

# Conversion of SpectaView Files for processing in EasyLEED (via ImageJ)

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## Requirements

1. SpectaView file with known number of frames, starting energy, end energy and step (1eV recommended)
2. ImageJ: <http://imagej.nih.gov/ij/>
3. EasyLEED: <http://andim.github.io/easyleed/>

Installation of EasyLEED and ImageJ is provided in the corresponding website. Platform supported are MS Windows, Mac OSX, Linux (and any other supporting Java 6, and Python 2.7.x)

## Spectra File Conversion using ImageJ

A few initial parameters need to be known. For the sake of this example, we will use the test file Al(111) as provided here:

<https://filex.univ-lorraine.fr/get?k=POJuqr5KuOSPjW6RYRf>

After unzipping, the main relevant file and parameters are:

File name: 29031301

Starting energy: 6 eV

End energy: 250 eV

Step: 1 eV

1. Run ImageJ. From the menu File, select Import and Raw.
2. A panel asks for the SpectaView to be opened. Select 29031301 from the proper location.
3. A panel will open up (Fig.1). A few parameters need to be set for ImageJ to open correctly the file:
  - a. Image Type: 16-bit Unsigned
  - b. Width: 512 pixels
  - c. Height: 512 pixels
  - d. Offset to first image: 1000 bytes
  - e. Gap between images: 0 bytes
  - f. Little-endian byte order: CHECKED

Number of images needs to be set according to the experiment, in this case 244.

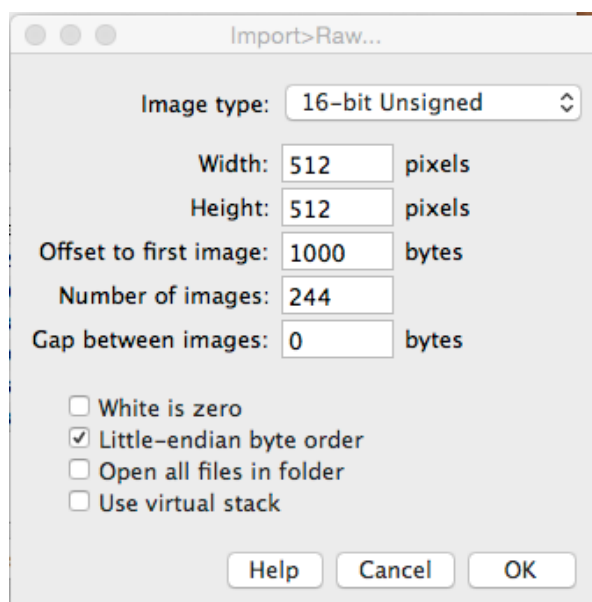


Fig. 1

**NOTE: If there are visualization issues, try and toggle the Little-endian byte order. Sometimes this is an issue when opening files saved in Windows in OSX.**

4. The images are now fully open in a stack in ImageJ. You can surf across the frames with the scroll bar at the bottom (Fig.2)

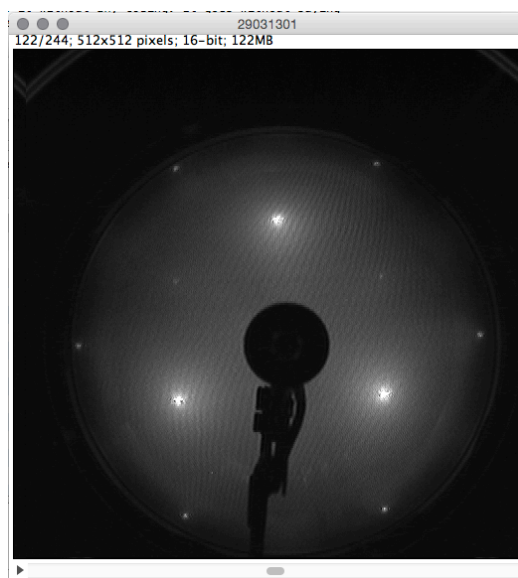


Fig. 2

5. Further processing can be applied using ImageJ on the full stack, if needed (such as sharpening, profile extraction, etc). Lot's of capabilities here, whose discussion is beyond the scope of this manual.

6. Convert the images from 16-bits to 8-bits (easyLEED does not like 16-bits)
  - a. In ImageJ, from menu Image, Type, 8-bit.
7. When ready to save for EasyLEED, from ImageJ, select menu File, Save As, Image Sequence...
8. A panel will open up (Fig.3). A few parameters need to be set for ImageJ to open correctly the file:
  - a. Format: TIFF (recommended for highest quality, PNG, or JPG are also supported by EasyLEED)
  - b. Name: 29031301\_ (note the underscore “\_”. This is needed for EasyLEED to process the energy values correctly. You just need to add it)
  - c. Start at: 6 eV (or whatever starting energy you want)
  - d. Digit: 3 is usually fine

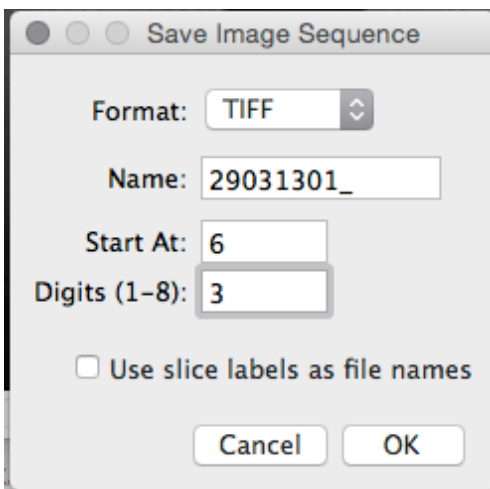


Fig. 3

9. The images are saved with the following format: 29031301\_006.tif, where the last three numbers correspond to the energy for that specific frame.
10. Done! Now the images are ready to be opened in EasyLEED

### Opening the Image Sequence in EasyLEED.

1. Open EasyLEED.
2. Select the “Open” button. In the panels that open, go the relevant folder. In the “Files of Type”, select **PIL-Files** (Fig. 4)

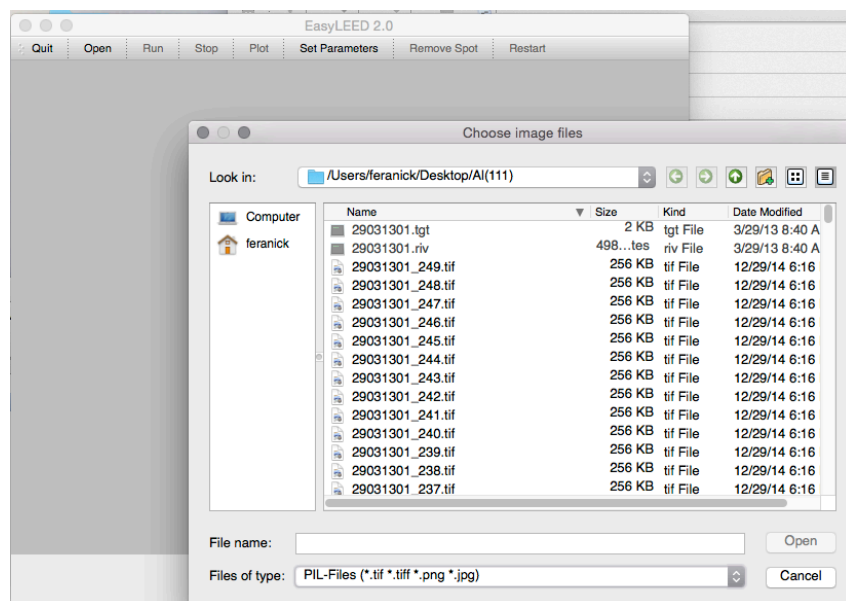


Fig. 4

3. Select ALL the images from the sequence. Select the first, and while holding Shift, select the last one. The complete image sequence should be now open in EasyLEED (Fig. 5)



Fig. 5

4. From this point on, the frames can be processed with the full capabilities of EasyLEED.