Slide Snap Pro Rapid Slide Scanning System

The Slide Snap Pro system includes a slide projector, a camera and a host computer loaded with Smart Shooter 5 software. During scanning, the projector loads a slide and signals the camera to take a photograph of the slide projection which is stored on the host computer. Slide Snap states that this system will scan 30 slides/minute.

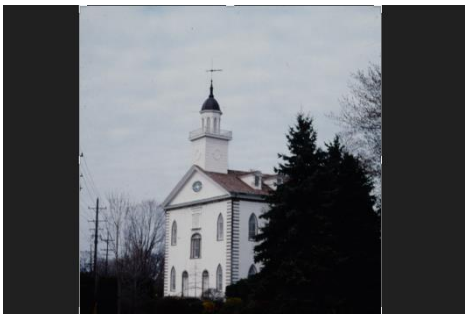
The system is powered on (both the camera and projector) using the switch on the power cord identified by the red arrow in the picture above. The power switches on the camera and the projector should be left in the on position.

Loading Slides into the carousel.

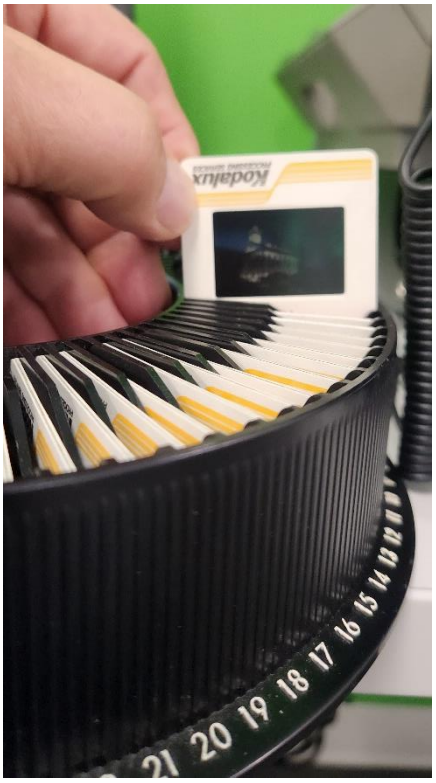
The slides must be loaded in a landscape orientation even if the picture was taken in a portrait orientation.

On the left is a slide taken in portrait slide displayed in a landscape orientation which is the correct orientation for scanning. On the right is a landscape slide loaded in landscape orientation for comparison.

If a portrait-oriented slide is loaded in the carousel in a portrait orientation, the scanner will capture a landscape version of the slide which will include the central portion of the slide with a scan of part of the mounts on the right and left. The top and bottom of the slide will not be scanned. This may be a salvageable image, but loses parts of the original slide.



The scan on the right of portrait-oriented slide shows the entire slide while the one on the left illustrates the scan issue in scanning a portrait slide loaded in portrait orientation. It is really important to always load the slide in landscape orientation to capture the entire contents on the slide.



A landscape slide should be loaded in the carousal upright. The text on the slide mount should be facing the side of advancing carousel count as illustrated in the picture on the left.

If the slide is loaded backwards, the scan will have a mirrored image of the original. This will be particularly noticeable when there is text in the image. If the slide is loaded upside down, the scan will be upside down. Portrait oriented slides properly loaded will scan rotated ninety degrees from being upright. Neither of these problems are serious issues as the Microsoft Photo viewer program can easily reverse and/or rotate the slides to fix these problems which will be illustrated later in this document.

If the slide and its mount is curled, split, or bent it may fail to load or may jam the loader and stop the scanning operation. These slides can be scanned one at a time using a process described later in this document.

The library has two 80 slide carousels. The carousels have locking rings. If the ring is in place, it must be unscrewed and removed before loading the slides. It isn't necessary to use the ring for scanning but installing the ring will avoid unintentionally dumping the slides out of the carousel when moving it.

Scanning Process

1. The scanner system off/on switch is a toggle on the power cord identified in the photo by the red arrow on the previous page. Turn the system on. Ensure that both the camera and projector are powered up. The projector bulb and fan will turn on along with some LEDs and the camera LCD will turn on.

2. **Install the loaded carousel onto the projector**:

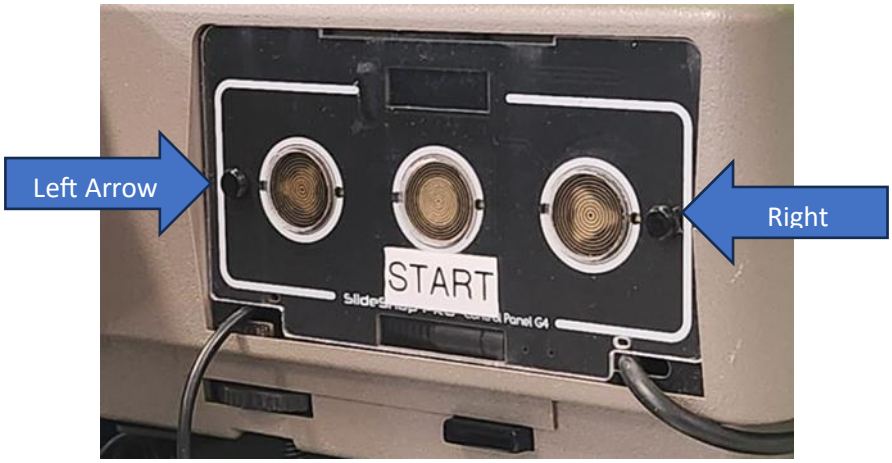
The notch in the carousel lines up with the tab on the projector. Once the carousel is in place, press the black lever (labeled "HOLD") to seat the carousel. The blue arrow points to the notch on the carousel, the tab on the projector and HOLD lever. Note that the projector has to be turned on for the carousel to be seated.

3. **Camera Error: "Error, Press shutter release button again."**

After turning on the system and loading the carousel check the camera screen. If the screen displays the error as shown in the picture on the left, press the chrome button identified by the red arrow in the picture on the right to release the shutter and clear the error.

The blue arrow shows the error message while the red arrow shows the button to push to clear the error.

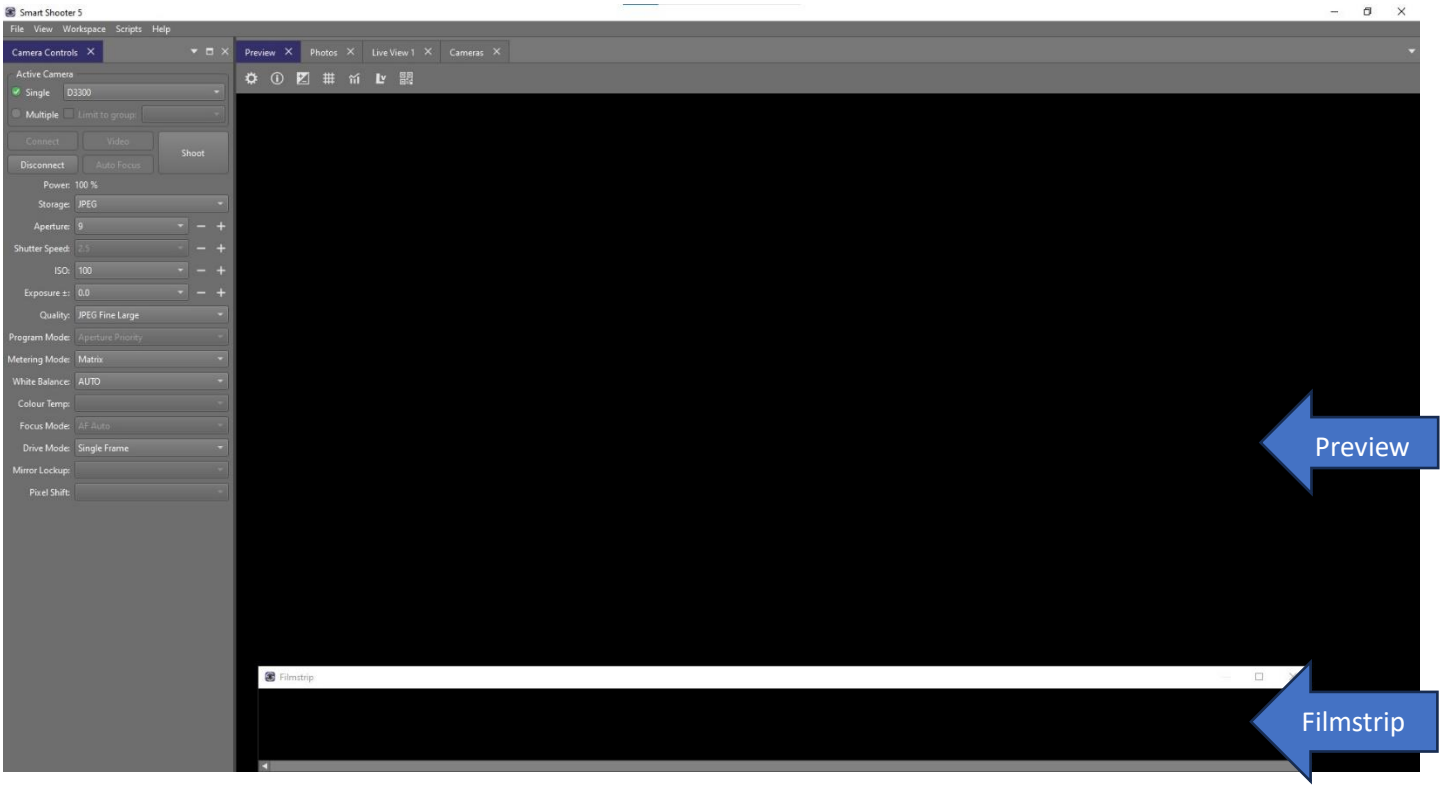
4. **Projector Operation**: Note the three round buttons on the face of the projector. The right arrow advances the carousel one slide position forward. The left arrow moves the carousel back one slide. The round arrow in the center, labeled "START", starts and stops automatic scanning. With the carousel loaded, push the right arrow to load the first slide. These three controls are pictured below.



5. **Starting the Smart Shooter 5 program on the computer**:

On the lower left corner of the screen is the task bar. The right most icon on the bottom of the screen starts the Smart Shooter 5 software. The red arrow points to the start icon which looks like a stylized S.

This is what the Smart Shooter 5 program looks like when it opens:

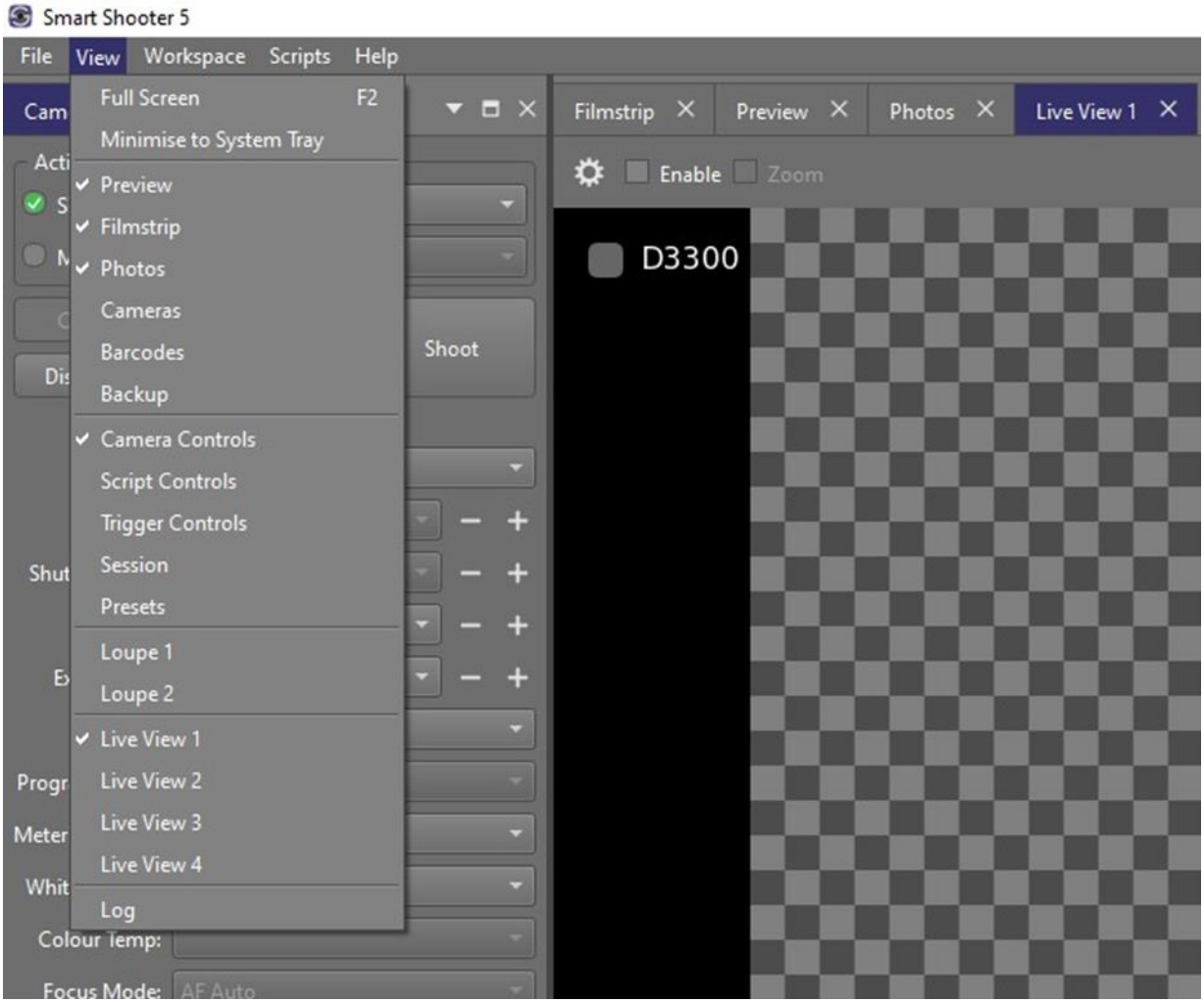


The top part of the window above the white strip is the Preview window while the Filmstrip window is below the strip.

Smart Shooter 5 Software Overview:

The Smart Shooter Software supports "tethered capture" which is a method of connecting a camera to a computer to view images on a larger screen as they are taken. This software supports a broad range of applications beyond slide image capturing that is used in this system. Consequently, some of the software configurations and options are irrelevant for slide scanning.

At the top left corner of the Smart Shooter 5 menu bar is the "View" drop-down menu. In the screen capture below, "View" has been selected, displaying the associated drop-down menu items. View menu items are selected by clicking on them with the mouse. Once selected, a check mark appears on the menu to the left of the selected item and an associated window appears in the lower menu bar.



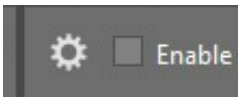
In this example, five items have been selected from the view menu: Preview, Filmstrip, Photos, Camera Controls and Live View 1. The Camera Controls are on the left, partially hidden by the drop-down menu in this view. Note the highlighted Camera label partly under the task bar. The Filmstrip, Preview, Photos and Live View 1 windows are on the right of the screen. Of these four selected options, only one is visible at a time. It is selected for display by clicking the label on the task bar with the mouse. Once selected, the label is highlighted and the window is displayed. The window can be closed by selected the X to the right of the label. In this example Live View 1 is highlighted and displayed. We see a checkerboard background in Live View 1.

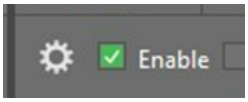
6. **Checking the Focus**:

To focus the camera, a slide must be loaded into the projector which was done previously in step 4.

Alternately, if you are using a dedicated focus slide that you don't need to scan, you can manually insert the slide into the projector without using a carousel as shown in the picture below.

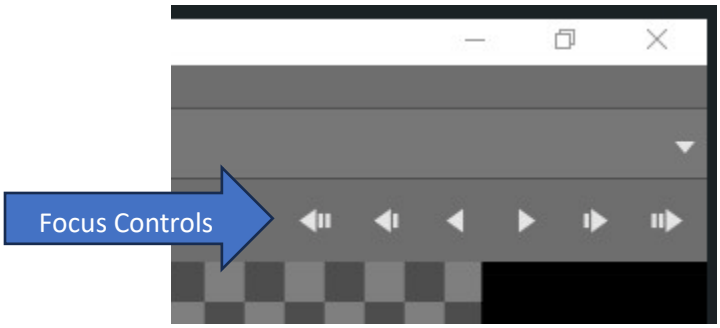
In either case the slide must be displayed for focusing. To display the slide, in the screen capture on the previous page, make sure the Live View tab is selected to have Live View window displayed. Then select the "Enable" check box at the top right of the Live View window (directly above the "D3300" label) with the mouse. When selected the check box turns green, and the loaded slide is displayed on the monitor. See the screen capture below for an example:



Enable unselected 

Enable Selected

The Smart Shooter 5 software window on the bottom of the previous page has the focus control in the top right corner. Here is a closeup of the focus controls.



There are 6 arrow icon adjustment controls: The center two are fine adjustments, with increasingly coarser adjustments moving out. While you can use any slide to check the focus, Slide Snap provided a slide specifically for that purpose that may provide better results than a random slide selection. The slide is kept on the slide viewer to the right of the Smart Scanner system. Here is what the slide looks like:

This is a screen capture with the slide in focus. The most useful feature of the slide is the horizontal gradient lines to the right of the model. These lines only appear when the slide is in good focus

Here is a closeup of the gradient lines. The left version is in focus and the gradient lines are visible. The right slide is a little out of focus and the gradient lines have disappeared.

Once the user is satisfied with the focus, close the Live View 1 window by selecting the X right of the label. If you manually loaded a slide, push the right arrow to eject the slide from the projector.

7. **Setting the slide scanning options:**

This is done with the **Camera Controls**. If not already selected choose "Camera Controls" midway down the "View" drop-down menu. The Camera Controls menu opens on the left. A screen capture is on the next page This gives the user some configuration options. Most users will be happy with the default settings and do not need to make any adjustments.

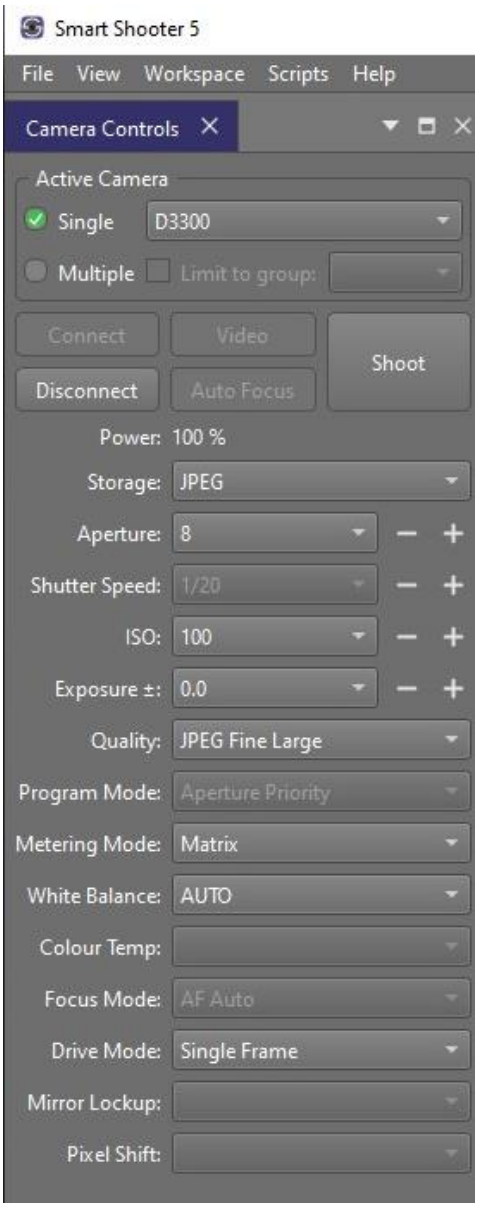
This is a quick overview of the options:

"**Quality**" offers a number of options: JPEG Basic Large, JPEG Normal Large, JPEG Fine Large (the default), RAW, RAW + JPEG Fine Large, JPEG Basic Medium, JPEG Normal Medium, JPEG Fine Medium, RAW + JPEG Fine Medium, JPEG Basic Small, JPEG Normal Small , JPEG Fine Small, and RAW + JPEG Fine Small.

"Basic" means that the images are collected with higher compression ratio to reduce the size of the image file while "Fine" means lower compression resulting in larger files. "Normal" is in between. This option trades off image quality for file size by using varying compression ratios. A RAW image has no compression and will be much larger. RAW files require special software to view and edit. Some of the options will give you two output files: an uncompressed (RAW) file and a compressed JPEG file. RAW images are not useful in a scanning environment and should not be selected. For the Nikon D3300 camera the JPEG compression ratio is approximately 1:4 for Fine, 1:8 for Normal, and 1:16 for Basic.

Large, Medium and Small refer to the size of the scanned image where quality is being traded off with file size in a different way. This time it is based on the number of pixels captured. For the Nikon D3300 camera in this system: Large = 6000 x 4000 pixels, Medium=4496 x 3000 pixels and Small = 2992 x 2000 pixels. Roughly advancing from Small to Mediums doubles the pixel count which doubles again from Medium to Large. The image file size directly scales with the total pixel count.

There are 9 options for setting image quality. A table in an appendix of this document (page 15) describes the effect of this setting on image file size.



The other options are not useful for slide scanning:

"Active Camera" is fixed to the Nikon D3300 camera. The software can support multiple cameras but our system has only one as would be expected in a scanning environment.

"Storage" options include Card, Disk, Both and JPEG. JPEG is the only valid option.

"Program Mode" options include Center Weighted, Matrix (the default) and Spot. These metering modes are used in the camera to set the film exposure.

"White Balance" options include AUTO (the default), Daylight, Florescent, Tunston, Flash, Cloudy, Shade, and Preset. This is a camera setting used to adjust the colors in a digital photograph to make them appear more realistic.

"Drive Mode" options include Single Frame (the default and only useful option for scanning), Contininous High Speed, Self Timer, Remote, 2S Delayed Remote, and Quiet.

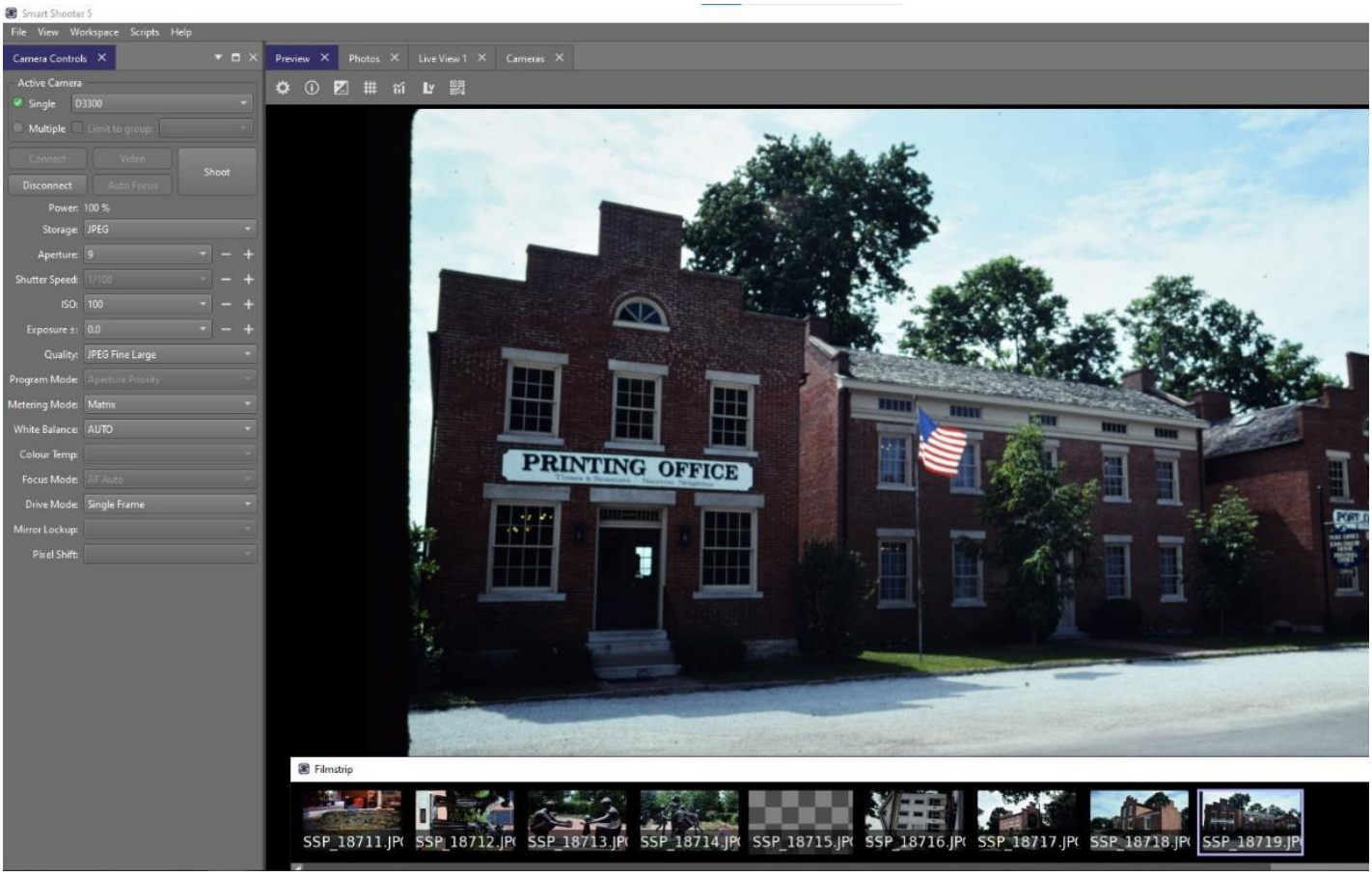
Note that the setting defaults are shown in the screen capture to the left.

Preview and Filmstrip Windows:

With the View menu options Filmstrip, Preview and Photo selected, click the **Preview** tab. The Preview Window shows a black background with a "filmstrip" thumbnail at the bottom of the window. (This is visible in the screen capture on page 4.) Clicking "Shoot" in the Camera Controls, with a slide loaded in the projector causes the camera to capture the projected slide and display the scanned slide image in the "Filmstrip" thumbnail and on the "Preview" window.

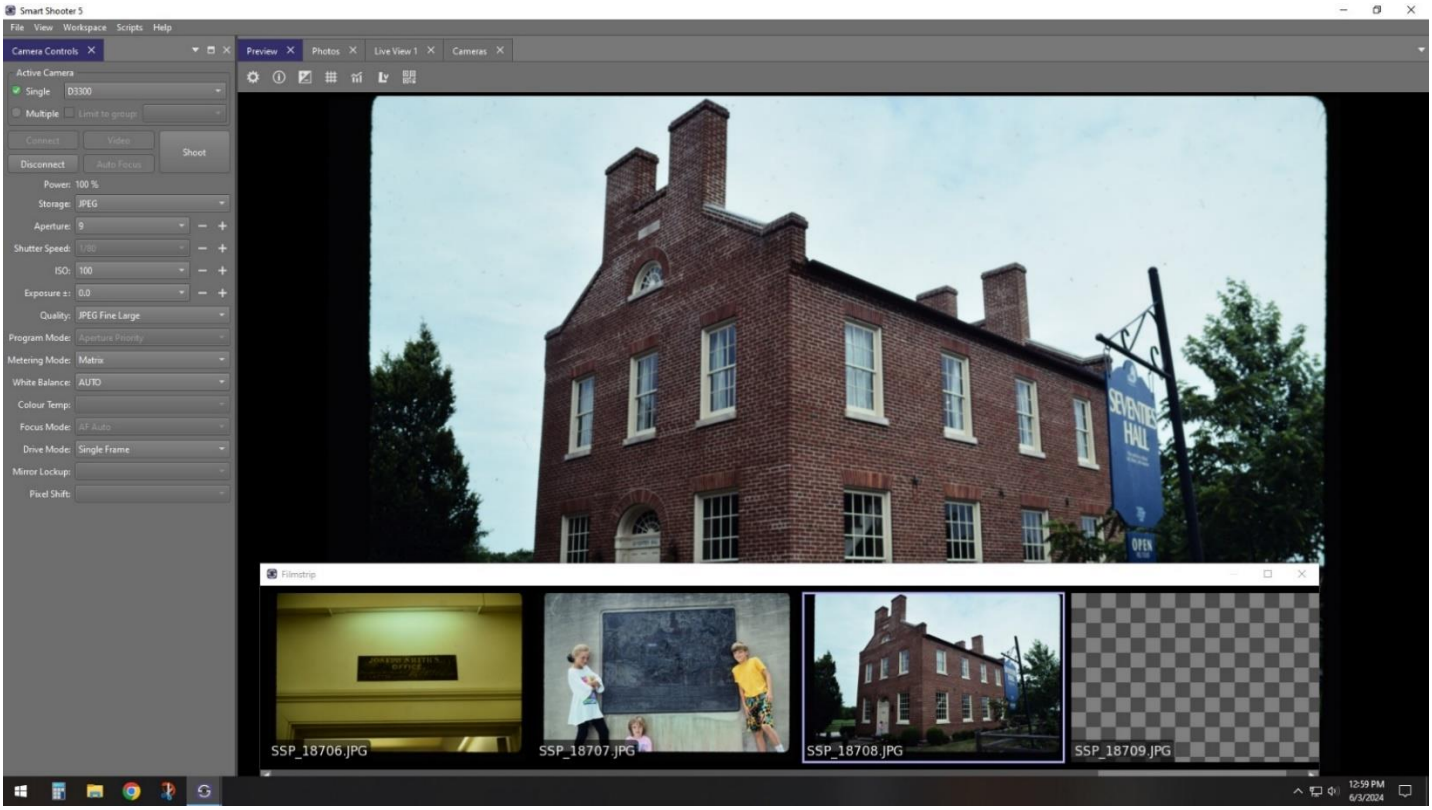
Starting automatic scanning

Push the right arrow on the projector to advance a slide, then push the center button to start automatic slide scanning. You can stop scanning by pushing on the center button again. Once the scanner has reached the end of the carousel it will stop automatically.



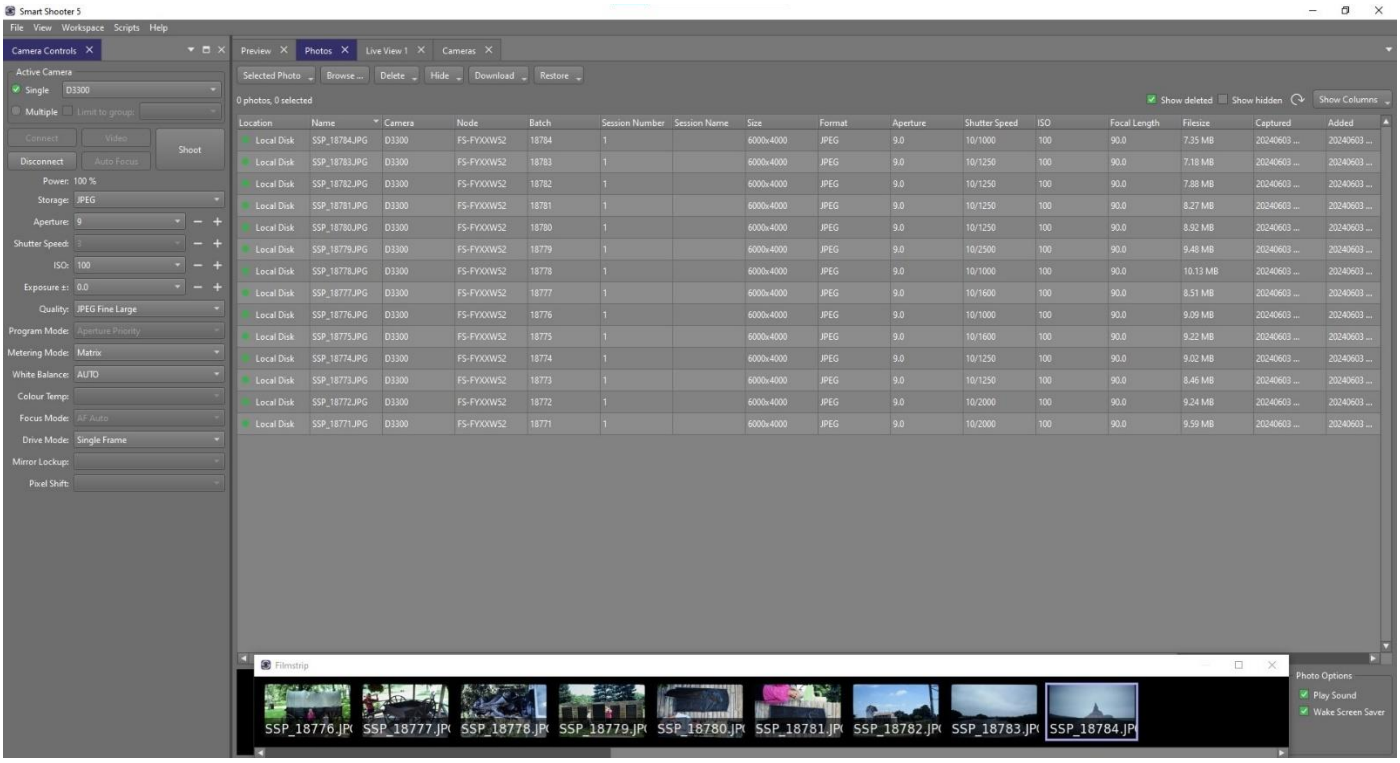
The screen capture above shows the most recent scan in the preview window and the at the far right in the filmstrip view. The images to the left on the filmstrip view are previous screen captures. As the carousel is advanced, the captured images can be monitored in this window.

Note that the size of the filmstrip images can be changed by dragging the white filmstrip line with the mouse. In the next screen capture the filmstrip size is larger and fewer images are displayed.



The slide scans will be stored in a file on the Desktop of the host computer which will appear as "Smart Shooter" The scans will be named SSP_XXXXX where the XXXXX is a five digit incrementing number.

The **Photos Window** displays information about the scanned images. Here is a sample:



Once all of the slides in the carousel have scanned, copy the file from the desktop to your USB storage device. Rename the file with a meaningful name. (Later you may want to rename the indivitual scans as well.) Once the file is copied and you have confirmed it is safely on your storage device, delete the original folder on the desktop. When the next carousel is scanned a new folder will be created with the same name.

Problems:

1. **A scanned image is white when viewed**.

This means the slide failed to drop down from the carousel to the viewer, probably because it was bent or warped. Note the slide number. Once the carousel has completed scanning, remove the carousel from the projector and recover the unscanned slides from the carousel.

Manually insert the slide following the example on page 4. Press the start (center) button on the projector. The projector scans the images and ejects it.

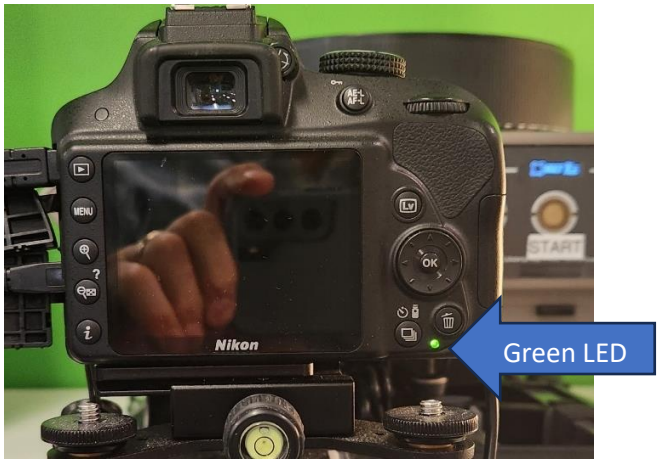
2. **Jammed Slide**

When this happens, the camera and projector have both stop. Identify the carousel number of the jammed slide. Use the forceps that are stored to the left of the scanner system to remove the slide. If the carousel needs to be removed, push the "HOLD" lever idenified in the photo on page 3. This will enable you to rotate the carousel to position 0 where it can be removed from the projector. Put the lock ring on the carousel, if not in place, to avoid dumping the slides. Use the process desribed above to manually load the slide and scan it. Reload the carousel to finish scanning the remainder of the slides in the carousel beyond the slide that jammed. After installing the carousel, push the HOLD lever while rotating the carousel to the location after the previously jammed slide. Push the Start button to resume scanning.

Sometimes the projector white lifter arm gets stuck in the up position. The function of this lifter is to push the slide back into the carousel after it is scanned. If this happens, pushing the back (left facing) arrow on the projector will reset the lifter arm. (Pushing the right facing or forward arrow will not.)

3. **Camera fails to capture image**

When the projector loads a slide, it signals the camera to take a photo of the projected image. Sometimes the camera gets out of sync and fails to take the picture. When this happens, the carousel continues to advance, but the images are not captured and, consequently, the preview window and filmstrip fail to display new images.

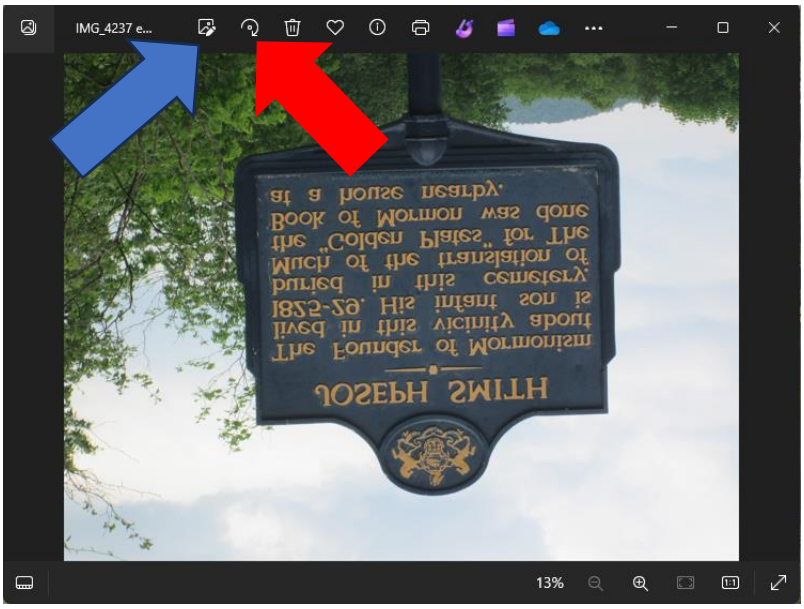


When the camera successfully captures the image, a small green LED flashes as shown in the photo above. In this case the LED will not flash. To fix the problem, stop the projector using the center button. Locate the last successful photo

captured and reposition the carousel to that photo using the back arrow or manually rotating the carousel. Then power cycle only the camera. The off/on camera control is a lever on the top of the camera marked by the blue arrow in the picture below.

4. Fixing slides that were scanned backwards (Mirror image) or are rotated (upside down or on their side).

This picture was scanned backwards and upside down creating an upside-down mirror image of the original. Double clicking the slide image file opens it for viewing in Windows Photos, which is the default photo viewer on Microsoft's operating system.

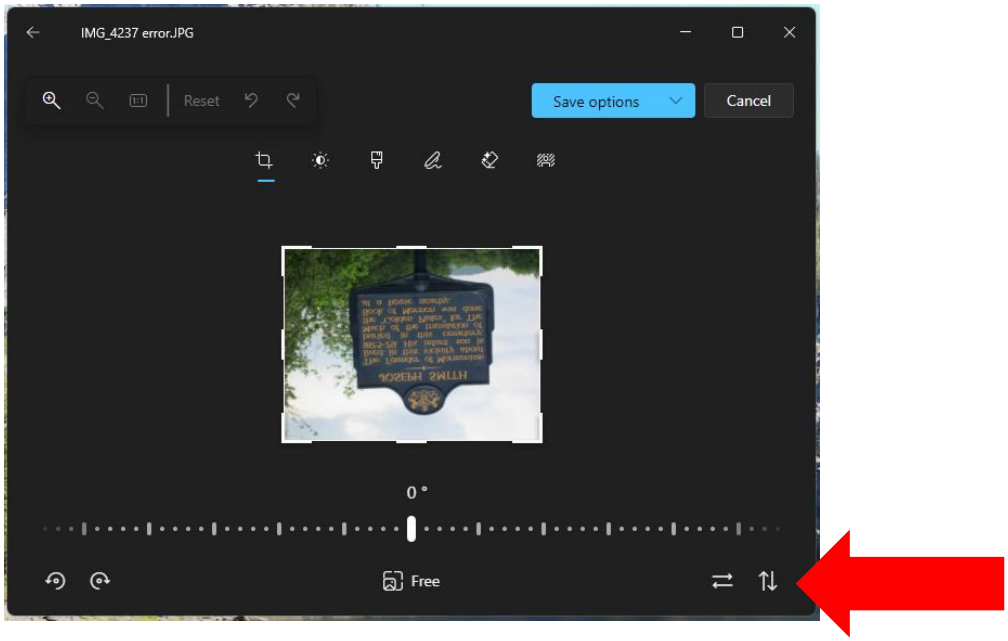


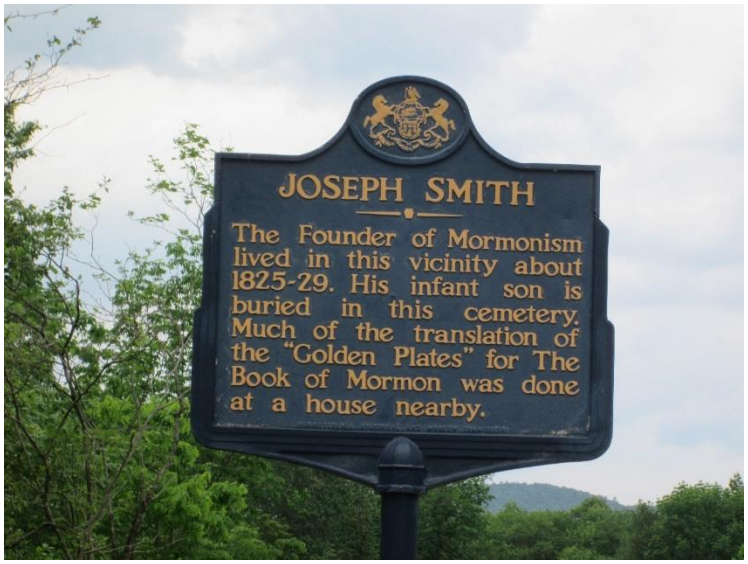
This screen capture includes the Windows Photos frame with its controls. If you need to rotate the picture because it is on its side or upside down, the circular arrow icon (top, second from left – red arrow) will rotate the image 90 degrees each time it is clicked.

To mirror image a scan, correcting a scan that was made with the slide loaded backwards, select the Edit Photo icon (the photo with a pen) on the left side of the top icons – blue arrow, which opens the photo editor as is shown in the following screen capture.

At the bottom right of the editor are two horizontal arrows and two vertical arrow. Clicking the horizontal arrows will mirror the image. Clicking the vertical arrows will rotate the image 180 degrees. The "Save Options" menu will allow you to "Save" and overwrite the original with the edits or "Save as copy" to leave the original unchanged which requires entering a new name for the edited image to save it.

At the bottom of this page is the edited and corrected version of this image.





Appendix: Quality Selection Comparison

The Smart Shooter 5 Camera Controls provide three image sizes and three compression ratios for a total of 9 options. As an experiment, a set of 24 slides were scanned using each of the 9 options. The table below summaries the results, including the average file size, the largest and smallest files in the 24-image set and the total space to store all 24 image files.

	Large Size 6000 x 4000 pixels	Medium Size 4496 x 3000 Pixels	Small Size 2992 x 2000 Pixels
Fine Compression 1:4 ratio	Average size **10.76 MB** Maximum File Size 12.93 MB Minimum File Size 9.00 MB Total size for 24 images **258.12 MB**	Average size **6.53 MB** Maximum File Size 7.66 MB Minimum File Size 4.63 MB Total size for 24 images **156.72 MB**	Average size **3.96 MB** Maximum File Size 4.46 MB Minimum File Size 3.07 MB Total size for 24 images **95.04 MB**
Normal Compression 1:8 ratio	Average size **6.57 MB** Maximum File Size 7.43 MB Minimum File Size 6.08 MB Total size for 24 images 157.50 MB	Average size **3.99 MB** Maximum File Size 4.44 MB Minimum File Size 3.72 MB Total size for 24 images 95.67 MB	Average size **1.97 MB** Maximum File Size 2.17 MB Minimum File Size 1.88 MB Total size for 24 images 47.19 MB
Basic Compression 1:16 ratio	Average size **2.35 MB** Maximum File Size 3.04 MB Minimum File Size 1.60 MB Total size for 24 images **56.36 MB**	Average size **1.62 MB** Maximum File Size 2.10 MB Minimum File Size 1.05 MB Total size for 24 images **38.76 MB**	Average size **0.97 MB** Maximum File Size 1.13 MB Minimum File Size 0.60 MB Total size for 24 images **23.27 MB**

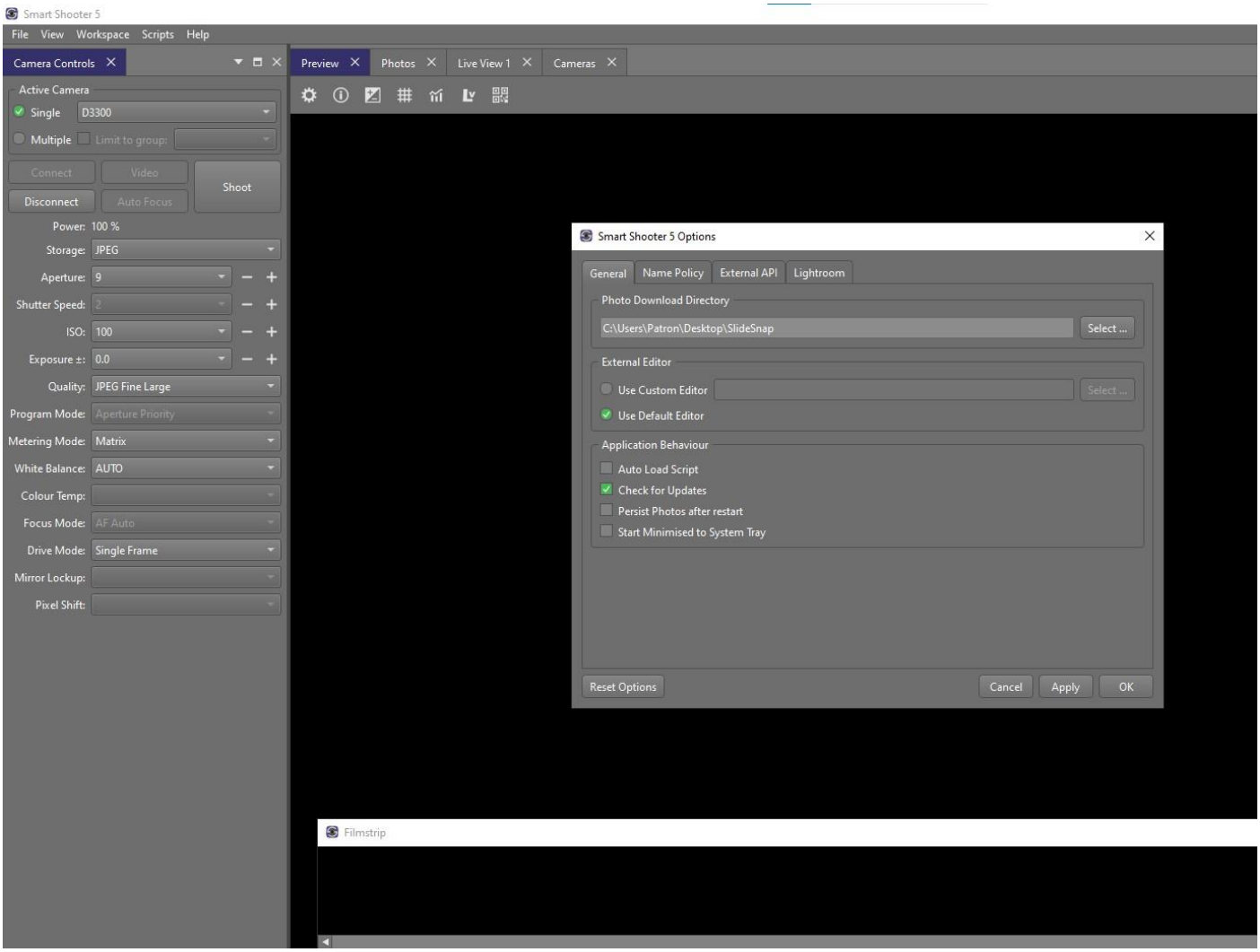
The slides in the set were shot with a Pentax SLR camera with a 50 mm lens in broad daylight using Kodak Kodachrome film ASA 64. For this set of scans, the quality difference between the 10 MB JPEG Fine Large scan images and the 1 MB Basic Small images was imperceptible.

This image was scanned with the quality set to Fine and Large and is 10.2 MB in size

This image was scanned with the quality set to Basic and Small and is 0.98 MB in size. Can you tell the difference?

Configuration Options

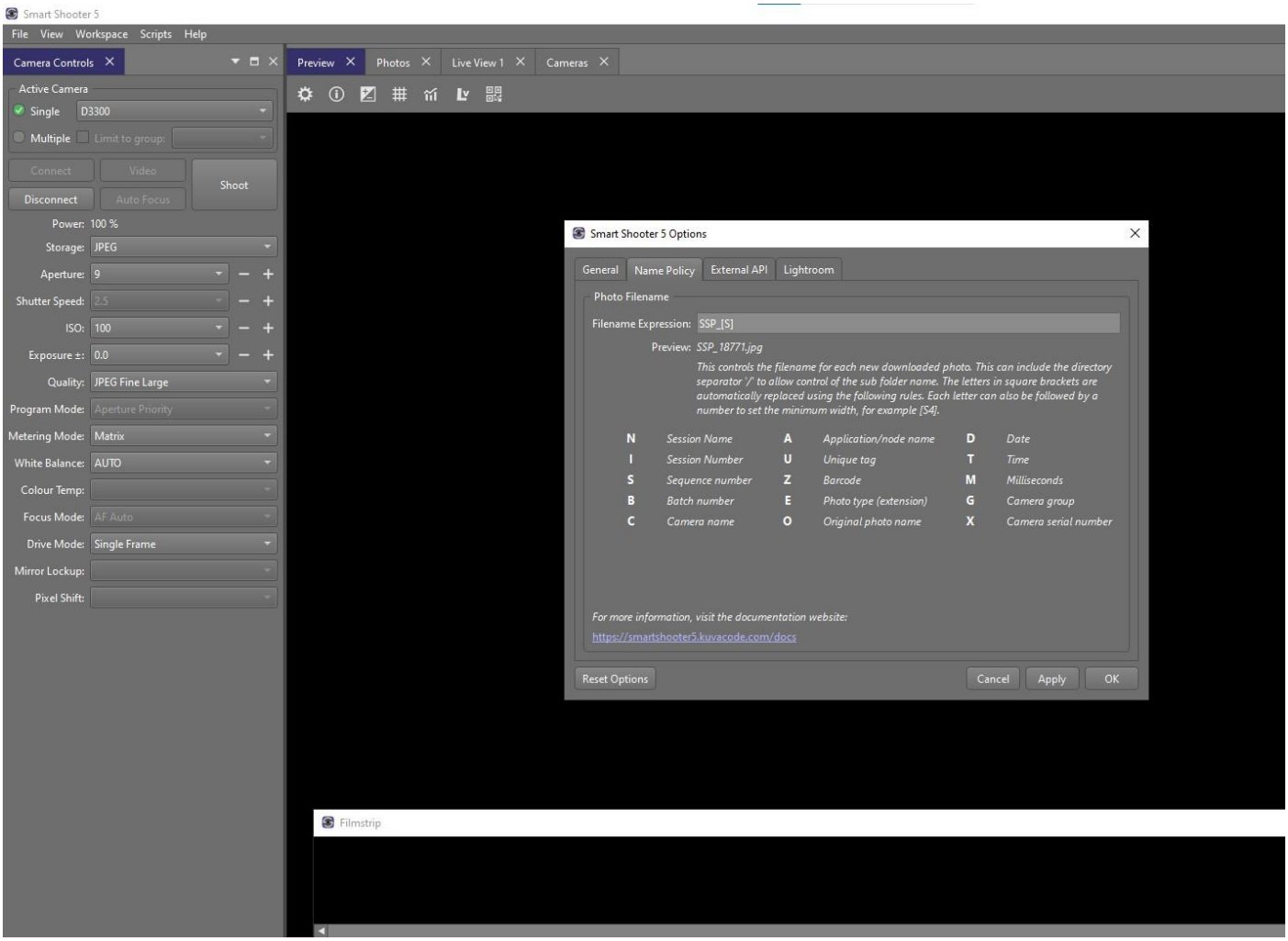
In the menu bar, selecting "File" opens a drop-down menu, select "Options" and the Smar Shooter 5 Options window opens



The General tab is where the photo download directory is set. The default is c:\\Users\Patron|Destop\SlideSnap

This could be changed but to avoid confusion with other users, we would prefer it be left in the default configuration or at least returned to this configuration at the end of the session.

The Name Policy Tab set the filename expression for the scanned images. Again we would prefer it be left to the default to provide a consistent naming convention for the users.


Smart Shooter 5
File View Workspace Scripts Help
Camera Controls
Active Camera
Single D3300
Multiple Limit to group:
Connect Video
Disconnect Auto Focus
Shoot
Power: 100 %
Storage: JPEG
Aperture: 9
Shutter Speed: 2.5
ISO: 100
Exposure ±: 0.0
Quality: JPEG Fine Large
Program Mode: Aperture Priority
Metering Mode: Matrix
White Balance: AUTO
Colour Temp:
Focus Mode: AF Auto
Drive Mode: Single Frame
Mirror Lockup:
Pixel Shift:
Preview
Photos
Live View 1
Cameras
Smart Shooter 5 Options
General
Name Policy
External API
Lightroom
Photo Filename
Filename Expression: SSP_[S]
Preview: SSP_18771.jpg
This controls the filename for each new downloaded photo. This can include the directory separator '/' to allow control of the sub folder name. The letters in square brackets are automatically replaced using the following rules. Each letter can also be followed by a number to set the minimum width, for example [S4].
N Session Name
I Session Number
S Sequence number
B Batch number
C Camera name
A Application/node name
U Unique tag
Z Barcode
E Photo type (extension)
O Original photo name
D Date
T Time
M Milliseconds
G Camera group
X Camera serial number
For more information, visit the documentation website:
https://smartshooter5.kuvacode.com/docs
Reset Options
Cancel
Apply
OK
Filmstrip