

Using the Zeiss Phodis Scanner
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Modified April 2000, Norm Olson

1. The scanner should be turned on and warmed up for a minimum of two hours if you plan on scanning data for processing. Sign your name in the scanner log book. After you are done record in the book the number of scans completed and if there were any problems with the scanner.
2. Log onto the SGI Indy workstation. The username is phodis and the password is ia7isfun (all in lower case). Open at least two terminal windows.
3. Type "scai" (no quotes) in one of the terminal windows.
4. Turn on the scanner switch which is located in the rear at the left side of the machine. The scanner will now go through a normalization procedure which should take several minutes.
5. Type "psc" in a second terminal window.
6. Make sure that usr/people/phodis/purdue.par is showing in the parameter window.
7. Gently brush off a negative with the sable brush. Carefully check the negative for residual dust particles and blow them off with the canned air. The glass surfaces of the scanner should also be carefully brushed. Be careful about raising the top glass of the scanner. It is not hinged and it can easily drop. Place the negative emulsion side down on the glass in the center of the scanner. If you hold an EM negative such that the notch in the film is in the upper right corner then the emulsion is facing you.
8. Click on the "Scan" menu item and choose "Prescan".
9. Click on "Setup". Select 1) your scan step size (7 microns if you will be processing the data), 2) min and max density values (a min of 0.3 and a max of 1.4 are good values to initially select), 3) film negative and image positive settings, and 3) image normalization for each scan. Click "Save" and then "OK".
10. Drag the perimeter anchor boxes out far enough so that you will definitely cover the area where your negative is located.
11. Click "Start". The prescan process will take several minutes after which time the prescan image will appear. Readjust the perimeter anchor boxes tightly around the area of the negative you want to scan. It is probably a good idea not to scan the data box or the edges of the negative since they will adversely affect the image histogram. Click "Save" and then "Close".
12. Click on the "Scan" menu item and choose "Start". This window is divided into several areas and each has a "Setup" box.
13. In the scan settings setup box make sure the stepsize is set to 7 microns (see step 9 above).
14. Check to see if the min and max density are set to a max of 1.4 and a min of 0.3. These values can adjusted later.
15. The following values should never be changed: 1) Linearity = 0%; 2) Color Correction, red is highlighted and set from 0 to 255. The green and blue boxes are grayed out.; 3) Polarity is set to film negative and image positive. Click "OK" to accept the changes.
16. In the "Image Settings" box click on filename and type in the filename you choose along with the destination path. For scanning data make sure that "tld" is selected. Tiff can be used if you want to create an image file that can be read by various image programs such as Adobe

Photoshop. For convenience make sure the "Display image after scan" option is selected. Click "OK" to accept the changes.

17. Click "Start" at the bottom of the Scan Start window.
18. When the scan is complete two new windows will appear. One will contain the new image and the other one will be titled "Image View". Clicking on the rightmost mouse button in the image window will allow you to zoom in and out of the scan.
19. Click on "Config" in the "Image View" window and then on "Histogram"
20. The histogram represents the grayscale distribution of the scan. If the edge of the negative or the data box was included in the scan these values will also be represented in the histogram and not give a true distribution. The histogram should be centered as close to 125 on the X axis as possible. In addition, the histogram should be as broad as possible but not have very many values fall beyond the min and max of the graph.
21. Close both the "Image" and "Image View" windows.
22. If the histogram was not acceptable changes in the min and max values in the "Setup Scan" window will have to be made as described in steps 12 through 14. Changing the values by a number of tenths of increments usually works. A cheat-sheet table is at the bottom of this tutorial which should give you a little help on how to adjust these values.
23. Accept the changes and click "Start" in the "Scan Start" window to begin scanning. Repeat the above steps until the image histograms exhibit suitable values.
24. When you are finished, close all windows and exit the PSC and SCAI software. Turn off the scanner, remove your negative and place a wiping tissue between the two glass plates to prevent any dust from scratching the glass surfaces. Record the number of scans you made in the log book.

Converting Images from the Zeiss TLD Format to the Purdue PIF Format

- 1) Open a terminal window and go to the directory where your image files are stored.
- 2) Type the following command
 - a) % tld2pif mytldfilename.tld mypiffilename.pif
 - i) To pixel average a 7 micron scan to 14 micron step size (averages 4 pixels into 1):
(1) % tld2pif mytldfilename.tld mypiffilename.pif -pixavg 2
 - ii) To pixel average a 7 micron scan to 21 micron step size (averages 9 pixels into 1):
(1) % tld2pif mytldfilename.tld mypiffilename.pif -pixavg 3
 - iii) To reverse the contrast of the image:
(1) % tld2pif mytldfilename.tld mypiffilename.pif -revcontrast

The hard drives on SCANEM are not for long term storage of files. Remove your files promptly or you may risk losing them.

Min and Max Scan Settings Cheat Sheet
Film Negative - Image Positive Setting

Desired Result	Possible Solutions
Shift histogram to right	Decrease max Decrease min
Shift histogram to left	Increase max Increase min
Compress histogram	Broaden range - Increase max and decrease min
Broaden histogram	Compress range - Decrease max and increase min