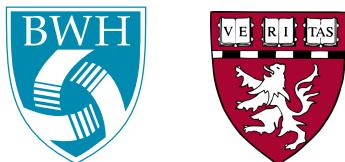




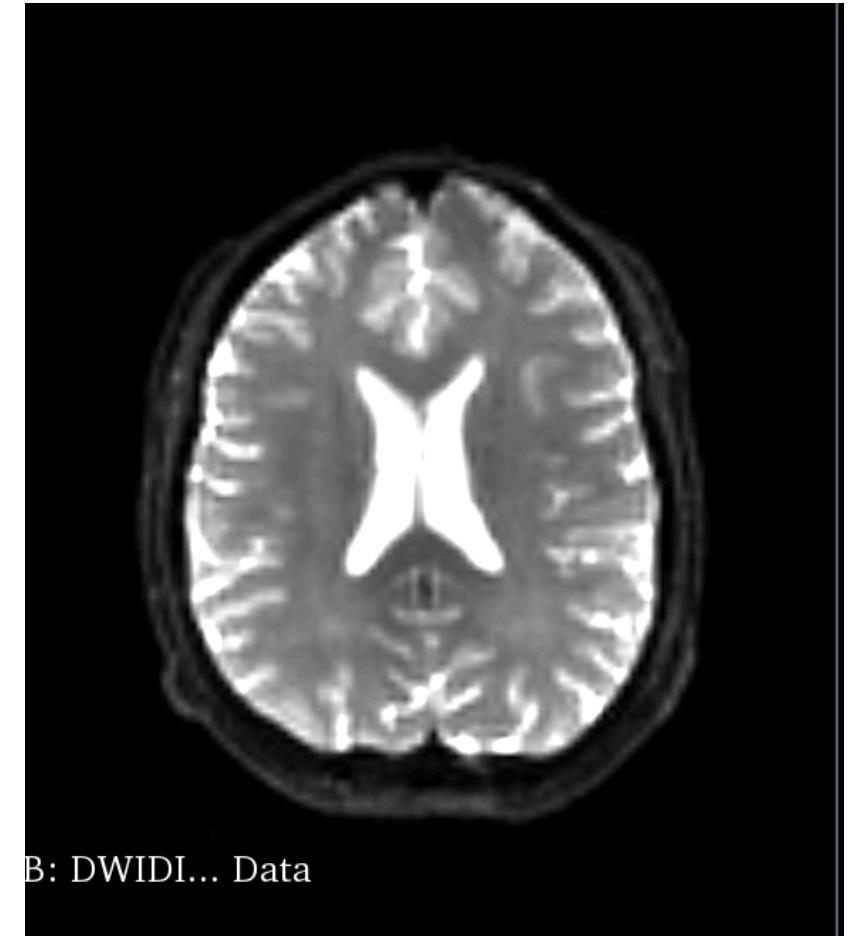
Dcm2niixGUI Tutorial

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Diffusion Weighted Imaging (DWI)

- Type of MR imaging based on the measurement of Brownian motion of water molecules
- Useful method in mapping the fiber architecture of tissue



B: DWIDI... Data

Learning Objectives

1. Inputting DICOM DWI Files into Slicer using the Dcm2niiGUI module
2. Divide folders containing multiple MR acquisitions or series into isolated folders using the DICOM Patcher module

Tutorial Dataset

The tutorial dataset can be found here under DWIDICOM

<http://slicer.kitware.com/midas3/folder/5039>

Files should contain:

MR_0004_0028.dcm

[...]

MR_0004_1800.dcm

3D Slicer

This tutorial uses the 3D Slicer (Version 4.10.2, revision 28257,
Stable Release)

Available for download at: <https://download.slicer.org/>

Disclaimer: It is the responsibility of the user of 3DSlicer to comply with both the terms of the license and with the applicable laws, regulations and rules. Slicer is a tool for research, and is not FDA approved.

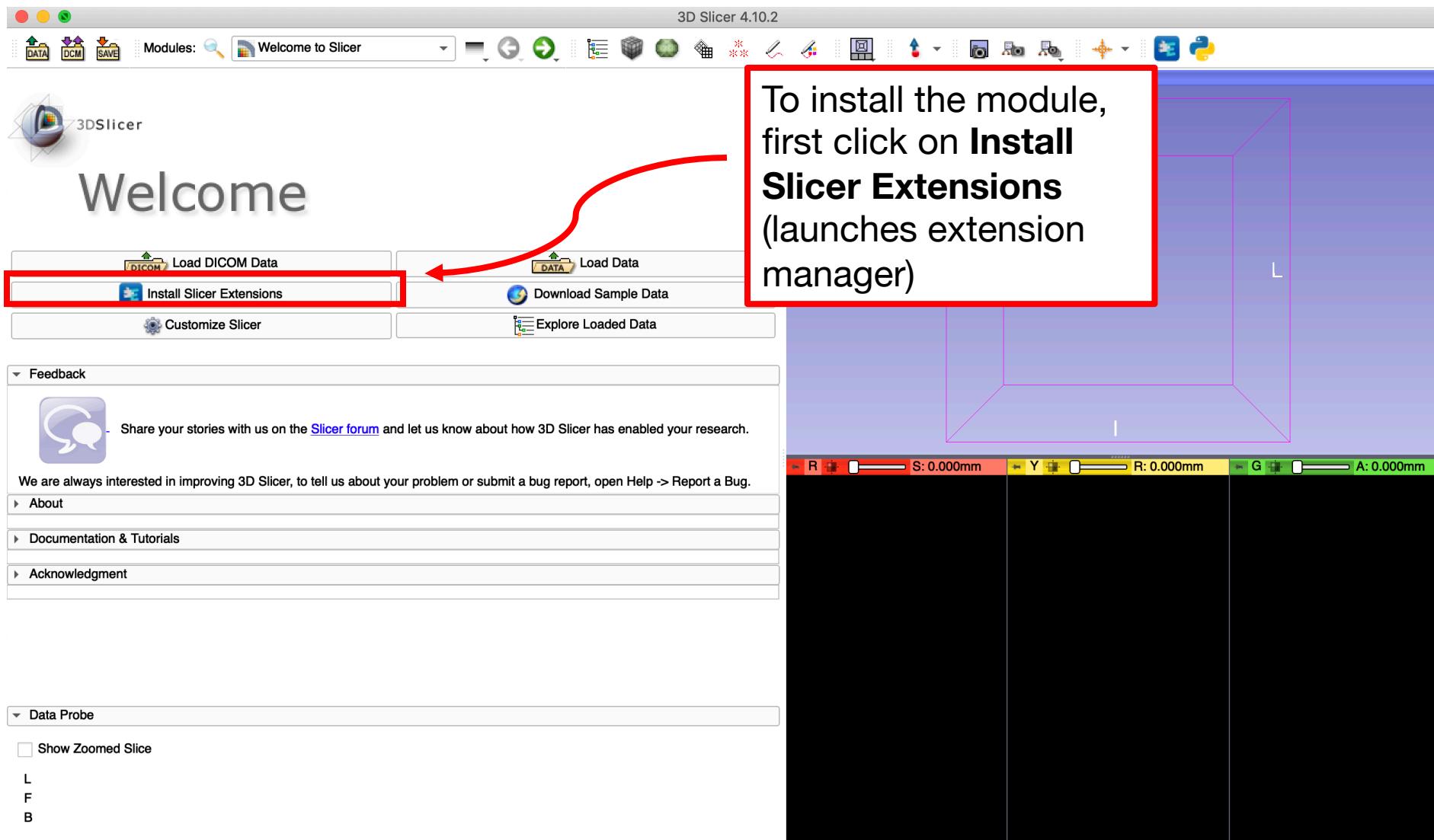
DICOM Patcher

The Dcm2niixGUI works on DICOM files that contain data from a single MR acquisition.

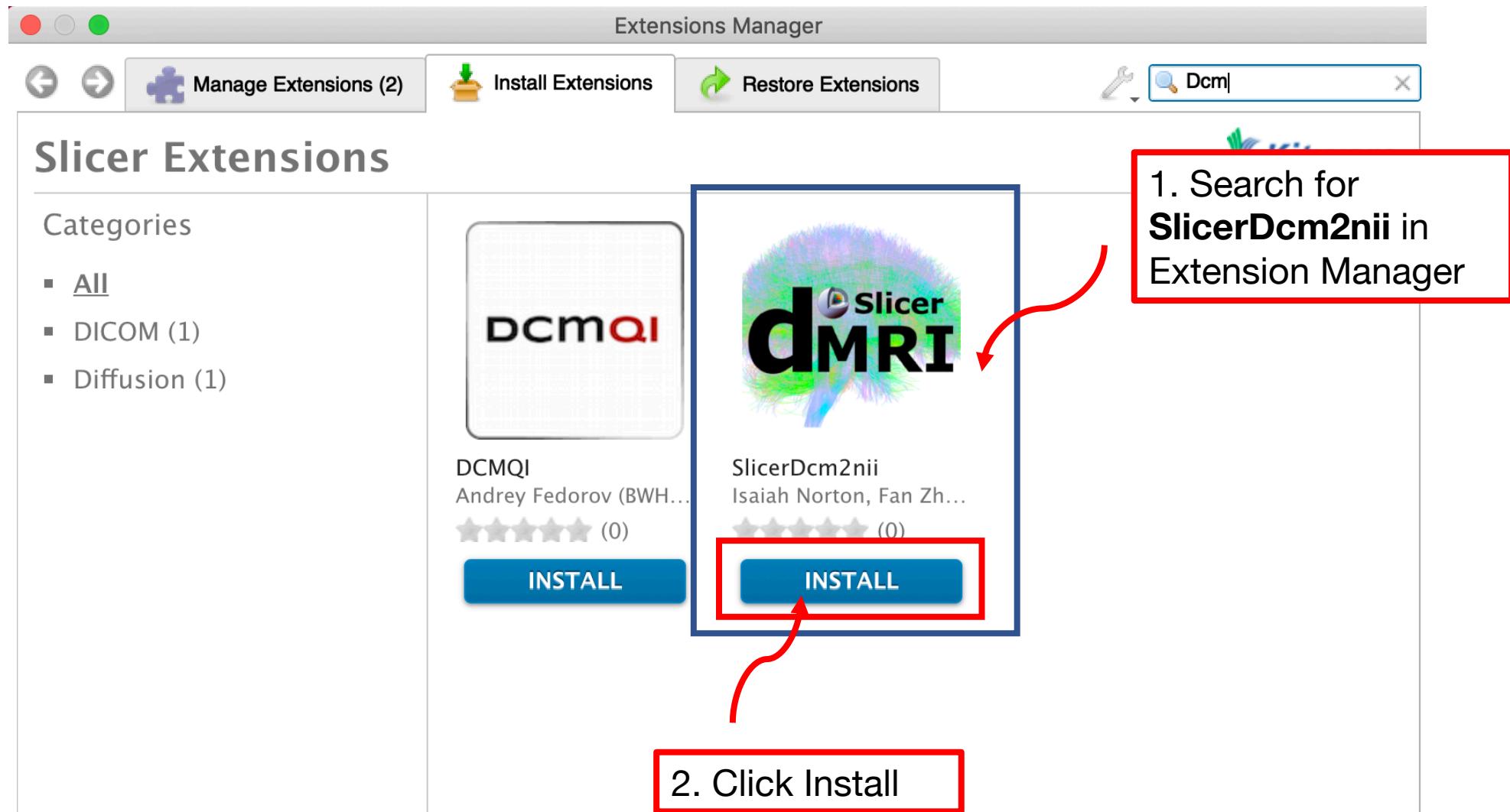
If there are datasets from multiple MR acquisitions in the input DICOM directory, the DICOM Patcher module can be used to extract each individual dataset before applying Dcm2niixGUI.

Please see the slides on Page 17 for how to used the DICOM Patcher

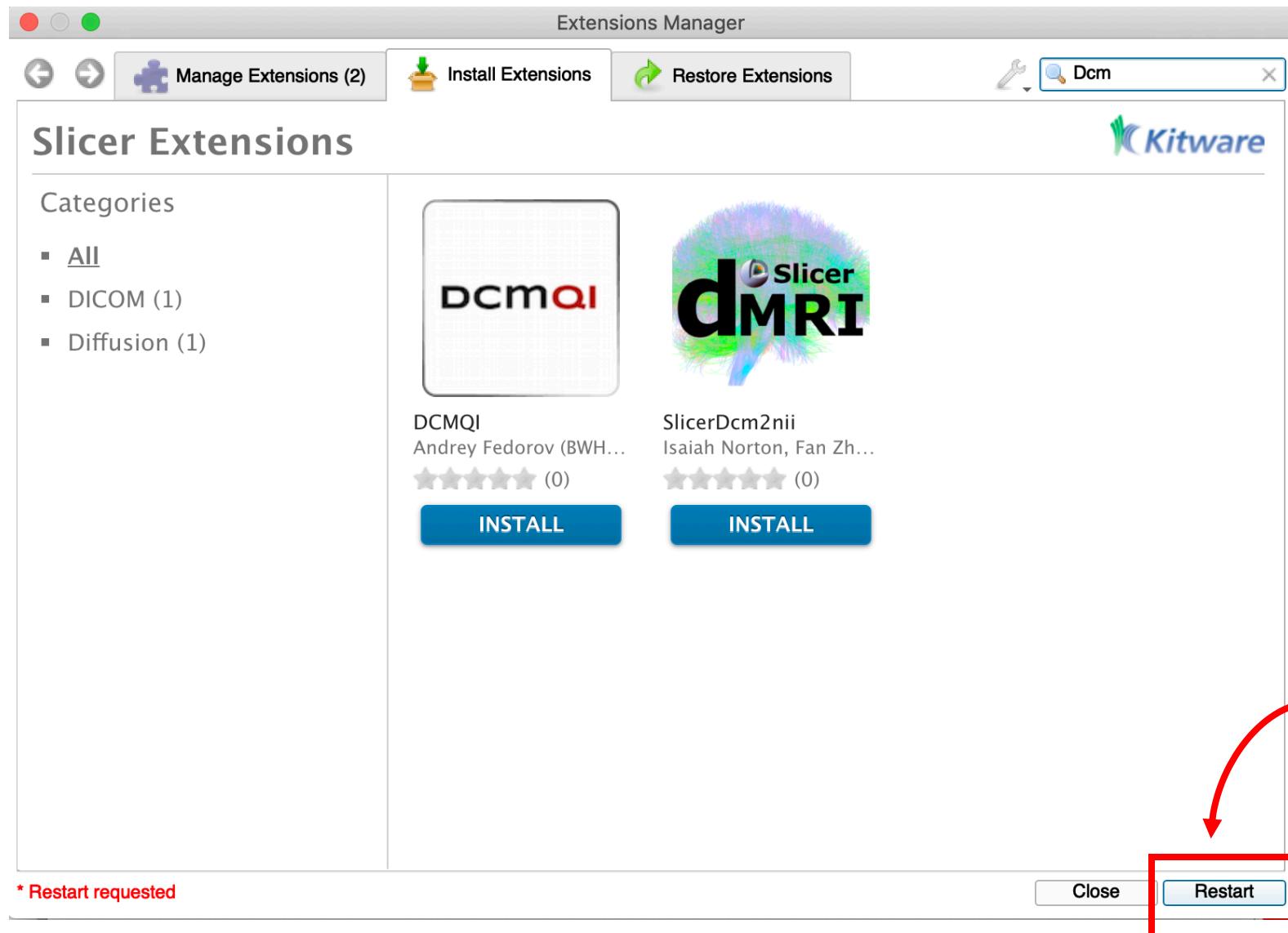
Dcm2niixGUI



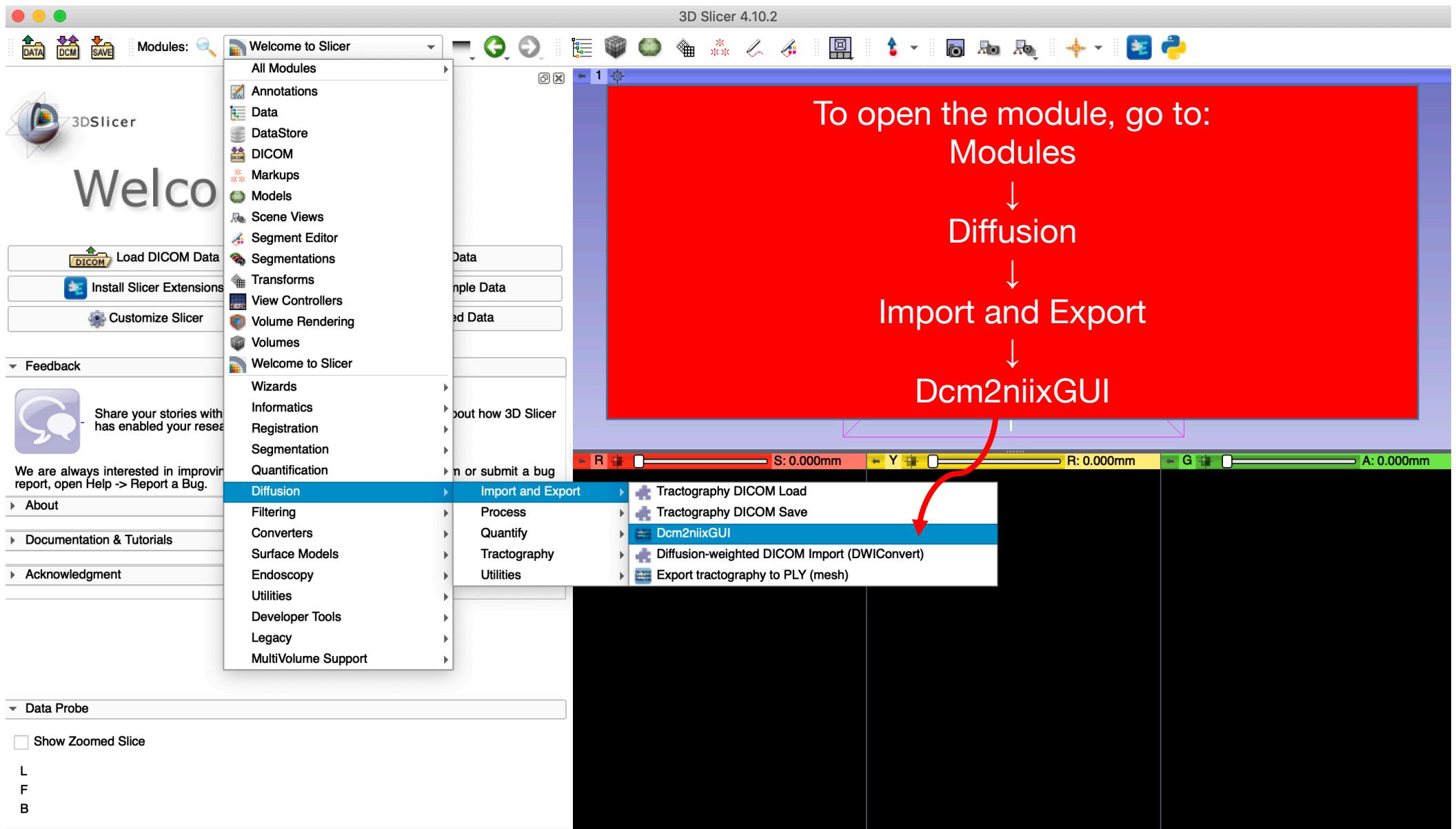
Dcm2niixGUI



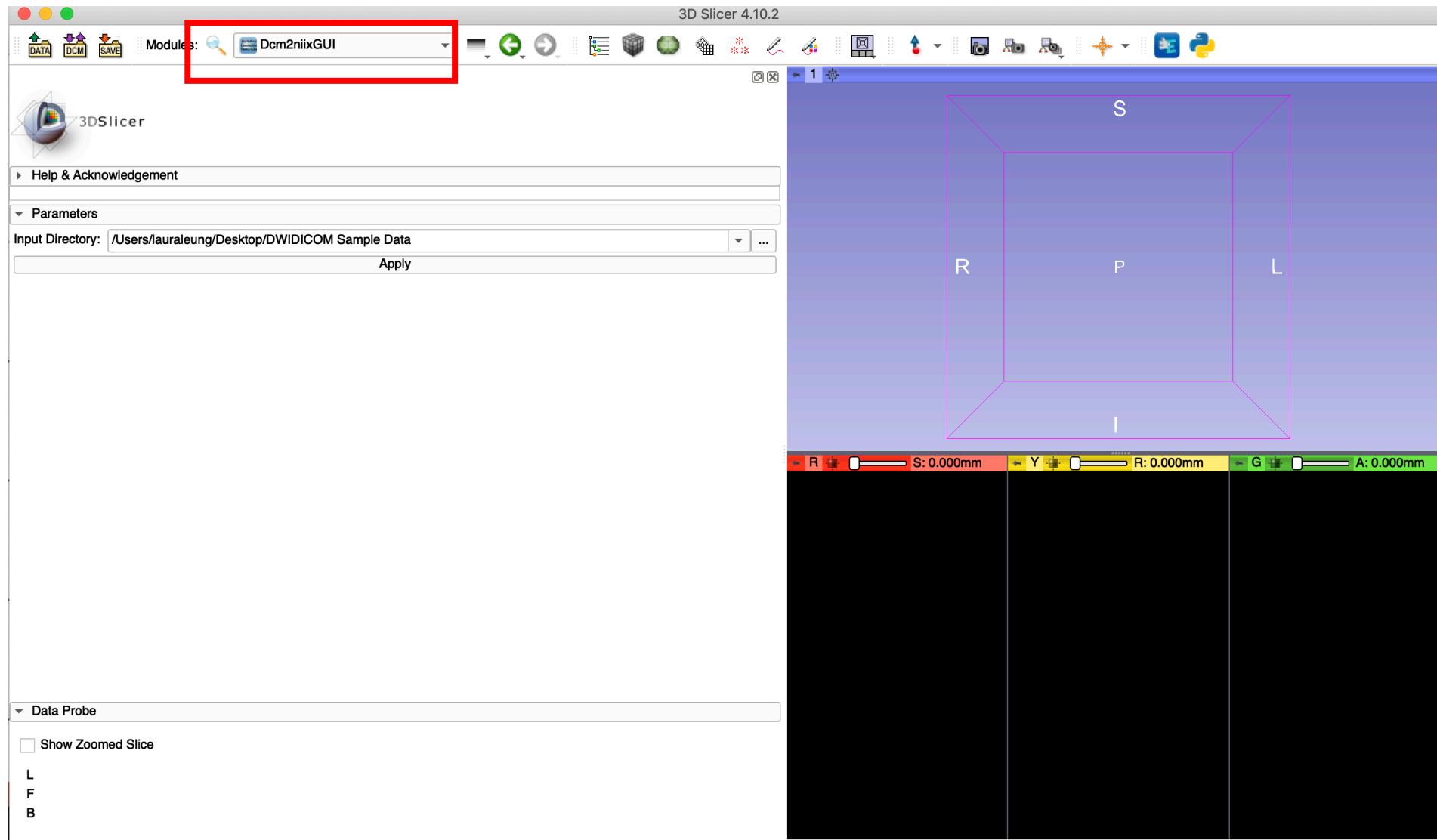
Dcm2niixGUI



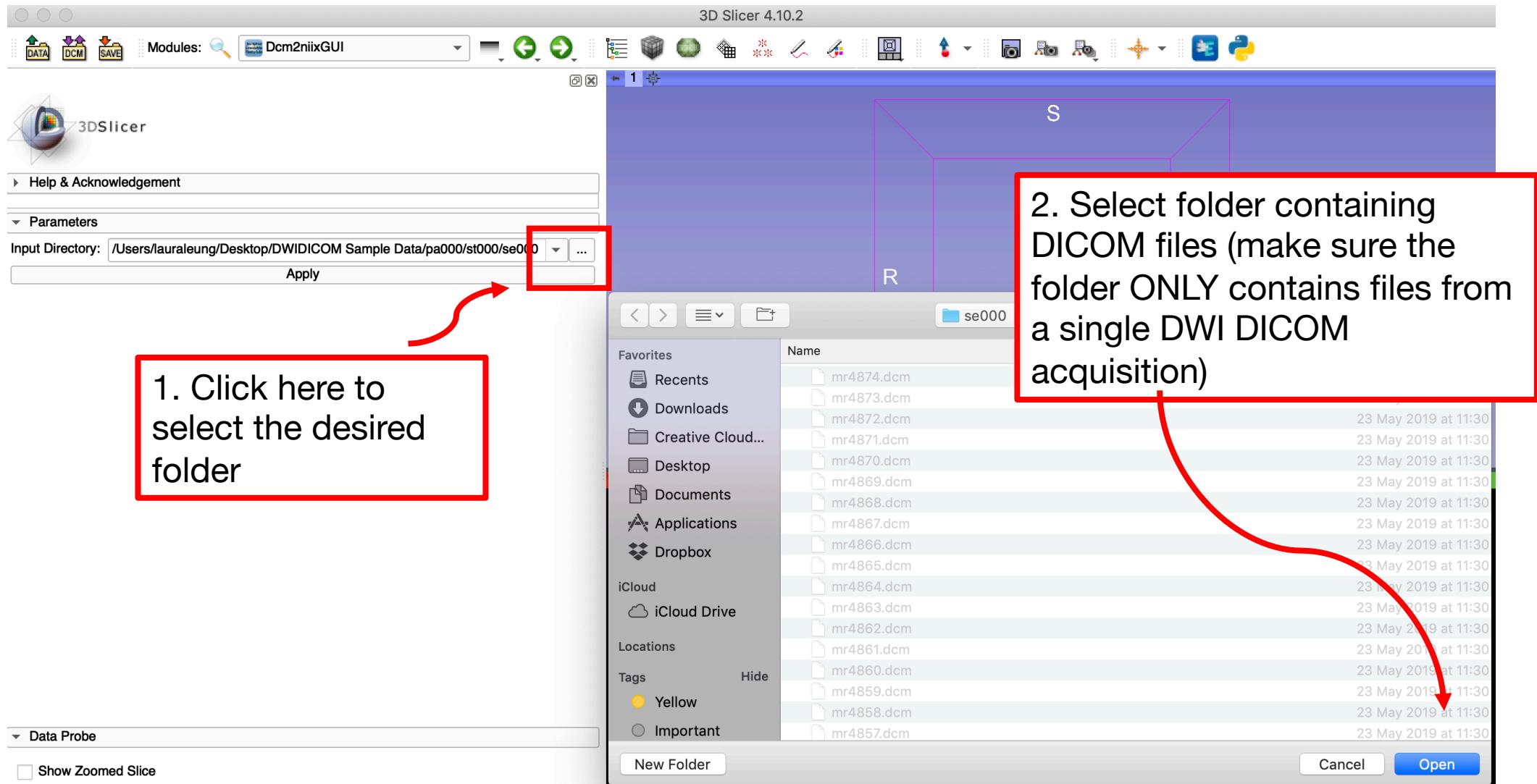
Dcm2niixGUI



Dcm2niixGUI

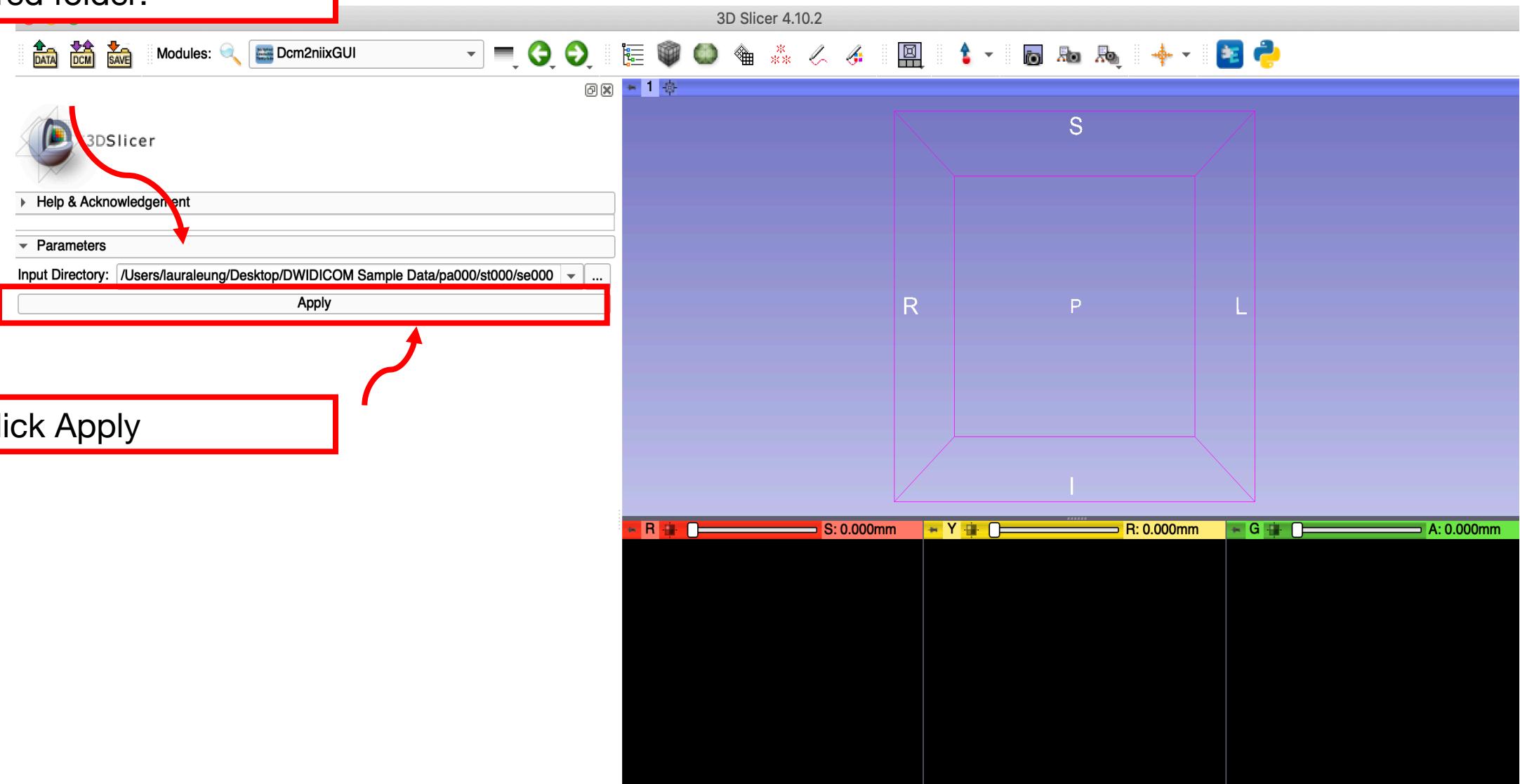


Dcm2niixGUI

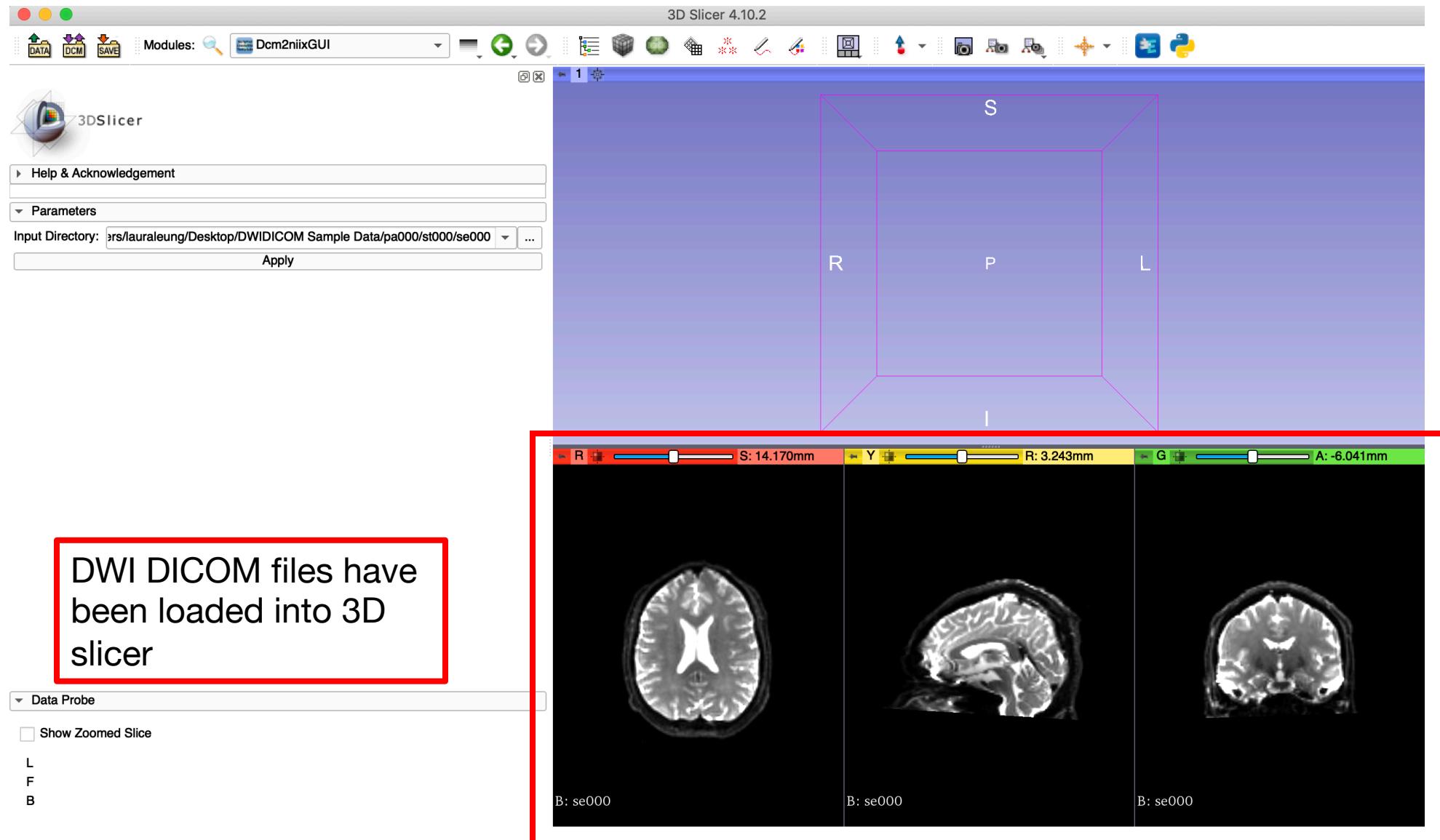


Dcm2niixGUI

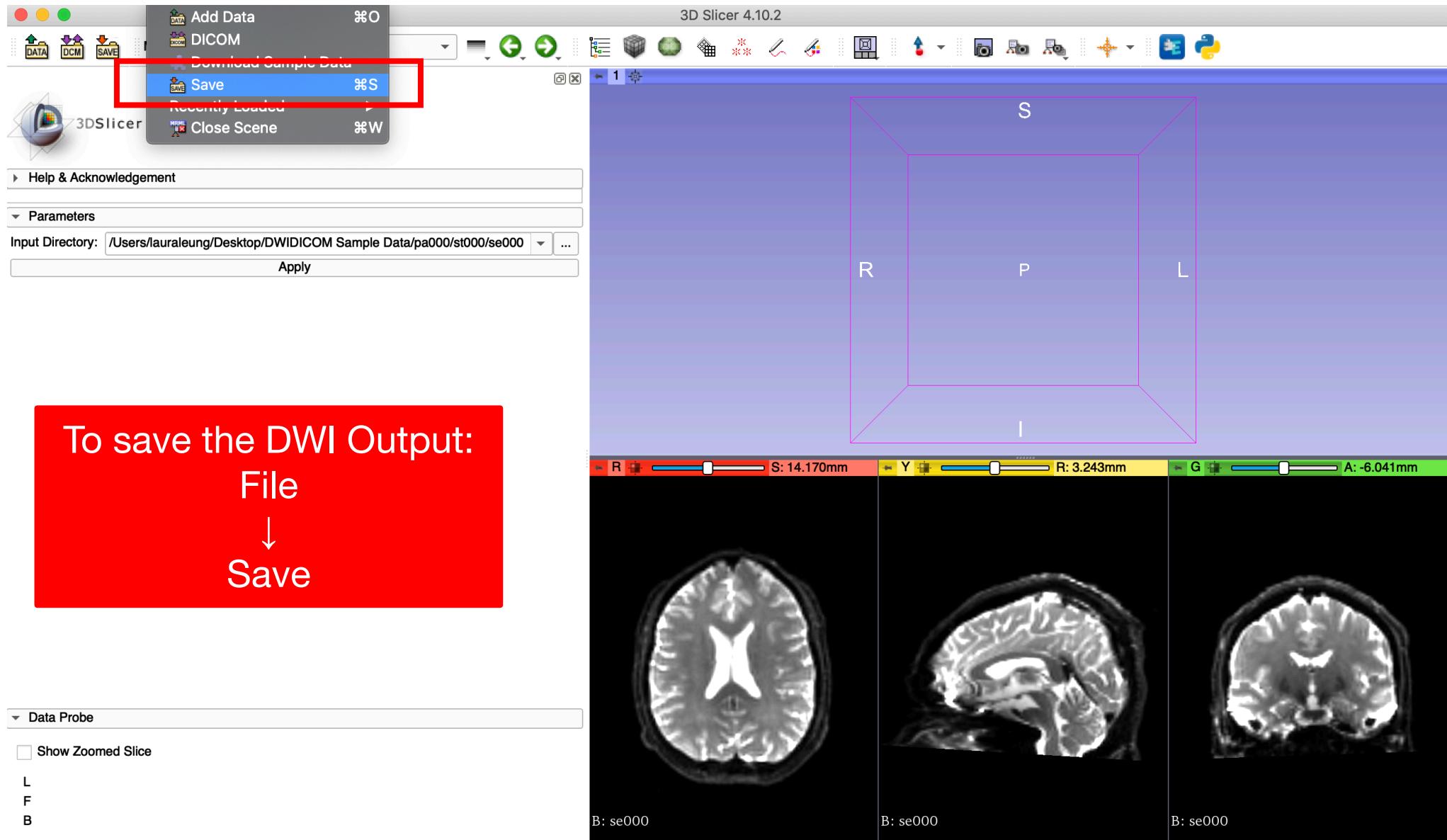
1. Check you picked the desired folder!



Dcm2niixGUI



Dcm2niixGUI

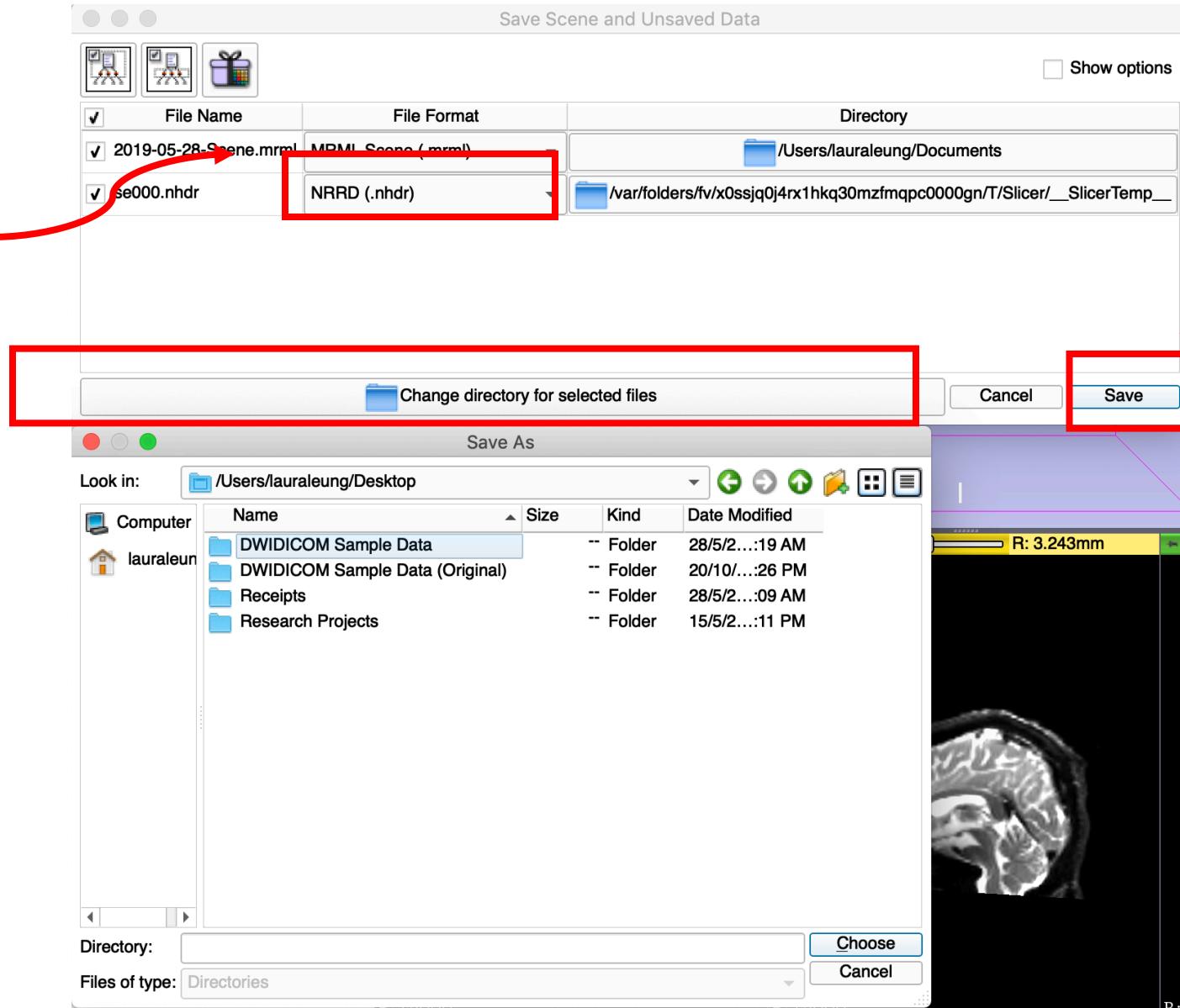


Dcm2niixGUI

1. Choose to save the file as either nhdr/nrrd

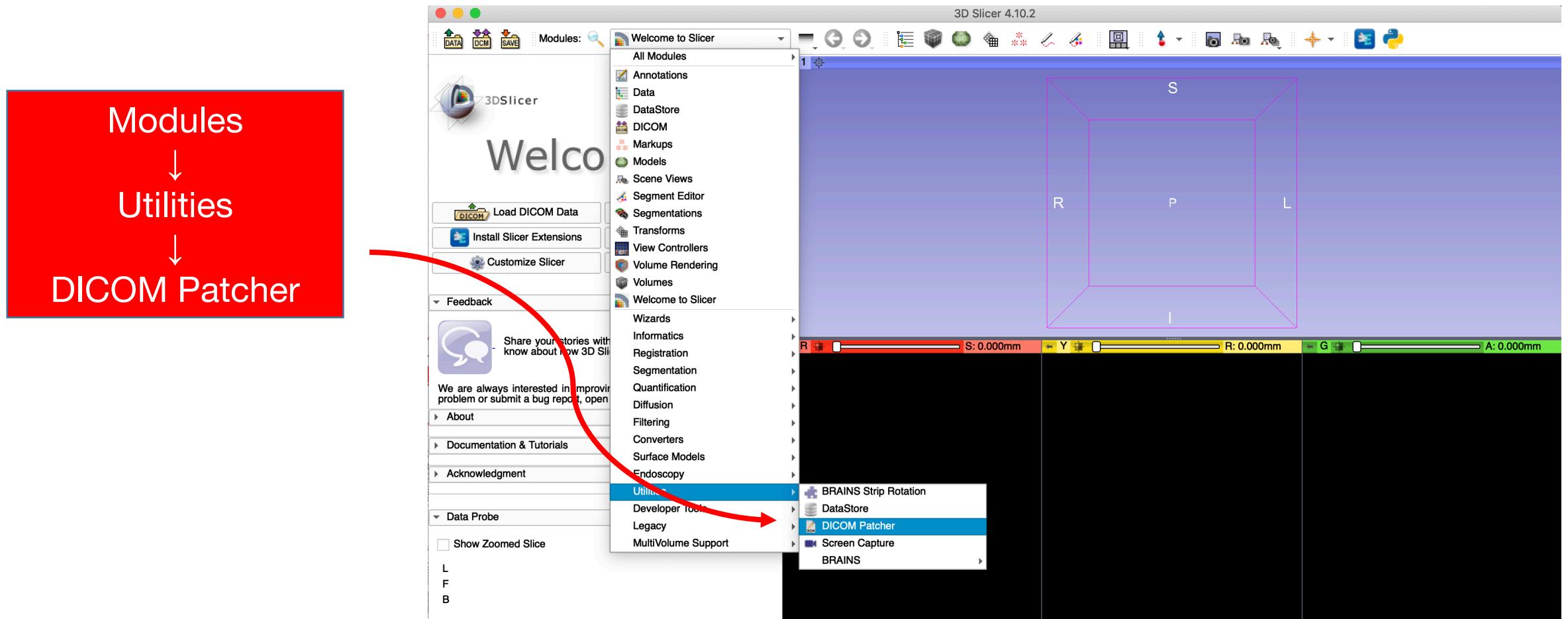
2. Click here to change the folder for all file outputs

3. Click here to save!

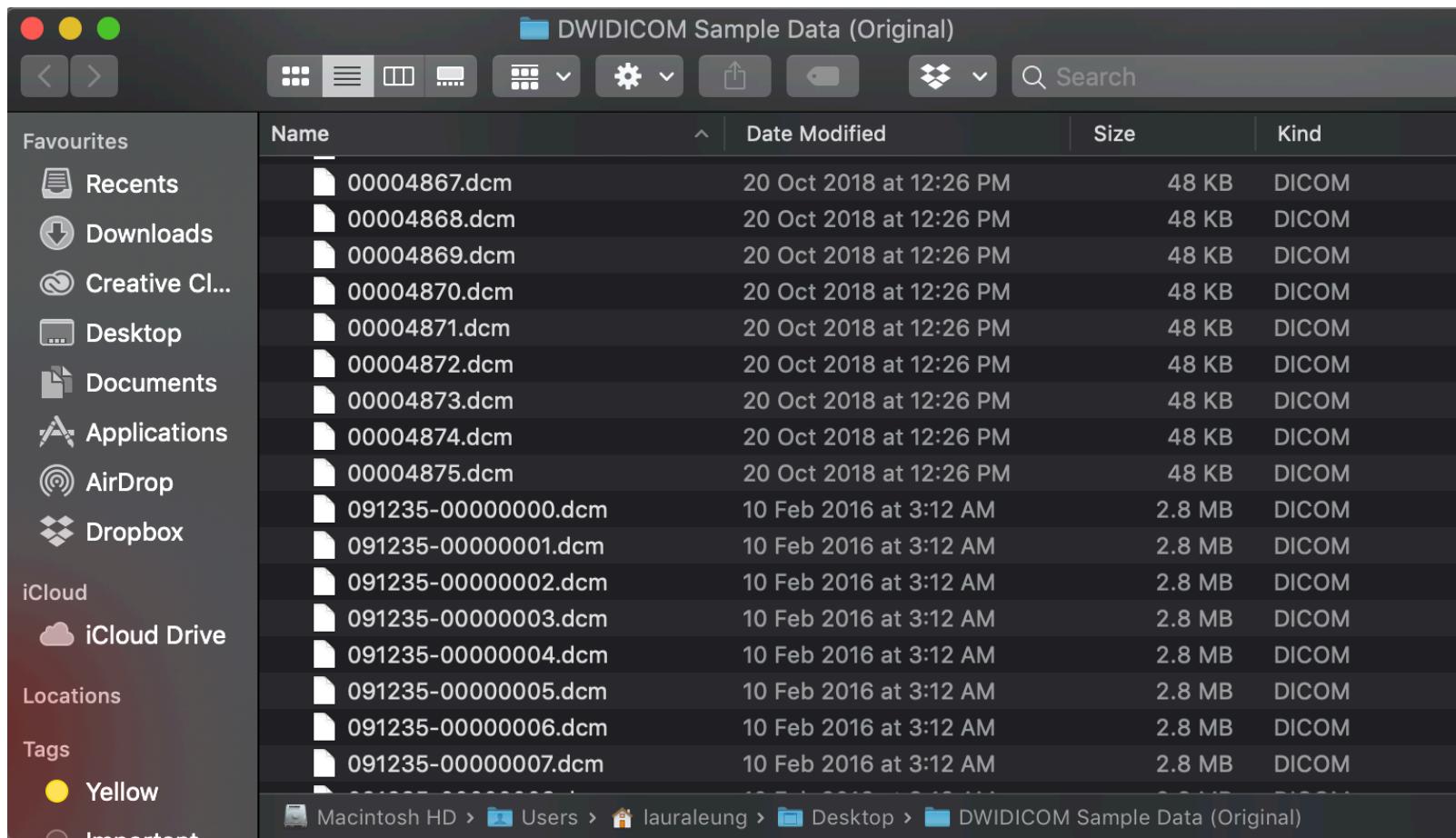


DICOM Patcher

DICOM Patcher is specifically used when a **folder has more than one acquisition or series**. Run DICOM Patcher to make sure there is only one set of DICOM files within your input folder.

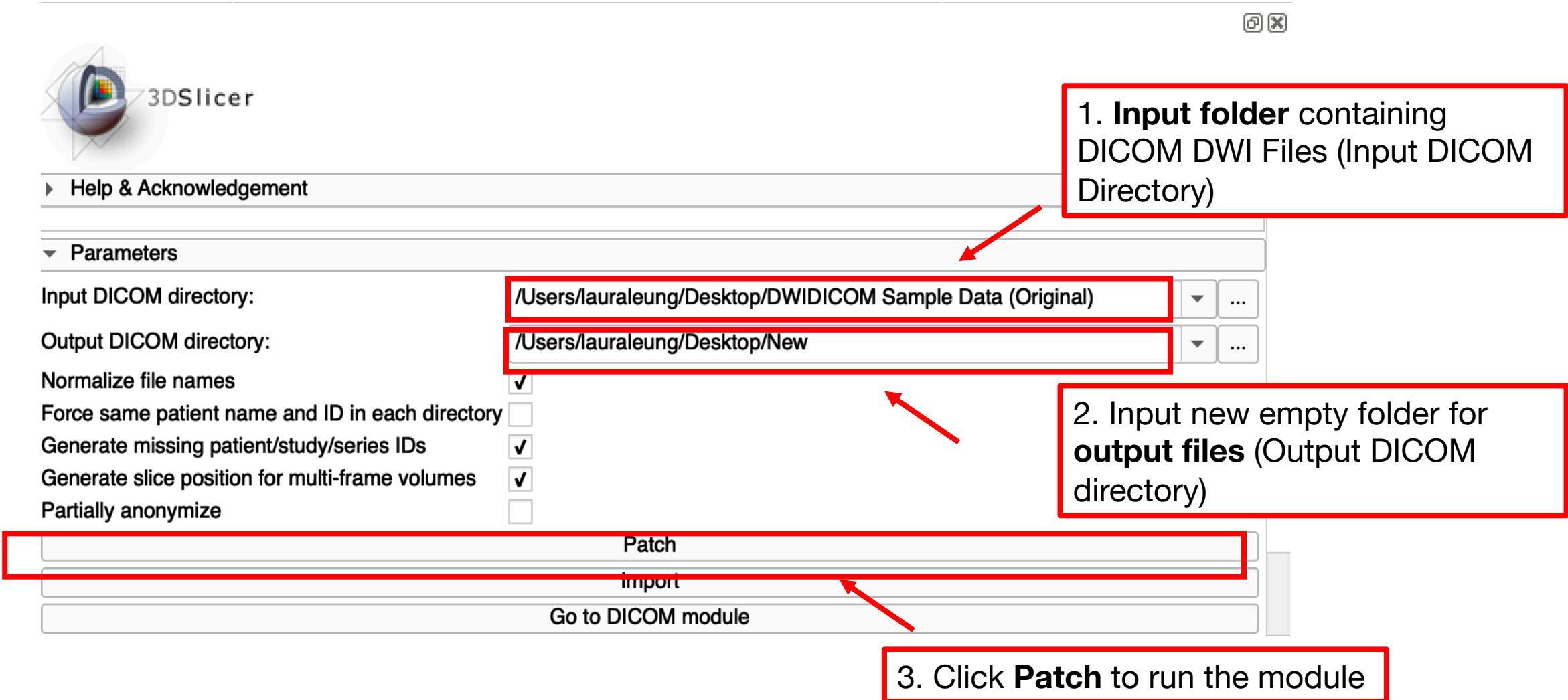


DICOM Patcher



Take this as an example – there is data from two different patients placed into the same folder.

DICOM Patcher



DICOM Patcher



▶ Help & Acknowledgement

▼ Parameters

Input DICOM directory: /Users/lauraleung/Desktop/DWIDICOM Sample Data (Original)

Output DICOM directory: /Users/lauraleung/Desktop/New

Normalize file names

Force same patient name and ID in each directory

Generate missing patient/study/series IDs

Generate slice position for multi-frame volumes

Partially anonymize

Patch

Import

Go to DICOM module

Created DICOM file: /Users/lauraleung/Desktop/New/pa000/st000/se000/mr4873.dcm

Examining ./00002253.dcm...

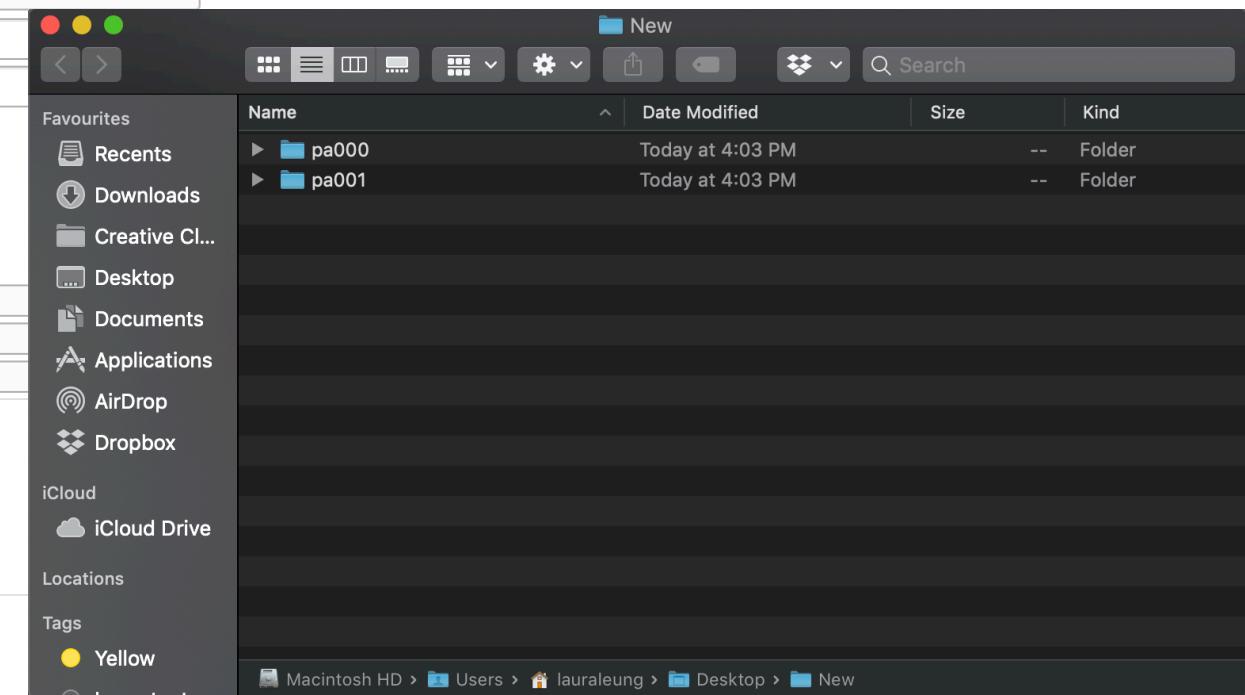
Patching...

Writing DICOM...

Created DICOM file: /Users/lauraleung/Desktop/New/pa000/st000/se000/mr4874.dcm

DICOM patching completed. Patched files are written to:

/Users/lauraleung/Desktop/New



When the process is complete, new folder/folders should be found under your output folder. The resulting output folders can also be used as your input for the Dcm2niiGUI module.

DICOM Patcher

For additional documentation regarding DICOM Patcher, please access the following link

https://slicer.readthedocs.io/en/latest/user_guide/module_dicom_patcher.html

Questions/Additional Learning

For additional documentation, please head to:

- <http://dmri.slicer.org/docs/>

To further your knowledge in diffusion MRI processing, the following Slicer DTI tutorials are recommended:

- Slicer DTI tutorial <http://dmri.slicer.org/tutorials/Slicer-4.10/DiffusionMRIAnalysis.pdf>
- Slicer UKF tractography tutorial
<http://dmri.slicer.org/tutorials/Slicer-4.10/UKFTractography.pdf>

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- NIH P41EB015902, Neuroimage Analysis Center (NAC) nac.spl.harvard.edu
- National Alliance for Medical Image Computing (NA-MIC) na-mic.org
- Surgical Planning Laboratory (SPL) spl.harvard.edu