width in which case the focus will be slightly off as the edges of the film will be closer to the lens than the center.

To minimize this effect, position the focus point between the center of the film and its edge in both dimensions, or slightly closer to the edge to account for less depth-of-field the closer to the lens.
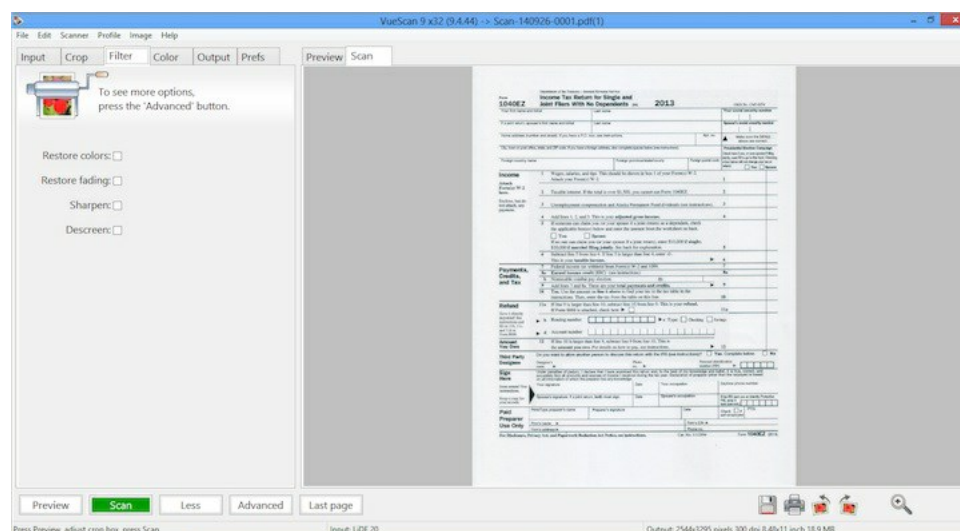
Professional Option: This option is displayed when the scanner is capable of focusing.

Crop | All frames

This option makes all frames use the options in this tab, instead of applying the options separately for each frame.

Professional Option: This option is displayed when using multiple frames.

Filter tab

This tab is used to control the infrared (IR) cleaning, restore colors, grain reduction and sharpening options.

Filter options affect the output of cropped TIFF, JPEG and PDF files and the images in an index. They do not affect the data of a raw scan file.

The one exception to this is if *Output | Raw output with* (p. 92) is set to "Save" - in this case, the infrared cleaning and grain reduction is also done before saving the raw scan files.

See the Processing section of the topic "How VueScan Works" to understand the details of how these filters are applied.

Filter | Infrared clean

When an infrared channel is available, use this option to remove dust spots and scratches.   It only causes image softening in the immediate vicinity of the spots and scratches, except when this option is set to "Heavy".

You can control the amount of cleaning of the image by choosing the Light, Medium or Heavy options.

Standard Option: This option is displayed when the scanner has an infrared lamp and when scanning a color film (not B/W negative or Microfilm).

Filter | Restore colors

This option is used to restore the red, green, and blue colors by making them more independent.   This works best when scanning at high resolution.

If you select this option, the film type in the Color tab isn't used.

Standard Option: This option is always displayed.

Filter | Restore fading

This option is used to restore the effects of faded film dyes.   Slide film often shifts towards red over time, and color negative film towards cyan.

If you select this option, the film type in the Color tab isn't used.

Standard Option: This option is always displayed.

Filter | Grain reduction

Use this option to reduce the graininess of a scan.   It can also reduce the effect of electronic noise.

You can control the amount of softening of the image by choosing the Light, Medium or Heavy options.

Professional Option: This option is always displayed.

Filter | Sharpen

This option enables an unsharp mask.   This is used to sharpen images, the unsharp mask will improve images for printing.

If you're planning on editing images after scanning them, then you should leave this option off.

Standard Option: This option is always displayed.

Filter | Descreen

Set this option when scanning images made up of an array of dots in a "screen" pattern.

Standard Option: This option is displayed when scanning reflective media.

Filter | Descreen dpi

Set this option to the approximate number of dots per inch of the "screen" used when printing the media you're scanning. The default value of 75 works well for most media.

Professional Option: This option is displayed when scanning reflective media and *Filter | Descreen* (p. 71) is set.

Filter | Flatten

Set this option when scanning paper with stains or uneven lighting.   For example, when scanning books, the area near the spline is often darker, and this option will correct this.
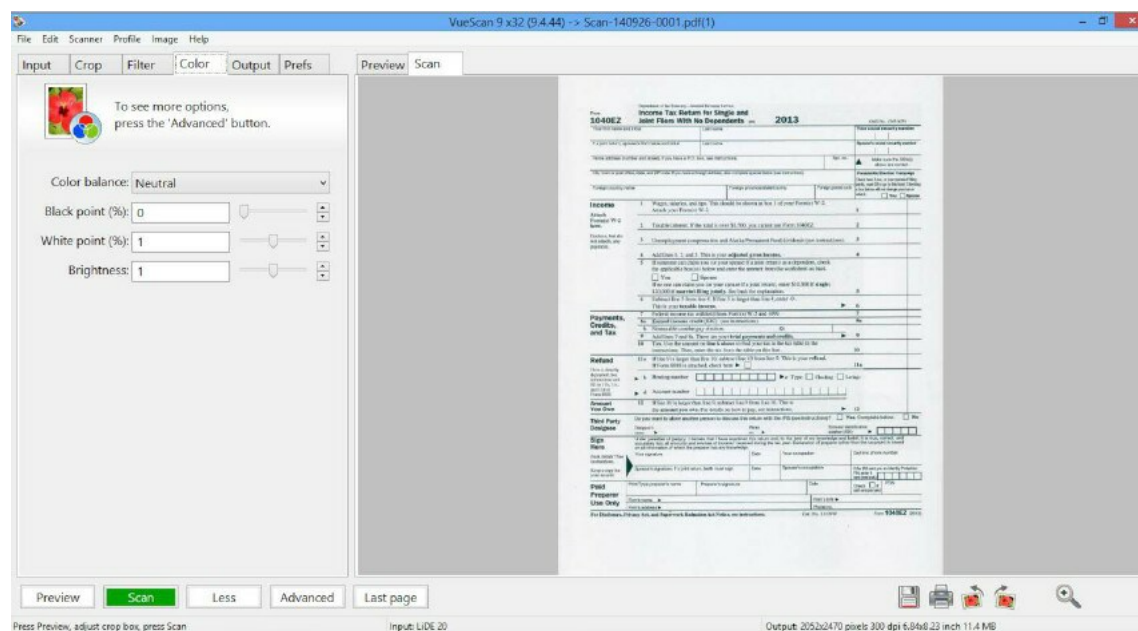
Standard Option: This option is displayed when scanning reflective media.

Filter | All frames

This option makes all frames use the options in this tab, instead of applying the options separately for each frame.

Professional Option: This option is displayed when using multiple frames.

Color tab

This tab is used to control the colors of the preview and scan. It lets you specify film type, film base color, image brightness, color balancing, black and white points and color space.

Color | Color balance

Use this option to set the type of color balance you want for each image. The default setting of White Balance is appropriate for typical lighting conditions.   See the topic "Adjusting Color Balance" for general guidance on using Neutral and Auto levels to handle these cases if White Balance is not right.

None

The black and white points aren't used at all, and the image is only corrected for the CCD's color response (if the Media option is set to Image) or by the film's color response.   This image is gamma corrected.

Manual

Both the black and white points are used to stretch the image's intensity range.

However, the relative ratios of red, green, and blue are specified manually.

Neutral

Both the black and white points are used to stretch the image's intensity range. However, the relative ratios of red, green, and blue are kept constant.

Tungsten

Both the black and white points are adjusted to compensate for an image lit by tungsten light (i.e. a normal incandescent light bulb).   This removes the reddish cast from indoor pictures taken without a flash.

Fluorescent

Both the black and white points are adjusted to compensate for an image lit by fluorescent light.   This removes the greenish cast from indoor pictures lit by fluorescent lights or lit by flash.

Night

Both the black and white points are adjusted to compensate for an image taken at night.   The white balance is determined from the darkest 10% of the image, which often produces the best results when images have bright fluorescent or incandescent lights that are greenish or yellowish.

Auto levels

This is a simple mapping of the darkest color to 0.00 intensity and the brightest color to 0.95 intensity.

White balance

VueScan analyzes the image and adjusts it to make neutral colors appear more neutral.

Landscape

VueScan analyzes the image and adjusts it to make neutral colors appear more neutral, and sky blue and green foliage colors more lifelike.

Portrait

VueScan analyzes the image and adjusts it to make neutral colors appear more neutral and skin tones more lifelike.

Standard Option: This option is displayed when when*Input | Lock image color* (p. 62) isn't set.

Color | Neutral red/green/blue

This option is normally set by clicking with the right mouse button on a neutral color in the image.

Professional Option: This option is displayed when*Input | Lock image color* (p. 62) isn't set, and when "Color | Color balance" is set to "Manual".

Color | Black point (%)

The black point is used by the color balance algorithm and is computed by using the histogram of each color in the image.   Use this option to leave the black point at the minimum intensity (0%), or to choose the black point such that some percentage of the pixels in the image are below the black point.

The default black point is 0.   Setting a higher value will cause tones close to black to become pure black, which can improve contrast.   However, setting the black point too high will cause shadow detail to be lost.

Professional Option: This option is displayed when "Color | Color balance" is set and*Input | Lock image color* (p. 62) isn't set.

Color | Black point red/green/blue

This option lets you set the black point manually.   Note that these values are in linear space, not gamma corrected space, so the only practical way to use these values is to use the *Input | Lock image color* (p. 62) option.

Professional Option: This option is displayed when*Input | Lock image color* (p. 62) is set.

Color | White point (%)

The white point is used by the color balance algorithm and is computed by using the histogram of each color in the image.   Use this option to leave the white point at the maximum intensity (0%), or to choose the white point such that some percentage of the pixels in the image are above the white point.

The default white point is 1% (that is, the brightest 1% of pixels are all converted to pure white).   Setting a higher value will   cause tones close to white to become pure white. This can improve contrast and overall intensity of the image.   Setting the white   point

too high will cause details in areas of highlights (e.g. the gray puffs of a cloud) to be lost, making the image look flat.

Professional Option: This option is displayed when "Color | Color balance" is set and*Input | Lock image color* (p. 62) isn't set.

Color | White point red/green/blue

This option lets you set the white point manually.   Note that these values are in linear space, not gamma corrected space, so the only practical way to use these values is to use the *Input | Lock image color* (p. 62) option.

Professional Option: This option is displayed when*Input | Lock image color* (p. 62) is set.

Color | Threshold

Use this option to change the brightness of text or microfilm scans.

Standard Option: This option is displayed when scanning one bit per sample.

Color | Invert

Use this option to invert black and white when scanning text using white letters on a black background.

Standard Option: This option is displayed when scanning one bit per sample.

Color | Curve low/high

Use these options to change the shape of the curve that's applied after the black/white point is applied.

Decrease the low value to see more detail in the black parts of the image, and increase the high value to see more detail in the white part.

You can set *Prefs | Graph type* (p. 97) to "Curve" to see the curve, and can move the triangles under the curve to change these values.

Double-click on the graph of the curve to reset these options to their default values.

Professional Option: This option is always displayed.

Color | Brightness

Use this option to increase or decrease the overall image brightness.

VueScan's brightness is effectively a multiplier of the gamma   of the color space.

Standard Option: This option is always displayed.

Color | Brightness red/green/blue

Use these options to increase or decrease the red/green/blue image brightness.   Note that this is a gamma multiplier, where 1.0 is the default setting.

Professional Option: This option is always displayed.

Color | Film base color red/green/blue

This option displays values for the base color of the film, and can be edited.   These options, which are usually set automatically, are available if *Input | Lock film base color* (p. 62) is selected.

This is primarily useful if you're scanning a series of negatives or slides from the same roll of film as its base color will always be the same.

Professional Option: This option is displayed when *Input | Media* (p. 50) set to a film type and when *Input | Lock film base color* (p. 62) is set.

Color | Slide/Negative/B/W vendor/brand/type

Use these options to set up the film type for various settings for the *Input | Media* (p. 50) option.

Choose the appropriate vendor, brand and type from the list.   Examine the edge of the film around the sprockets to determine the type.

If your film is not listed, the generic option is often a good choice.

Standard Option: This option is displayed when *Input | Media* (p. 50) is set to a film type.

Color | Scanner/Printer/Film/Output/Monitor color space

(Professional Edition only)

Use these options to set the color space.   A color space is a combination of color primaries and white point.   For most situations, the default color space is probably best.

Color spaces are used to provide a well-known standard that ensures a given color is the same in one medium (e.g. the display monitor) as it is in others (e.g. printed output). If you use specific color spaces, you must ensure that all other software, printing, etc. that operates on that source uses the same color space.   Color spaces are an advanced topic -- use them only if you understand and need them.

The Scanner color space is the color space used by a scanner, raw scan file or raw digital camera file. It is also the name of the ICC file that gets written when "Profile | Profile scanner" is chosen.   There are two options for Scanner color space - built-in, which is the color space of a pre-profiled scanner, and "ICC profile", which is an ICC profile produced by the "Profile | Profile scanner" command.

The Printer color space is used to control how the colors look when they are sent to

your printer.   You should normally use the default setting unless you're profiling your printer.

The Film color space is an advanced option for adjusting for the color of film stocks.

The Output color space is used when writing images to JPEG, TIFF, PDF and Index files.

Note that if you use the Apple RGB, ColorMatch RGB, ProPhoto RGB or ECI RGB color space, the image gamma will be 1.8.   If you use any other color space, the image gamma will be 2.2.

You can change the image gamma by using the "Color | Image brightness" option. This is a multiplier of the gamma of the color space chosen.

The Monitor color space is the color space used to display images in the Preview and Scan tabs.   The default value is usually correct for most systems.

Standard Option: This option is always displayed.

Color | Scanner/Printer/Film/File/Monitor ICC profile

(Professional Edition only)

If you set this option to "ICC profile", you can specify the name of an ICC profile.

The Scanner, Printer and Film ICC profiles are normally read-only, but will also be written when the "Profile | Profile scanner/printer/film" commands are used.

Professional Option: This option is displayed when the color space is set to "ICC profile".

Color | Scanner/Printer/Film ICC description

(Professional Edition only)

Use this option to add a description to the ICC profile when it's created.   This description is used by programs like Photoshop(TM) to identify a profile.

Professional Option: This option is displayed when the color space is set to "ICC profile".

Color | Scanner/Printer/Film IT8 data

(Professional Edition only)

Every IT8 or Q60 target has an associated data file that describes the measured color at each square in the target.   This file is read when the "Profile | Profile scanner" command is used.   If you don't have a data file for your target, the default IT8 target colors will be used.

Standard Option: This option is displayed when the color space is set to "ICC profile".

Color | Show IT8 outline

(Professional Edition only)

When this option is enabled, a grid is overlaid over the crop box showing where the IT8 target locations are.   Note that this grid only outlines the grey bar at the bottom of the target and the first 19 columns of the color boxes.

Professional Option: This option is always displayed.

Color | View color

Use this option to view all three color channels normally ("RGB") or to view the red, green, blue or infrared channel alone.

The default value is "RGB".

Professional Option: This option is always displayed.

Color | Pixel colors

Use this option to enable setting the clipped black and white colors, the out of gamut colors and the infrared defect colors.

Professional Option: This option is always displayed.

Color | Clipped black color

Use this option to show the pixels that have at least one color clipped to zero intensity.

These colored pixels are not written to output files, but are displayed in the Preview and Scan tabs.

Professional Option: This option is displayed when "Color | Pixel colors" is set.

Color | Clipped white color

Use this option to show the pixels that have at least one color clipped to maximum intensity.

These colored pixels are not written to output files, but are displayed in the Preview and Scan tabs.

Professional Option: This option is displayed when "Color | Pixel colors" is set.

Color | Out of gamut color

Use this option to show the pixels that have at least one color component that is out of gamut.

These colored pixels aren't written to output files, but are displayed in the Preview and

Scan tabs.

Professional Option: This option is displayed when "Color | Pixel colors" is set.

Color | Infrared defect color

Use this option to show the defects found by the*Filter | Infrared clean* (p. 70) option.

These colored pixels aren't written to output files, but are displayed in the Preview and Scan tabs.

This option is only useful when *Filter | Infrared clean* (p. 70)is enabled.

Professional Option: This option is displayed when "Color | Pixel colors" is set.

Color | All frames

This option makes all frames use the options in this tab, instead of applying the options separately for each frame.

Professional Option: This option is displayed when using multiple frames.

Output tab
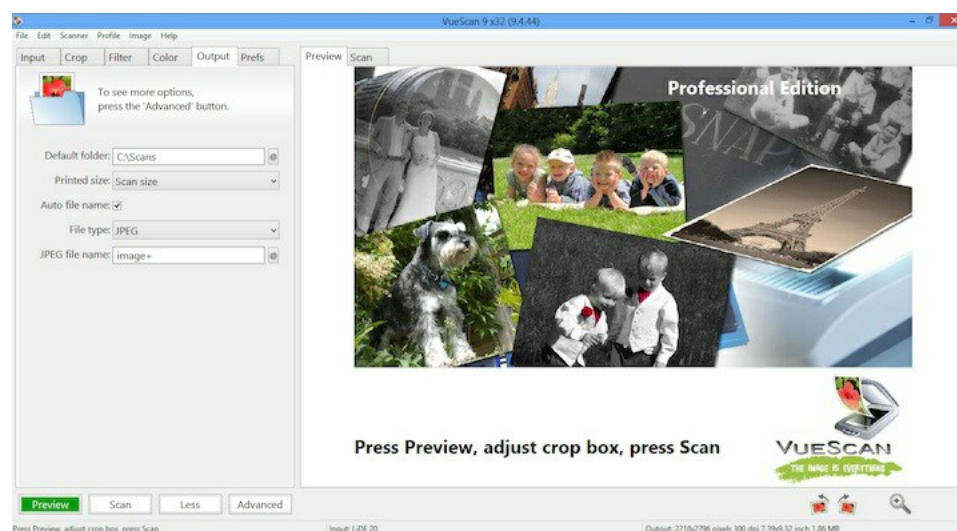
This tab lets you specify what types of files are written when scanning, and the file names and options for these files.

The various measures of the image files produced will be displayed in the status area at the bottom right of the VueScan window.

File naming and saving

The **Output tab** has several options to specify the name   of the files VueScan produces.   You may either type the filename in directly, or click the **'@'** button to open a visual file and folder navigation window.

You may specify a default folder for all file operations, but filenames may also specify the path to a sub-folder of the default (a relative path), or even a completely   different location (an absolute path).

VueScan can save multiple files at once.   For example, you may want to save a high-resolution TIFF for archiving purposes or later editing, and lower quality (and size) JPEG files for other purposes.

Auto-numbering

VueScan provides an auto-numbering feature that allows you to create unique filenames automatically.   Depending on the task you are doing, VueScan can either use the next number in a series, or it can use the current frame number (as indicated in*Input | Frame number* (p. 53)) when creating a new filename.

This option is available and works the same for "crop" files (scans that have been cropped and processed) in TIFF, JPEG, PDF and OCR text formats or "scan" files that contain the raw, minimally processed output from the scanner.

If the "@" symbol is used in the file name, file names in the form "Scan-YYMMDD-0001+" are used (where YY is the year, MM is the month, and DD is the day).   The last digits are increased until an unused file name is found.

Serial numbering with +

Insert a plus sign (+) anywhere in the filename in order to instruct VueScan to add a number in that place if needed to create a new unique filename in the folder.   If you put one or more digits before the plus sign, VueScan will start counting from that number.

VueScan finds the next available number by looking for   files matching the pattern specified; one by one it adds one to the digit(s) in the name until it finds an unused filename.   So if the pattern is "crop0001+.tif" and the   folder is empty, the first file will be "crop0001.tif",   the second "crop0002.tif" and so on.   You can start at any number (e.g. "crop1001+.tif").

Note that if you delete a file from an existing numbered series, the next file saved will fill the open position. This can be useful if you want to match file numbers with exposure frame numbers or other numerical indexes.

Add leading zeros to the starting number in order to   "reserve" having filenames of the same length.

If more than one plus sign (or equals sign) is specified,   VueScan will ignore all but the last.

Using same file name as raw files with *

Use an asterix (*) for the output file name to cause the raw file name to be used.   For instance, when scanning raw files with different names that aren't in numerical order, click the **'@'** button to the right of the *Input | Files* (p. 50) option, choose multiple file names, and when you batch scan these, the output files will have the same file names as the input files, albeit in different folders and with different file extensions.

Frame numbering with =

Insert an equals sign (=) anywhere in the filename   to instruct VueScan to insert the current

value of *Input | Frame number* (p. 53)when creating the file.   If you save the same frame more than once VueScan will overwrite the previous file (see*Prefs | Warn on overwrite* (p. 99)).

If you specify a starting number, VueScan will add one less   than the current frame number to the starting value.   For example, if you specify "crop0007=.tif" and the current frame number is 2, the file written will be "crop0008.tif" (7+2-1).

This feature allows you to match the exposure number printed on the film edge to the file number of the scan.   Keep in mind that *Input | Frame number* (p. 53) will be relative to what the scanner thinks is a frame. Your film holder frame number might range from 1 to 6, so for each new strip of 6 exposures you scan, you can set the starting number in the filename.

Output | Default folder

This is the folder where files are read and written by default.

All other file names on the **Output tab**, as well as *Input | Files* (p. 50)will use this folder, so full paths are not required in those fields.

Standard Option: This option is always displayed.

Output | Printed size

Use this option to select the target size of the saved images.   This is used to compute the resolution of the saved TIFF,   JPEG and PDF files.   The dpi of the saved files will depend on the dpi produced by the scanner and the image size.

Note that "Printed size" does not affect the number of pixels in the image, so this setting does not affect the file size.   "Printed size" controls logically how far apart the pixels should be displayed in order to fit within the bounds specified.   This also means that "Printed size" does not instruct VueScan to resample the image.

Keep in mind that the effects of resolution may not be visible (or may be misrepresented), as a result of the resolution of your monitor or printer.   A very high-resolution file cannot be displayed at a resolution higher then the monitor, so just because you see jagged lines does not mean the image will   print poorly.

Standard Option: This option is always displayed.

Output | Magnification (%)

If the "Printed size" is "Scan size", you can increase the printed size of the output file with this option.

This option divides the scanned dpi of the image by this value, resulting in an increase in the printed size of the output file.

Standard Option: This option is displayed when*Output | Printed size* (p. 81) is set to "Scan size".

Output | Printed dpi

If "Printed size" is "Fixed dpi", you can specify the dpi of the output file with this option. The   printed size will be as large as needed to match the specified resolution and will retain the aspect ratio of the cropped scan.

Standard Option: This option is displayed when*Output | Printed size* (p. 81) is set to "Fixed dpi".

Output | Printed width

This sets the target width of the saved images when the "Printed size" option is set to "Manual". If set, the height will be calculated to retain the aspect ratio of the cropped scan.

Standard Option: This option is displayed when*Output | Printed size* (p. 81) is set to "Manual".

Output | Printed height

This sets the target height of the saved images when the "Printed size" option is set to "Manual". If set, the width will be calculated to retain the aspect ratio of the cropped scan.

Standard Option: This option is displayed when*Output | Printed size* (p. 81) is set to "Manual".

Output | Auto file name

The "XXXX file name" options below are used to produce the output file name.   If this option is turned off, then a Save dialog box lets the user specify the actual file name to be used.

Professional Option: This option is always displayed.

Output | File type

You can use this option to write scans in JPEG, PDF or TIFF format. If you select "Custom", then you can select any combination of file types.

Standard Option: This option is always displayed.

Output | TIFF file

This enables writing the cropped and processed images to a TIFF file when scanning.

Standard Option: This option is always displayed.

Output | TIFF file name

This specifies the name of the TIFF file to hold the cropped and processed images.

In addition to VueScan writing a specific file name, it can also automatically name your files in three ways by placing special characters in the filename. See the beginning of this section for information on how to use this auto-numbering feature.

The default setting of this option is "@.tif", which is expanded to "Scan-YYMMDD-0001+.tif".

Standard Option: This option is displayed when *Output | TIFF file* (p. 82) is set.

Output | TIFF size reduction

You can use this option to write files with a reduced number of pixels. For instance, if size reduction is set to 3, then every 3x3 block of pixels in the image will be written as a single pixel, which is the average of these 9 pixels.

This option will reduce the resolution and size of the file produced. These values will be displayed in the status area at the bottom of the VueScan window.

However, this option produces better results than reducing the resolution of the scan, as the averaging of multiple pixels results in a similar noise reduction benefit as multi-sampling. See *Input | Number of samples* (p. 58) and *Input | Number of passes* (p. 59).

Professional Option: This option is displayed when *Output | TIFF file* (p. 82) is set.

Output | TIFF multi page

If set to 'On', this option will cause VueScan to create multi-page TIFF files. Each scan will be added as a new page.

If batch scanning with a document feeder, and if this option is set to 'Blank page', a new file will be started if a blank page is detected (and the blank pages won't be saved).

If batch scanning with a a duplex document feeder, and if this option is set to "Front/Back", only the front and back of each page will be saved in each file.

Standard Option: This option is displayed when *Output | TIFF file* (p. 82) is set.

Output | TIFF file type

This option describes the resolution of the cropped TIFF file, in bits per pixel. It should normally be set to 24-bits per pixel, since many image editing programs are unable to read TIFF files with higher bit depth than this.

If you select 8 bits or 16 bits, the file will be saved in black/white format.

Professional Option: This option is displayed when *Output | TIFF file* (p. 82) is set.

Output | TIFF compression

This specifies whether to use compression when writing the TIFF file.

TIFF compression will not cause any loss of image data.   It will take a little longer to read, and especially write, as the   algorithm is computationally intensive, but can reduce total file size by as much as 40%.

The default setting is "Auto", which enables compression for files with 12 or fewer bits per sample and disables compression for files more bits per sample.

Professional Option: This option is displayed when*Output | TIFF file* (p. 82) is set and when*Output | TIFF DNG format* (p. 84) isn't set.

Output | TIFF DNG format

This specifies whether to write TIFF files in DNG (Digital Negative) format.   This allows VueScan's TIFF files to be read by the Adobe Camera Raw plugin or other programs that read DNG files.

Professional Option: This option is displayed when*Output | TIFF file* (p. 82) is set.

Output | TIFF profile

This specifies whether to embed an ICC color profile into the TIFF file. This is primarily useful if you're using Photoshop(TM).   You can specify the profile to use by setting*Color | Output color space* (p. 76).

Professional Option: This option is displayed when*Output | TIFF file* (p. 82) is set.

Output | JPEG file

This enables writing the cropped and processed images to a JPEG file when scanning.

Standard Option: This option is always displayed.

Output | JPEG file name

This specifies the name of the JPEG file to hold the cropped and processed images.

In addition to VueScan writing a specific file name, it   can also automatically name your files in three ways by placing special characters in the filename.   See the beginning of this section for information on how to use this auto-numbering feature.

The default setting of this option is "@.jpg", which is expanded to "Scan-YYMMDD-0001+.jpg".

Standard Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | JPEG size reduction

You can use this option to write files with a reduced number of pixels. For instance, if size reduction is set to 3, then every 3x3 block of pixels in the image will be written as a

single pixel, which is the average of these 9 pixels.

This option will reduce the resolution and size of the file produced. These values will be displayed in the status area at the bottom of the   VueScan window.

However, this option produces better results than reducing the resolution of the scan, as the averaging of multiple pixels results in a similar noise reduction benefit as multi-sampling.   See *Input | Number of samples* (p. 58)and *Input | Number of passes* (p. 59).

Professional Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | JPEG multi page

If set, this option will cause VueScan to append scans to the end of a JPEG file, padding the file with white pixels on the right if necessary.

This option is sometimes useful if scanning two-sided identity documents like driver's licenses, when scanning photographs with writing on the back, or when scanning postcards.

If set to 'On', this option will cause VueScan to create multi-page JPEG files.   Each scan will be added as a new page.

If batch scanning with a document feeder, and if this option is set to 'Blank page', a new file will be started if a blank page is detected (and the blank pages won't be saved).

If batch scanning with a a duplex document feeder, and if this option is set to "Front/Back", only the front and back of each page will be saved in each file.

Professional Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | JPEG quality

This option controls the quality of the JPEG file.   Using 100 produces images with few visible JPEG artifacts, and 50 results in images with noticeable artifacts, but with much smaller sizes. The default value of 90 produces fairly small images with little visible degradation in image quality.

Even at the highest quality, JPEG files are smaller than compressed TIFF files by as much as 60%.   This smaller size comes at the cost of loss of image information.   If you expect to be editing your scans produced by VueScan (e.g. in Photoshop(TM)), or are digitally   archiving your scans, JPEG is not a good choice.   However, for web, email, small size or inkjet printing, JPEG is by far more   efficient and, at higher quality settings, virtually indistinguishable.

Professional Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | JPEG black/white

This enables writing the cropped and processed images to a monochrome JPEG file. If you're working with black/white film, this will produce files that are smaller than color

files.

Professional Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | JPEG profile

This specifies whether to embed an ICC color profile into the JPEG file. This is primarily useful if you're using Photoshop(TM).   You can specify the profile to use by setting*Color | Output color space* (p. 76).

Professional Option: This option is displayed when*Output | JPEG file* (p. 84) is set.

Output | PDF file

This enables writing the cropped and processed images to a PDF file when scanning.

Standard Option: This option is always displayed.

Output | PDF file name

This specifies the name of the PDF file to hold the cropped and processed images.

In addition to VueScan writing a specific file name, it   can also automatically name your files in three ways by placing special characters in the filename.   See the beginning of this section for information on how to use this auto-numbering feature.

The default setting of this option is "@.pdf", which is expanded to "Scan-YYMMDD-0001+.pdf".

Standard Option: This option is displayed when*Output | PDF file* (p. 86) is set.

Output | PDF size reduction

You can use this option to write files with a reduced number of pixels.   For instance, if size reduction is set to 3, then every 3x3 block of pixels in the image will be written as a single pixel, which is the average of these 9 pixels.

This option will reduce the resolution and size of the file produced. These values will be displayed in the status area at the bottom of the   VueScan window.

However, this option produces better results than reducing the resolution of the scan, as the averaging of multiple pixels results in a similar noise reduction benefit as multi-sampling.   See *Input | Number of samples* (p. 58)and *Input | Number of passes* (p. 59).

Professional Option: This option is displayed when*Output | PDF file* (p. 86) is set.

Output | PDF multi page

This option is useful when you are scanning documents and want multiple pages stored in a single file.

If set to 'On', this option will cause VueScan to create multi-page PDF files.   Each scan will be added as a new page.

If batch scanning with a document feeder, and if this option is set to 'Blank page', a new file will be started if a blank page is detected (and the blank pages won't be saved).

If batch scanning with a a duplex document feeder, and if this option is set to "Front/Back", only the front and back of each page will be saved in each file.

Standard Option: This option is displayed when *Output | PDF file* (p. 86) is set.

Output | PDF file type

This option describes the resolution of the cropped PDF file, in bits per pixel.   For PDF files, only 1 bit per sample and 8 bits per sample images are written, and 1 sample per pixel and 3 samples per pixel images are written.

Professional Option: This option is displayed when *Output | PDF file* (p. 86) is set.

Output | PDF compression

This specifies whether to use compression when writing the PDF file.

PDF compression uses the JPEG format internally when writing PDF files with more than one bit per pixel.   If this option is set to 'Maximum', additional JPEG compression is used (level 75) otherwise minimal JPEG compression is used (level 90).

Professional Option: This option is displayed when *Output | PDF file* (p. 86) is set.

Output | PDF paper size

This option describes the page size to be used in PDF files.   If the image size is larger than the page size, then a larger page size is used, otherwise the image is centered on the page.

Standard Option: This option is displayed when *Output | PDF file* (p. 86) is set.

Output | PDF profile

This specifies whether to embed an ICC color profile into the PDF file.   This is primarily useful if you're using Photoshop(TM).   You can specify the profile to use by setting *Color | Output color space* (p. 76).

Professional Option: This option is displayed when *Output | PDF file* (p. 86) is set.

Output | PDF OCR text

This option creates searchable PDF files.   VueScan's Optical Character Recognition (OCR) feature detects where each word is located on the page, and overlays this text on top of the image of the page.   You can then use the search capability of any PDF viewer to find the text within the PDF document.

This will also let your operating system index your PDF files so you can look for documents based on the text within them.

Use the *Output | OCR text language* (p. 88)option to choose the language of the text. This will improve the quality of non-English OCR.   Only characters that are in the windows-1252 character set (basically Western European languages) will be written to the PDF file.

Standard Option: This option is always displayed for flatbed scanners and when scanning microfilm.

Output | OCR text file

This Optical Character Recognition (OCR) feature writes the text from a scanned image to a normal text file that can be edited with any text editor.

Professional Option: This option is always displayed.

Output | OCR text file name

This specifies the name of the OCR text file to hold the text from the scanned image.

In addition to VueScan writing a specific file name, it   can also automatically name your files in three ways by placing special characters in the filename.   See the beginning of this section for information on how to use this auto-numbering feature.

The default setting of this option is "@.txt", which is expanded to "Scan-YYMMDD-0001+.txt".

Professional Option: This option is displayed when*Output | OCR text file* (p. 88) is set.

Output | OCR text language

This option selects the language of the text that's being scanned.   There's built-in support for English, and 32 additional languages can be downloaded from:

```
http://www.hamrick.com/ocr.html
```

Professional Option: This option is displayed when*Output | OCR text file* (p. 88) is set.

Output | OCR text multi page

This option is useful when you are scanning documents and want the OCR text stored in a single file.

If set to 'On', this option will cause VueScan to create multi-page OCR text files.   Each scan will be added as a new page.

If batch scanning with a document feeder, and if this option is set to 'Blank page', a new file will be started if a blank page is detected (and the blank pages won't be saved).

If batch scanning with a a duplex document feeder, and if this option is set to

"Front/Back", only the front and back of each page will be saved in each file.

Professional Option: This option is displayed when *Output | OCR text file* (p. 88) is set.

Output | OCR text RTF format

If set, this option will cause VueScan to write OCR text files in the RTF format (Rich Text Format) used by Microsoft Word as well as most Mac OS X and Linux word processors.   This format preserves the location of the text on the page that's scanned, along with the bold and italic settings of the text.

Professional Option: This option is displayed when *Output | OCR text file* (p. 88) is set.

Output | Index file

This enables writing the cropped and processed images to an index file when scanning.

An index file contains thumbnail size copies of a set of   images, for example a roll of film.   Each cropped image   is added to the index print from left to right, top to bottom.

After saving an image to the index file, the file is closed and opened again if another image is added.

Professional Option: This option is always displayed.

Output | Index file name

This specifies the name of the file to hold the index images.   Index files are always saved as windows bitmap (BMP) files.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Index frame

This option controls the placement of images in the index. If zero, the images are added from left to right, top to bottom; this is the default setting.

If set to a number greater than 0, the images are added at that frame   position counting left to right, top to bottom.   For example,   if Index frame is set to 8 and Index across is set to 5, the   image would be placed at the second row, third column.

If Index frame is set to a number greater than 0, it will be increased by 1 after an image is saved to the index.

When is it really useful? When you want to replace one or more index images in an existing index file.   For example if you want to change the rotation of an image, or if you re-scan one strip of film within a roll.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Index width

This is the width of an index frame, in pixels.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Index height

This is the height of an index frame, in pixels.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Index margin

This is the margin around an index frame, in pixels.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Index across

This is the number of index frames across in an index file.

Professional Option: This option is displayed when *Output | Index file* (p. 89) is set.

Output | Raw file

(Professional Edition only)

This enables writing raw data from the scanner to a TIFF file.

The raw files are the result of the first of two steps VueScan performs: "scanning".   The second step is   "processing".   These steps are described in the topic   "How VueScan Works" in this User's Guide.   By providing   a mechanism to cleanly separate these two steps, VueScan provides great flexibility and offers options not available in most other scanner software.

You can perform the "processing" step later by setting *Input | Source* (p. 49) to "File". This lets you rescan images with different settings, without needing to rescan   the media.

When the raw file is written depends on the setting of *Output | Raw output with* (p. 92).

Raw files are always stored as TIFF files and can therefore be examined in image viewing and editing programs.   Note, however that the resolution of raw files (as specified in *Output | Raw file type* (p. 92)) may be greater than some programs can read.

Little processing is done on raw files so they are a close representation of exactly what the scanner has produced.   Raw files will not be filtered nor will color settings be applied.   As a result, raw scans may look "wrong".

Raw files contain as much data as the scanner was able to produce before any modifications may have been made, and are therefore good for archiving.

The image gamma value is 1.0 when there are two bytes (16-bits) per sample, and 2.2 when there is one byte (8-bits) per sample. Raw files saved with gamma 1.0 will look dark, but this is normal.

The one exception to this is if *Output | Raw output with* (p. 92) is set to "Save". In this case, the infrared cleaning and grain reduction is also done before saving the raw scan files.

Professional Option: This option is displayed when*Prefs | Enable raw from disk* (p. 100) is set or when not scanning from a file.

Output | Raw file name

(Professional Edition only)

This specifies the name of the TIFF file used to hold the raw data from the scanner.

As well as VueScan writing a specific file name for you, it can also automatically number your files in two ways by placing special characters in the filename. (See the beginning of this section for information on how to use this auto-numbering feature.)

The default setting of this option is "scan0001+.tif".

Professional Option: This option is displayed when*Output | Raw file* (p. 90) is set.

Output | Raw size reduction

(Professional Edition only)

You can use this option to write files with a reduced number of pixels. For instance, if size reduction is set to 3, then every 3x3 block of pixels in the image will be written as a single pixel, which is the average of these 9 pixels.

However, this option produces better results than reducing the resolution of the scan, as the averaging of multiple pixels results in a similar noise reduction benefit as multi-sampling. See *Input | Number of samples* (p. 58)and *Input | Number of passes* (p. 59).

This option may not be appropriate for use with raw files when your purpose is to archive the scanner's output. For most users leave the value set at the default of 1 (no reduction).

If, however, you always scan at a high resolution and then use size TIFF/JPEG reduction when saving the crop file, Raw size reduction may be appropriate because it results in significantly smaller files while still gaining the benefit of scanner noise reduction.

If you do use Raw size reduction, you probably will not want to use TIFF/JPEG size reduction later when scanning the raw file from disk.

Professional Option: This option is displayed when*Output | Raw file* (p. 90) is set.

Output | Raw file type

(Professional Edition only)

This option describes the resolution of the raw file, in bits per pixel.   It should normally be set to Auto, which defaults to bits per pixel of the scanner.

Professional Option: This option is displayed when *Output | Raw file* (p. 90) is set.

Output | Raw output with

(Professional Edition only)

This specifies which operations in VueScan cause the raw scan data to be written to a file.

If set to "Scan" (or "Preview"), the raw file is written at the same time as the scan (or preview).   In this case, the raw file has not had infrared cleaning or grain reduction applied.

Assuming that the preview is used primarily to prepare for the final scan, this option should normally be set to "Scan" so that the highest resolution raw image can be saved.

If set to "Save", it is written at the same time as other files are written (i.e. after a scan completes or when the *Save button* (p. 47) is pressed).   In this case, the raw file has had infrared cleaning and grain reduction applied.

It's much faster to save the raw file at the same time as the scan, since writing the file is overlapped with scanning the data.

Professional Option: This option is displayed when *Output | Raw file* (p. 90) is set.

Output | Raw save film

(Professional Edition only)

If this option is set, then the film corrections are done before the raw file is written.

The *Output | Raw output with* (p. 92) is also implicitly set to "Save", which means that the rotation and infrared cleaning are also applied to the raw file.

Professional Option: This option is displayed when *Output | Raw file* (p. 90) is set.

Output | Raw compression

(Professional Edition only)

This specifies whether to use compression when writing the raw file.

Compression of the raw TIFF file will not cause any loss of image   data.   It will take a little longer to read, and especially write, as the algorithm is computationally intensive, but can reduce total file size by as much as 40%.

The default setting is "Auto", which enables compression for files with 12 or fewer bits per sample and disables compression for files using more bits per sample.

Professional Option: This option is displayed when *Output | Raw file* (p. 90) is set and when *Output | Raw DNG format* (p. 93) isn't set.

Output | Raw DNG format

(Professional Edition only)

This specifies whether to write raw files in DNG (Digital Negative) format.   This allows VueScan's raw files to be read by the Adobe Camera Raw plugin or other programs that read DNG files.

These DNG format raw files can also be read by VueScan when you set *Input | Source* (p. 49) to "File".

Professional Option: This option is displayed when *Output | Raw file* (p. 90) is set.

Output | Description

This field will be written to TIFF files and JPEG files as an EXIF field and in OCR text files at the top of the page. You can use it to indicate a one-line description of the image being scanned.

Standard Option: This option is displayed when at least one of the output files is enabled.

Output | Copyright

This field will be written to TIFF files and JPEG files as an EXIF field and in OCR text files at the top of the page. You should normally use "Copyright 2018 Your Name".

Standard Option: This option is displayed when at least one of the output files is enabled.

Output | Date

This field will be written to TIFF files and JPEG files as an EXIF field indicating the date that the picture was taken originally (not the date that it was scanned).

You can be quite flexible in specifying this date - any of the following formats will work: 1995, March 1997, 20030402, 3/23/98, 1998:03:23, etc.   If you're in the USA time zone, put the month before the day, otherwise put the day before the month.   The best format to use is the ISO format for dates, YYYY:MM:DD.

The date is converted to the ISO date format of YYYY:MM:DD HH:MM:SS before putting it in the EXIF field in the TIFF and JPEG files.

Standard Option: This option is displayed when at least one of the output files is enabled.

Output | Log file

If enabled, VueScan will log all data sent and received from the scanners to VueScan.log.   This is primarily for debugging problems with scanners. You should only use this feature if you want to send it with a bug report when a scanner isn't working properly and you suspect it may be a problem with the way VueScan is controlling the scanner.

Professional Option: This option is always displayed.

Output | Log file max size (MB)

The log file will be written until it grows to this size. You might need to increase this if the log file stops before you're able to reproduce a problem.

Professional Option: This option is always displayed.

Prefs tab

This tab lets you set preferences that control the behavior of VueScan.

Prefs | Language

Use this option to set the language to use in VueScan.

Standard Option: This option is always displayed.

Prefs | Font size (pt)

Use this option to set the font size to use in VueScan. The font size is specified in points, which are about the height of characters in pixels (varies a bit by operating system and type of display).

Standard Option: This option is always displayed.

Prefs | Crop units

Use this option to choose the units in the Crop tab.   You can choose pixel, mm, cm, inch, pica or point.

This setting does not affect the size of output.

Professional Option: This option is always displayed.

Prefs | Printed units

Use this option to select the units when displaying the printed width and height.   You can choose pixel, mm, cm, inch, pica or point.

This also affects the units displayed in the status area at the bottom of the VueScan window.

Professional Option: This option is always displayed.

Prefs | External viewer

Setting this option to "Folder" will open a window at the end of the scan showing the contents of the folder where the file is written. On Windows, this opens an explorer window, on Mac OS X this opens a finder window and on Linux, this uses xdg-open to open a window.

Setting this option to "Viewer" starts a program to display the image. On Windows and Mac OS X, this is the same program that starts up when you double-click on the file. On Linux, this uses xdg-open to view the file.

Standard Option: This option is always displayed.

Prefs | Viewer

If the *Prefs | External viewer* (p. 95)option is set to "Viewer", the specified program will be started with each cropped image upon completion of a scan.

The default value is "default".

On Windows, if the viewer name is "default", the file association for this type of file will be used.   You can also put command-line options after the name of the viewer (e.g. "vuepro32 /fillwindow" to display images without a window frame with VuePrint).   If the name of the viewer has "%1" after it (e.g. vuepro32 "%1"), the file name will be substituted at that point.   If you use the %1 argument on the command line, be sure to put double-quotes around it, otherwise file names that have embedded spaces won't

work.

On Linux, the viewer name can have command-line options after it, and the file name will be appended to the end of the command-line before it's run.

On Mac OS X, the files will start in the same application that would start if you double-click on the files.

On Mac OS X, you can set up the default viewer for a type of file by clicking on an image, choosing "File | Show info", choosing "Open with application", selecting an application, and then choosing "Change all".

Professional Option: This option is displayed when*Prefs | External viewer* (p. 95) is set to "Viewer".

Standard Option: This option is always displayed.

Prefs | Editor

If the "External viewer" option is enabled, the specified program will be started with each OCR text file at the completion of a scan.

The default value is "default".

On Windows, if the editor name is "default", the file association for this type of file will be used.   You can also put command-line options after the name of the editor.   If the name of the editor has "%1" after it (e.g. notepad "%1"), the file name will be substituted at that point.   If you use the %1 argument on the command line, be sure to put double-quotes around it, otherwise file names that have embedded spaces won't work.

On Linux, the editor name can have command-line options after it, and the file name will be appended to the end of the command-line before it's run.

On Mac OS X, the files will start in the same application that would start if you double-click on the files.

On Mac OS X, you can set up the default editor for a type of file by clicking on an image, choosing "File | Show info", choosing "Open with application", selecting an application, and then choosing "Change all".

Professional Option: This option is displayed when*Prefs | External viewer* (p. 95) is set.

Prefs | Browser

On Linux, this option is used if you want to use a web browser other than mozilla to display html files.

Standard Option: This option is always displayed (Linux only).

Prefs | Auto load options

When set, the options settings from the last time you ran VueScan are loaded automatically.   If this option is set, these options are saved in vuescan.ini when VueScan exits. When not set, vuescan.ini is deleted on exit, and the the default options values of all options are used on startup.

A very common problem with VueScan is accidentally setting an option to an unwanted value, and then not knowing how to reset it back to the correct option.

Standard Option: This option is always displayed.

Prefs | Graph type

This option is used to control the type of graph that's displayed underneath the *Options panel* (p. 9).

If you choose "Raw", a histogram of the raw data from the scanner is displayed, including the infrared channel if available.

If you choose "B/W", a histogram of the image prior to applying the black/white points is displayed, and you can change the black/white points with small triangles under the histogram.

If you choose "Curve", a curve is displayed that is applied after the black/white points and before the gamma correction (and the "Color | Brightness" option is just a gamma multiplier).   You can adjust the curve by moving the small triangles under the histogram.

If you choose "Image", a histogram of the displayed image is shown.

Professional Option: This option is always displayed.

Prefs | Button 1/2/3/4 action

Use these options to control what VueScan does when you press a button on the front of a scanner.   The default values of these options disable the buttons.

Professional Option: This option is displayed when the scanner has buttons that can be read.

Professional Option: This option is always displayed.

Prefs | Display raw scan

Use this option to display the raw scan data during a scan. You might want to turn this option off if you have a slow processor or don't want to see the scan in progress.

Professional Option: This option is always displayed.

Prefs | Display positive

Use this option to display the raw scan data for negative film in positive format.   This isn't an accurate negative to positive conversion, but is intended to give a rough idea of

what the image will look like.

Professional Option: This option is displayed when scanning negative film.

Prefs | Splash screen

Use this option to display the splash screen when VueScan starts up.

Professional Option: This option is always displayed.

Prefs | Histogram type

Use this option to specify whether the Y axis of histograms is the number of samples (linear), the square root of the number of samples, or the logarithm of the number of samples. The default is "Linear".

Professional Option: This option is always displayed.

Prefs | Animate crop box

This option controls whether the crop box in the Preview is animated - it's easier to see when animated, but can be distracting. The option is set by default.

Professional Option: This option is always displayed.

Prefs | Thick crop box

This option controls whether the crop box in the Preview is drawn with a thick line or a thin line. It's easier to see the thick line, but sometimes easier to get fine control with the thin line. The option is set by default.

Professional Option: This option is always displayed.

Prefs | Add extensions

This option controls whether the TIFF, JPEG, PDF, Text and Index file names automatically have a ".tif", ".jpg", ".pdf", ".txt" or ".bmp" extension added to the file name.   This reduces the amount of typing needed when manually setting the saved file names.   No file extension will be added if the file name has a period in it.   This option is set by default.

Professional Option: This option is always displayed.

Prefs | Substitute date

This option controls whether the TIFF, JPEG, PDF and Text file names can include the scan date and time in the file name.

For instance, if the file name is "@.jpg", the resulting file will be "Scan-YYMMDD-0001+.jpg" with YY substitured for the current year, MM for the current

month and DD for the current day.

Additionally, you can use YYYY for the 4-digit year, YY for the two-digit year, MM, DD, HH, II, and SS for the month, day, hour, minute and second when the scan was started.

You need to have at least three date/time names for this to work. For instance, a file name of MMDD.tif won't be substituted, but a file name of MMDDHH.tif will be.

Professional Option: This option is always displayed.

Prefs | Warn on overwrite

When enabled, VueScan will display a warning message before overwriting a TIFF, JPEG, PDF or OCR text file, and allow you to prevent the file from being overwritten. This option is set by default.

Professional Option: This option is always displayed.

Prefs | Warn on not ready

When enabled, VueScan will display a warning message when the scanner isn't ready (or the raw scan file doesn't exist) and you press the Preview or Scan button.

Professional Option: This option is always displayed.

Prefs | Warn on no scanner

When enabled, VueScan will display a warning message when a scanner is not connected.

Professional Option: This option is always displayed.

Prefs | Exit when done

Enabling this option causes VueScan to exit when scanning completes.

This option is not set by default.

Professional Option: This option is always displayed.

Prefs | Beep when done

Enabling this option causes a sound to be played on the computer's speakers when scanning completes. This is sometimes useful to alert you at the end of a long- running scan.   On Windows, this is the "Default sound" in the "Sounds and Multimedia" control panel.   On Linux and Mac OS X, this is a simple beep.

This option is not set by default.

Professional Option: This option is always displayed.

Prefs | Beep when auto eject

Enabling this option causes a sound to be played on the computer's speakers when auto ejecting.

This is sometimes useful to alert you at the end of a long- running preview or scan.   On Windows, this is the "Default sound" in the "Sounds and Multimedia" control panel.   On Linux and Mac OS X, this is a simple beep.

This option is not set by default.

Professional Option: This option is always displayed.

Prefs | Use temp file name

When TIFF, JPEG or PDF files are being written, but haven't yet been closed, this option instructs VueScan to use file names with a .tmp at the end. When the file is closed, the file is renamed to remove the .tmp.

This allows programs that monitor a directory for files to know when the TIFF, JPEG or PDF files are ready for further processing.

Professional Option: This option is always displayed.

Prefs | Anti alias text

Controls whether 1-bit images (i.e. text and microfilm) are displayed with anti-aliasing. This results in smoother looking displays but also takes a bit more computing power.

Professional Option: This option is always displayed.

Prefs | Anti alias image

Controls whether gray-scale and color images are displayed with anti-aliasing.   This results in smoother looking displays but also takes a bit more computing power.

Professional Option: This option is always displayed.

Prefs | Enable density display

Enables displaying the image density when the cursor is moved over the image with the control key held down.

Professional Option: This option is always displayed.

Prefs | Enable raw from disk

Enables the *Output | Raw file* (p. 90) option when scanning from disk. This is useful if you want to re-scan raw scan files at a lower resolution or bits per pixel and save a raw scan file with these changes.

Professional Option: This option is always displayed.

Prefs | Enable TIFF thumbnails

When this option is enabled, TIFF files have a small preview embedded in them. This makes displaying thumbnails of these files much faster, since only the small thumbnail needs to be read, not the whole image.   When the image is larger than 10 MBytes, this is significantly faster.

These thumbnails are only embedded when the image is wider or taller than 2048 pixels and when the image has 8 or more bits per pixel.

Professional Option: This option is always displayed.

Prefs | Disable scanners

Use this option to disable some kinds of (or all) scanners. This option isn't used by default.

This is useful if you want to run multiple copies of VueScan at   the same time, scanning with one copy and processing raw disk   files with another.   To use this option, put copies of   VueScan in different directories, run VueScan, set this checkbox,   then exit and restart VueScan.

Standard Option: This option is always displayed.

Prefs | Enable sliders/spin buttons

You can use this option to remove the slider and spin button controls.   This is sometimes useful if you want the *Options panel* (p. 9) to be quite small to maximize the image display area.   This option is set by default.

Professional Option: This option is always displayed.

Prefs | Enable popup tips

You can use this option to enable a short description that pops up in a small yellow box when the mouse hovers over options and buttons.

Professional Option: This option is always displayed.

Prefs | Calibration period

You can use this option to set the maximum number of days to use a scanner calibration.   A scanner's lamp color and lamp uniformity can shift over time, so it's sometimes useful to re-do the "Scanner | Calibrate" command to compensate for this. This is only used by some types of scanners.

Professional Option: This option is displayed when the scanner is capable of calibration.

Prefs | Image memory (MB)

Use this option to set the maximum amount of memory that VueScan will use to hold all the previews and scans in memory.

If *Input | Preview resolution* (p. 54) is set to "Auto", then each preview needs about one million pixels, and if *Input | Scan resolution* (p. 55)is set to "Auto", each scan needs about four million pixels. Each pixel either needs three bytes (24-bit RGB), six bytes (48-bit RGB) or eight bytes (64 bit RGBI) depending on the setting of *Input | Bits per pixel* (p. 51).

Professional Option: This option is always displayed.

Prefs | Window maximized/iconized x/y offset/size

Use these options to set the VueScan window position and size.

Professional Option: This option is always displayed.

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