

Paul's Scanning Workflow

V3, Mar 21,2021

I've started scanning old negatives and slides that I had. It took a bit of research but I finally decided on scanning them first as small 'thumbnails' then, when I found one that was a keeper, performing a proper full scan. I did this for several reasons:

- A lot of my early pictures were more 'snaps' than artistic pictures.
- The time on an Epson Scanner for a high DPI scan is time consuming.
- Cleaning slides, and especially negatives, is time consuming.
- It is difficult to 'cull' transparencies, especially negatives, without scanning them.
- The thumbnail JPG's only take up

Here are my notes for scanning and loading into LightRoom

Naming Convention

I used the file format of X-GGG-P-NNN.TYP for scanned images where:

- X is the type of source – S=Slide, N=Negative, P=Picture. I have a mix of transparency's and prints.
- GGG is the group number. Most of the slides and films are together that could be labelled.
- P is the purpose of the scan. 'F' is for full scans. 'T' is a thumbnail quick scan. The thumbnail came about for negatives. You can't pre-cull these images. Thumb nails allow me to quickly store low res images.
- NNN is a sequence number in the group. Note that this number will be different between any 'F' or 'T' copies of the same image. Note that the sequence number does not relate to the slide or negative number on the transparency
- TYP is the file type. For Full Scans, it is TIF. For thumbnails, JPG.

So, the 4th slide in 10th package of slides scanned would be S-010-F-004.*. My idea is that I will not be scanning all images. This method will allow me to back track to the source if I want to look for similar pictures. I'll be label all source containers.

Scanning

I used my Epson V500 Scanner as well as Sig Kusatz's V700 scanner which has a larger scanning capacity.

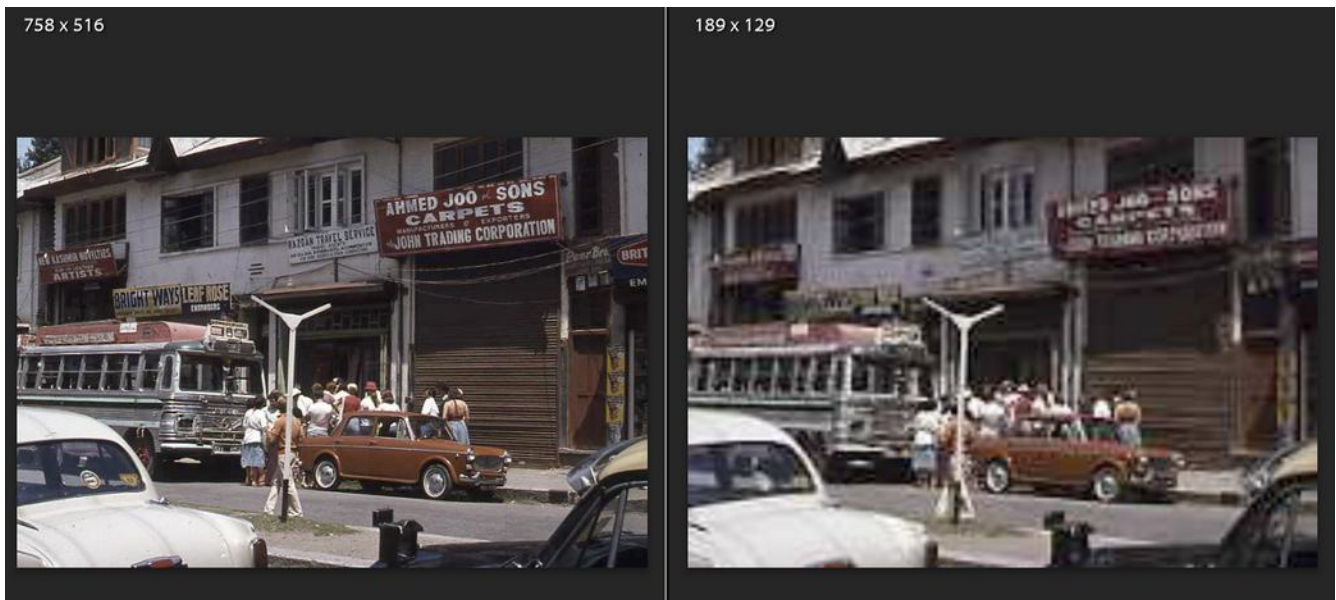
See for information on scanning I found at Appendix - Scanning Resolution.

Thumbnail Scanning.

I didn't use any features when scanning as some, like ICE, add to the scanning time. My plan was to make any adjustments in LightRoom.

I did some testing and found scanning thumbnails showed up adequately in LR at 600DPI. LR extrapolates the image to fit the Loupe but 150 DPI is just too low.

Left 600 DPI (56KB); Right 150DPI (7KB)



On the V700, at 600 DPI, 12 slides scan in 4:20. Note this is after the time it takes to Preview. I haven't found a way to eliminate the preview step. I think the preview scan sets the image locations in the holders.

Full Size Scans

<https://creativepro.com/how-to-digitize-a-film-archive-with-adobe-lightroom-or-adobe-camera-raw/>

“For example, if you want to be able to make an 8×12-inch print from a 35mm negative at 300 ppi, you don't scan the tiny negative at 300 ppi because the image has to be enlarged. You first work out the pixel dimensions you'll need for the print (output): 8 inches times 300 ppi equals 2400 pixels, and 12 inches times 300 ppi equals 3600 pixels, which give you pixel dimensions of 2400 x 3600 pixels. Then you work out what scanning (input) resolution you need to produce each of the pixel dimensions you want from the film size; for example, 3600 pixels divided by

the 1.42-inch long side of a 35mm negative works out to 2535 ppi. You'd then choose the next highest setting in the scanning software as the input resolution, and that will give you at least 300 dpi for the final output size."

<https://www.scantips.com/calc.html#dis2>

Scroll down to Printing and Scanning Calculator

For a 10x13 print (on 11x14 paper), printing at 360 dpi, scanning from 35mm film (36x24mm) then use **3810 dpi scan** (see 'Scan 35mm for 10x13 print.JPG')

<https://howtoscan.ca/scan-training/how-to-scan-ebooks.php>

DPI Chart from this link.

<https://www.youtube.com/watch?v=P62vuqH20mc>

Notes

- 6:54 Select 3200 for slide. Check optical resolution for your scanner.
- 7:46 use of Unsharp. Scanning softens; unsharp benefit. Can use post program
- 8:30 Dust removal/ICE; use ICE/Quality
- User TIFF output

https://news.epson.com/facts/perf1_v500_photo_fact_sheet_final_opk2#:~:text=The%20Epson%20PerfectionV500%20Photo,scratch%20removal%20in%20film%20scans.

V500 - 6400 dpi optical scanner

<https://www.imaging-resource.com/SCAN/V700/V700.HTM#:~:text=Highlights%20of%20the%20Epson%20V700,based%20on%20the%20resolution%20required>

V700 – 6400 dpi optical scanner

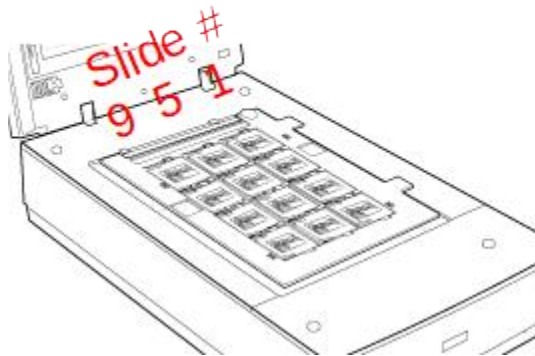
Loading Slides/Negatives

Organizing – White piece of paper to organ

See the individual user manuals for how to load slides and negatives:

- V500 - http://files.support.epson.com/htmldocs/prv5ph/prv5phug/set2_2.htm
 - Special note on 126 film

At least on the V700 (Sig's), scanned image numbering works from the top right to the bottom left.



Scanner Settings

The same Epson Scan program works with the V700 and V500. Here are the settings I used for the thumbnails.

- Mode: Professional
- Document Type: Film (with film holder)
- Film Type: Positive for Slides, Negative for Negatives. Epson Scan creates a positive image from the negative eliminating the need to do this in LR.
- Image Type: 24-bit colour. I used this for both colour and B&W. Read somewhere is best since colour will pick up more grey subtleties.
- Speed Priority scanning – Check on (saw this on the V500)
- Resolution: 600 DPI. Don't change any of the document sizing information
- Unsharp Mask: This kept turning itself onto (I think) medium so I left it on.
- Thumbnail – Click on (V500) – This makes sure the images are separated out

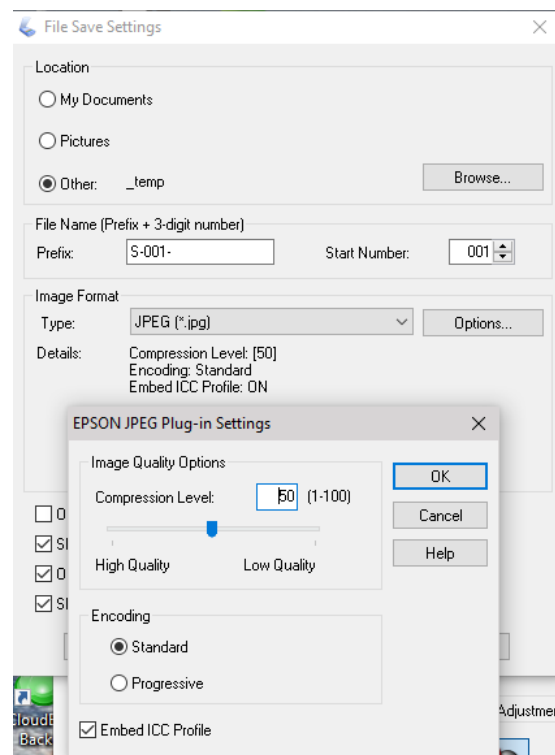
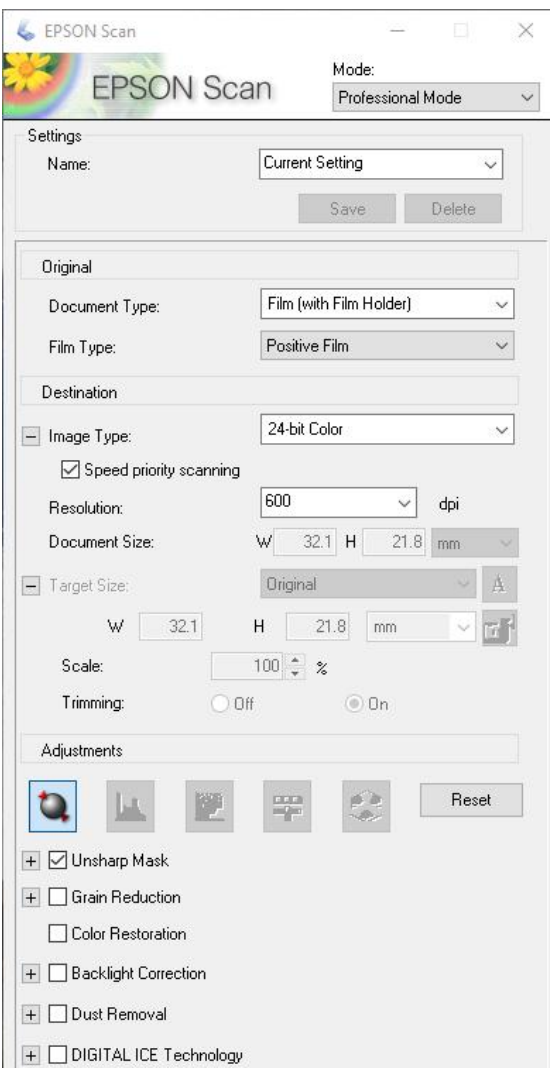
I configured Epson Scan to always show the file save configuration screen

- Prefix: Change for each new batch (note the screen shot does not show the T or F)

- JPG: 50% compression was good enough

Scanning notes:

- Preview takes about as long as the scan for Thumbnail. Have not been able to figure out how to skip the Preview step.
- I find Thumbnails in Preview (V700) work fine for delineating the images. I know some say to do it manually in Normal. Something to consider for full scans but not Thumbnails.
- You can select All in Preview (V700) then rotate all the images. I normally put the slides in the same orientation to the publishers name which makes many of them upside down. Quick correcting in Epson Scan reduces time in LR.
- For negatives, Epson Scan will skip any film that does look like it has a picture in in and not show it in thumbnails.



EXIFTOOL Metadata

I used the EXIFTOOL batch tool I already had and modified it for slides and negatives. One aspect I found useful in Notepad++ was the 'Save As'. This allowed me to save the metadata settings for one batch to use with another when I found the same pictures.

There were a few specialized metadata settings I had to set:

- FileSource: 1 = Film Scanner; 2 = Reflection Print Scanner.
- Make: Epson Scan sets this to 'Epson'. I override this field with the make of the camera I took the picture with
- Model: In a similar way I override what Epson sets.
- DateTimeOriginal: This mostly a guess. If I have no idea, I have a default value you will see in the batch file. The complication was that at the time these slides and negatives were taken, I could go months before I paid to have them processed. This date/time will show up in Windows File Explorer.
- CreateDate: I set that to the date the scans were done.
- UserComment: I used this as a catchall for information about the film and date;
FILM:??,ISO:??,SIZE:??,Colour/B&W,Date (confidence): ??
- Keywords: SLIDE,NEGATIVE,PRINT and LOW RES for Thumbnails.

See Appendix: EXIFTOOL Examples for examples.

Appendix - Scanning Resolution

To print 11x14 need 3300x4200 <https://www.nationsphotolab.com/pixelchart.aspx>

<https://x-equals.com/film-to-digital-scanning-essentials-101-part-1-of-2/>

- I have found on my V500 that 3200-3600 DPI is the sweet spot for scanning negatives,
- Scan prints at 600-1200 DPI. Scan 35mm negatives and slides at 3000-4000 DPI. Scan medium format between 1200-4000 DPI. Scan Black and White negatives as Color negatives

<https://creativepro.com/how-to-digitize-a-film-archive-with-adobe-lightroom-or-adobe-camera-raw/>

For example, if you want to be able to make an 8×12-inch print from a 35mm negative at 300 ppi, you don't scan the tiny negative at 300 ppi because the image has to be enlarged. You first work out the pixel dimensions you'll need for the print (output): 8 inches times 300 ppi equals 2400 pixels, and 12 inches times 300 ppi equals 3600 pixels, which give you pixel dimensions of 2400 x 3600 pixels. Then you work out what scanning (input) resolution you need to produce each of the pixel dimensions you want from the film size; for example, 3600 pixels divided by the 1.42-inch long side of a 35mm negative works out to 2535 ppi. You'd then choose the next highest setting in the scanning software as the input resolution, and that will give you at least 300 dpi for the final output size.

See <https://howtoscan.ca/slide-scanning/slide-scan-best-resolution.php>

6x6 Negatives

These are 6cm square and was likely taken with a [Twin-Reflex camera](#). I don't know if this was with a professional photographer, friend or family member.

Film Image Sizes

Slide 2x2 with a 24x36mm image - https://digitalcopycat.com/slide_negative_identification.html

Agfachrome

- Measured image size 34x23mm
- V500 view in Thumbnails varies, around 32x21mm = 121x76 pixels
- Target size = 800x533 pixels

Film

- Target 800x488

Resolution Testing with Epson SCAN

- At 4,000dpi the scans are over 100MB; At 3,200 65MB

- Zooming in 50% can really see any grain of 4,000 over 3,200

Appendix - Vuescan vs Epson

I investigated using Vuescan instead of Epson Scan. I think Vuescan is worth pursuing for FULL scans. It has some additional features like multi-scan and colour profiles for the different films.



Epson



Vuescan with multiscan enabled.

Appendix: EXIFTOOL Examples

BASIC META FOR NEGATIVES EXAMPLE

REM Apply Basic Metadata for Slides and Negatives

REM ----- Change the Following for each run -----

```
set creator="Paul XXXX"
set copyright="(C) Copyright by Paul XXXX"
set email="paul@XXXXfamily.net"
```

REM Use 'description' for a general comment on the group being processed and 'title' when it is common across all.

```
set title="Ferny's Birth"
set description="Ferny's Birth"
```

REM Original mediaInfo FILM:??,ISO:??,SIZE:?? [either negative or print],COLOR/B&W, Confidence in original date.

REM Need place to record develop date

```
set mediaInfo="FILM:KodaColor VR 400 (5079),ISO:400,SIZE:35mm,Colour,Date: Dec 1984"
```

REM Keyword SLIDE,NEGATIVE,PRINT. Add LOW RES to 'T' Thumbnail pictures

```
set keywords="LOW RES,FILM,NEGATIVE,Ferny"
```

REM This will replace the Make and Model of the scanner used

```
set make="Nikon"
set model="FG"
```

REM Location should be within the city if possible

```
set location="Base Hospital"
set country="Canada"
set prov="Ontario"
set city="North Bay"
```

REM Date/Time format YYYY:MM:DD HH:MM:SS

```
set createDate="2020:05:10 12:00:00"
```

REM DateTimeOriginal is many times a guess reflected in mediaInfo/UserComment

REM For unknown dates, set to '1977:07:07 07:07:07'

```
set DateTimeOriginal="1984:12:26 12:00:00"
```

REM Special handling for FileSource <https://exiftool.org/forum/index.php?topic=1939.0>

REM 1 = Film Scanner; 2 = Reflection Print Scanner

```
set FileSource=1
```

REM -----

REM There are a large number of duplicate tags in a pictures metadata. The Metadata Working group is attempting to reconcile these. See

<http://www.sno.phy.queensu.ca/~phil/exiftool/TagNames/MWG.html>.

REM Add Basic tags for a set of images

```
exiftool -overwrite_original ^
-artist=%creator% ^
-ImageCreatorName=%creator% ^
-Contact=%creator% ^
-By-line=%creator% ^
-OwnerName=%creator% ^
-CreatorWorkEmail=%email% ^
^
-copyright=%copyright% ^
-copyrightnotice=%copyright% ^
```

```

-n -xmp:copyrightstatus='CS-PRO' -xmp-xmprights:marked=true ^
^
-event=%location% ^
-sub-location=%location% ^
-location=%location% ^
-LocationShownSubLocation=%location% ^
^
-Country-PrimaryLocationName=%country% ^
-LocationShownCountryName=%country% ^
-City=%city% ^
-LocationShownCity=%city% ^
-Province-State=%prov% ^
-LocationShownProvinceState=%prov% ^
^
-title=%title% ^
-description=%description% ^
-ImageDescription=%description% ^
-ObjectName=%description% ^
-Caption-Abstract=%description% ^
^
-DateTimeOriginal=%DateTimeOriginal% ^
-createdate=%createDate% ^
-DateTimeDigitized=%createDate% ^
^
-Make=%make% ^
-Model=%model% ^
-UserComment=%mediaInfo% ^
^
-sep "," -keywords=%keywords% ^
-XPkeywords=%keywords% ^
-n -xmp:filesource=%FileSource% ^
.

```

BASIC METADATA EXAMPLE FOR SLIDES

REM Apply Basic Metadata for Slides and Negatives

REM ----- Change the Following for each run -----

```

set creator="Paul XXXX"
set copyright="(C) Copyright by Paul XXXX"
set email="paul@XXXXfamily.net"

```

REM Use 'description' for a general compent on the group being processed and 'title' when it is common across all.

```

set title="Cottage in Winter"
set description="Cottage in Winter"

```

REM Original mediaInfo FILM:??,ISO:??,SIZE:?? [either negative or print],COLOR/B&W, Confidence in original date.

REM Need place to record develop date

```

set mediaInfo="FILM:EKTACHROME,ISO:??,SIZE:35mm,Colour,Date:Winter 79"

```

REM Keyword SLIDE,NEGATIVE,PRINT. Add LOW RES to 'T' Thumbnail pictrues

```

set keywords="LOW RES,SLIDE"

```

REM This will replace the Make and Model of the scanner used

```

set make="Pentax"
set model="?"

```

REM Location should be within the city if possible

```

set location="?"
set country="Canada"
set prov="Ontario"
set city="?"

```

```

REM Date/Time format YYYY:MM:DD HH:MM:SS
set createDate="2020:04:26 12:00:00"
REM DateTimeOriginal is many times a guess reflected in mediaInfo/UserComment
set DateTimeOriginal="1979:01:01 12:00:00"

REM Special handling for FileSource https://exiftool.org/forum/index.php?topic=1939.0
REM 1 = Film Scanner; 2 = Reflection Print Scanner
set FileSource=1

REM -----

REM There are a large number of duplicate tags in a pictures metadata. The Metata Working
group is attempting to reconcile these. See
http://www.sno.phy.queensu.ca/~phil/exiftool/TagNames/MWG.html.

REM Add Basic tags for a set of images

exiftool -overwrite_original ^
-artist=%creator% ^
-ImageCreatorName=%creator% ^
-Contact=%creator% ^
-By-line=%creator% ^
-OwnerName=%creator% ^
-CreatorWorkEmail=%email% ^
^
-copyright=%copyright% ^
-copyrightnotice=%copyright% ^
^
-event=%location% ^
-sub-location=%location% ^
-location=%location% ^
-LocationShownSubLocation=%location% ^
^
-Country-PrimaryLocationName=%country% ^
-LocationShownCountryName=%country% ^
-City=%city% ^
-LocationShownCity=%city% ^
-Province-State=%prov% ^
-LocationShownProvinceState=%prov% ^
^
-title=%title% ^
-description=%description% ^
-ImageDescription=%description% ^
-ObjectName=%description% ^
-Caption-Abstract=%description% ^
^
-DateTimeOriginal=%DateTimeOriginal% ^
-createdate=%createDate% ^
-DateTimeDigitized=%createDate% ^
^
-Make=%make% ^
-Model=%model% ^
-UserComment=%mediaInfo% ^
^
-sep ", " -keywords=%keywords% ^
-XPkeywords=%keywords% ^
-n -xmp:filesource=%FileSource% ^
.

```