

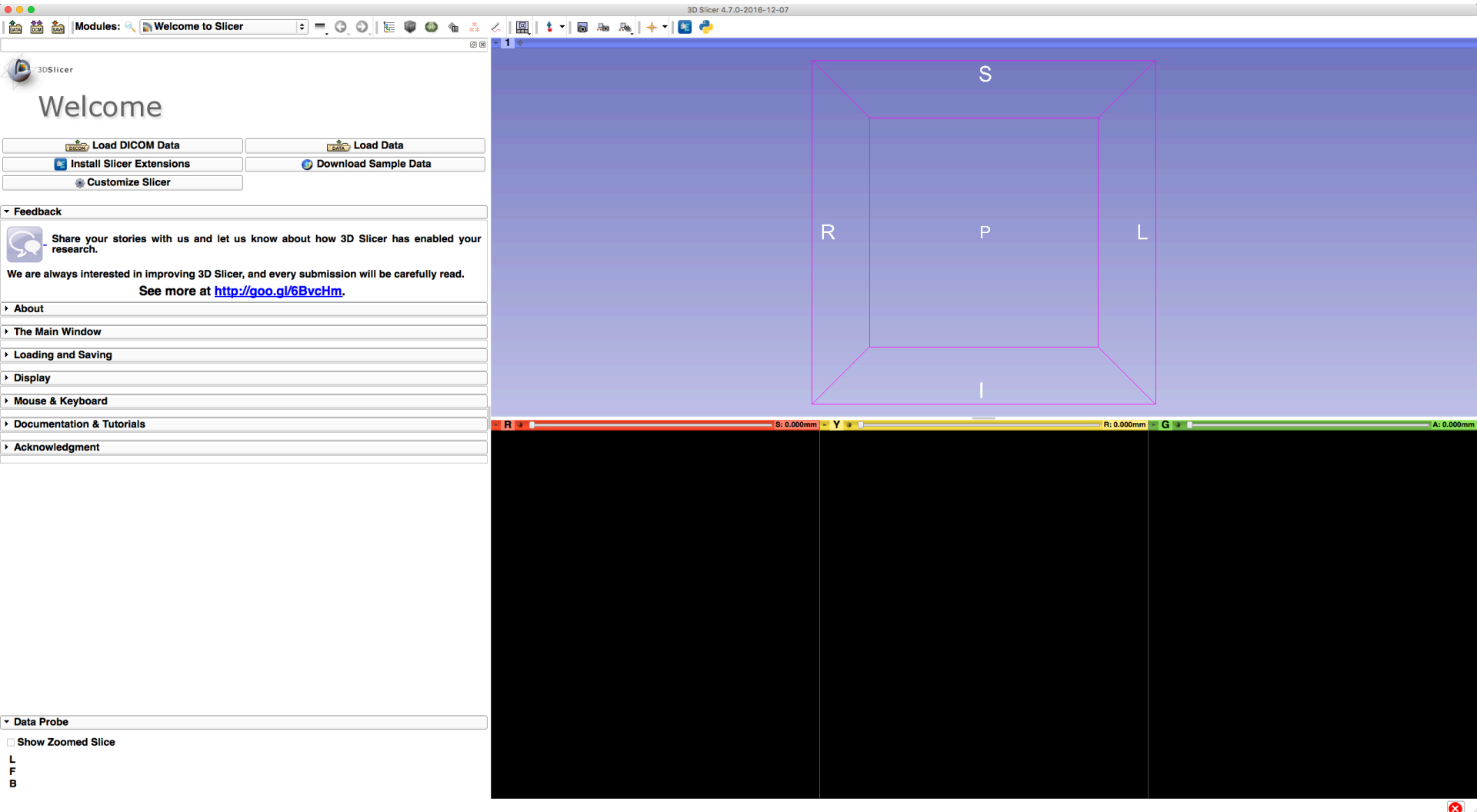
DWI Converter Tutorial

Surgical Planning Laboratory

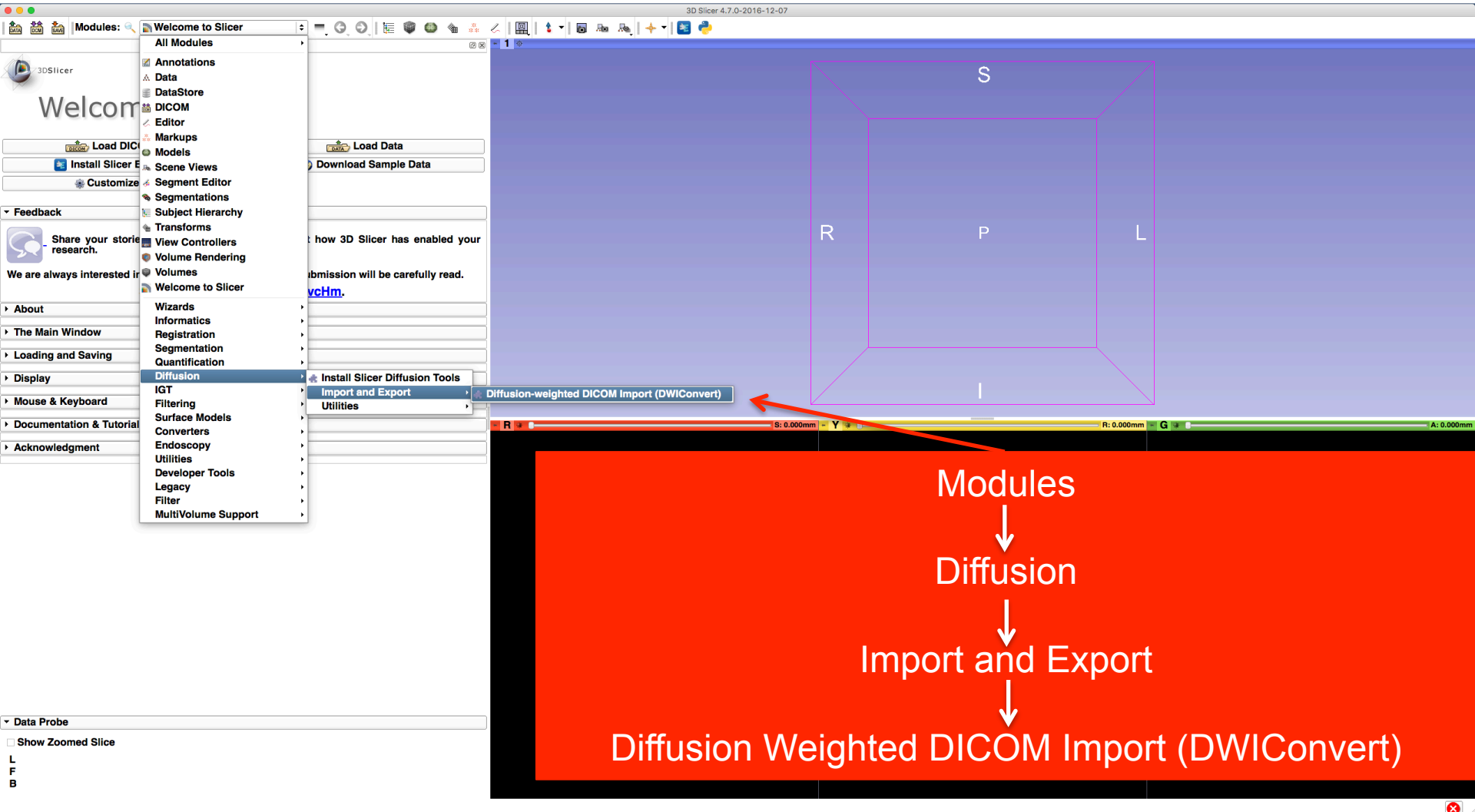
Harvard Medical School



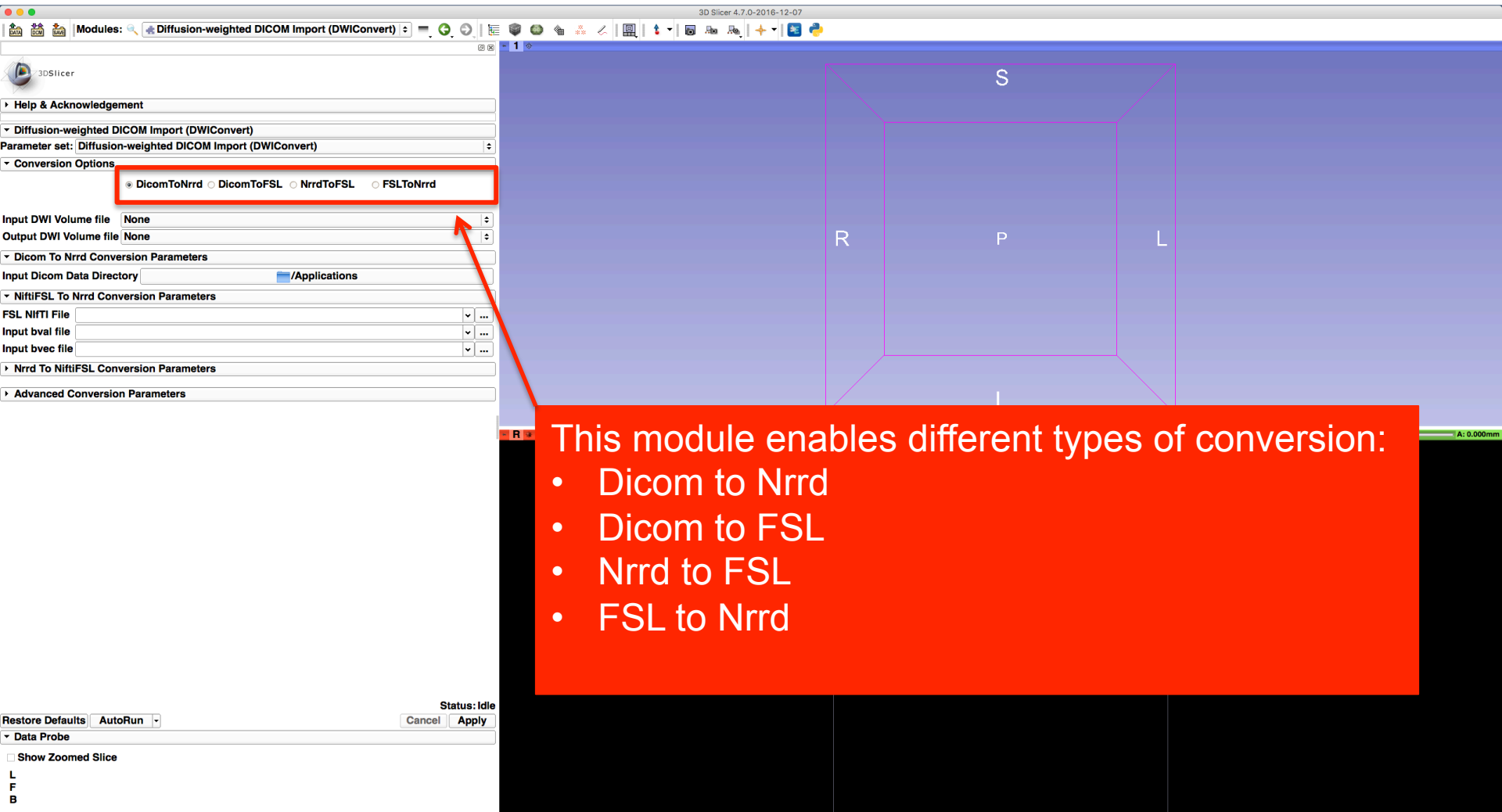
3D Slicer



DWI Converter Module



DWI Converter



DWI Converter

Select DicomToNrrd conversion

▼ Diffusion-weighted DICOM Import (DWIConvert)

Parameter set: Diffusion-weighted DICOM Import (DWIConvert)

▼ Conversion Options

☒ DicomToNrrd ☐ DicomToFSL ☐ NrrdToFSL ☐ FSLToNrrd

Input DWI Volume file None

Output DWI Volume file None

▼ Dicom To Nrrd Conversion Options

Input Dicom Data Directory None

▼ NiftiFSL To Nrrd Conversion Options

Create new DiffusionWeightedVolume

Create new DiffusionWeightedVolume as...

Delete current DiffusionWeightedVolume

Create and name your output (Nrrd file)

DWI Converter

The Input DWI Volume file selection should be **None** as it not used for this operation

▼ Diffusion-weighted DICOM Import (DWIConvert)

Parameter set: Diffusion-weighted DICOM Import (DWIConvert) ▾


▼ Conversion Options

☒ DicomToNrrd ☐ DicomToFSL ☐ NrrdToFSL ☐ FSLToNrrd

Input DWI Volume file **None**

Output DWI Volume file **Input DWI volume -- not used for DicomToNrrd mode.**

▼ Dicom To Nrrd Conversion Options

Input Dicom Data Directory  /Applications

In your file archive select the directory that only contains the DWI Dicom files that you want to convert

DWI Converter

Check this box only for Siemens data

▼ **Advanced Conversion Parameters**

Output fMRI file ☐

Write Protocol Gradients File ☐

Use Identity Measurement Frame ☐

Use BMatrix Gradient Directions ☒

Output Directory

Gradient Vector File

Small Gradient Threshold

Transpose Input BVectors ☐

Allow lossy image conversion ☐

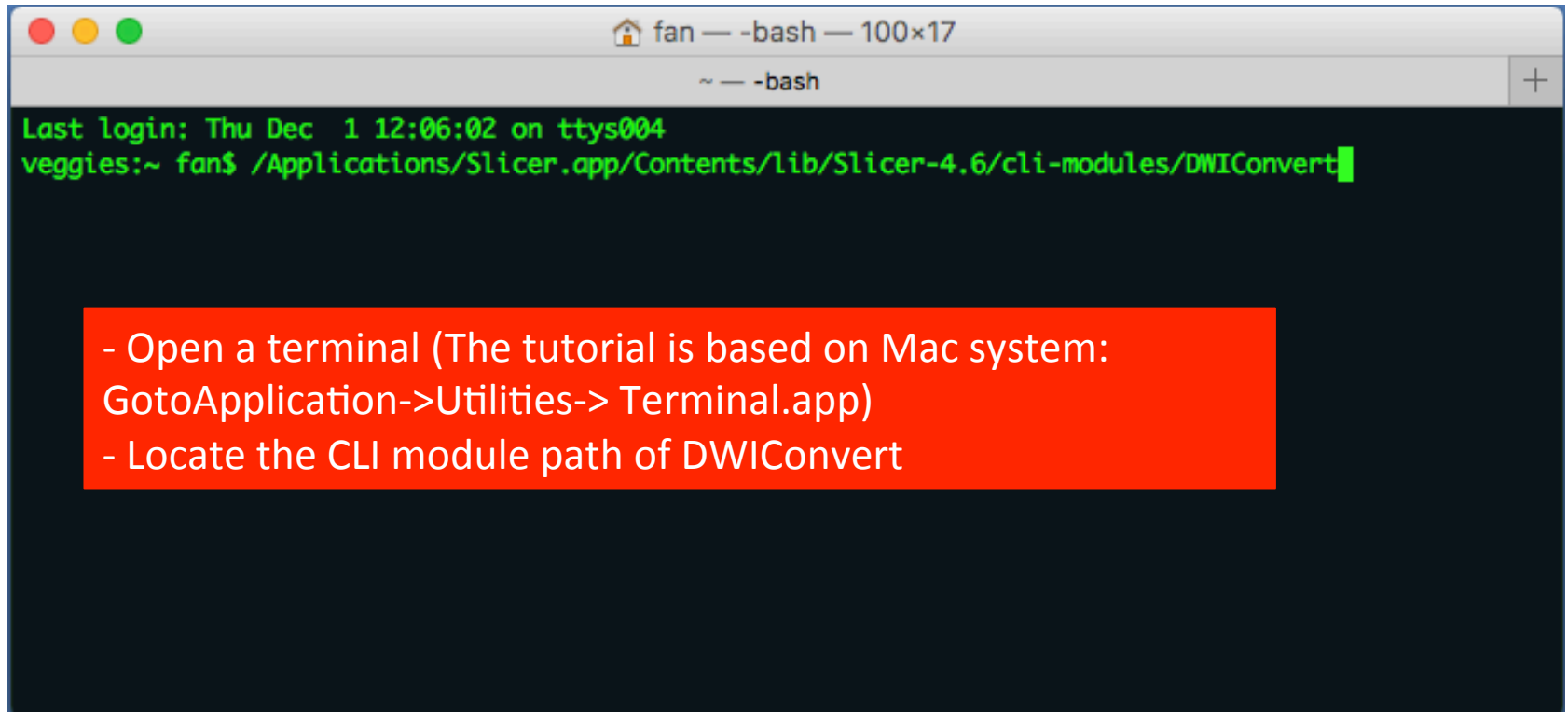
The Nrrd file will be automatically loaded in Slicer and it's not necessary to select an output directory

Restore Defaults AutoRun ▼

Status: Idle Cancel Apply

Leave all the other parameters as default and click "Apply"

Using DWI Converter in CLI

A screenshot of a macOS Terminal window. The title bar shows a home icon, the name 'fan', and the command '-bash' with window dimensions '100x17'. Below the title bar, the prompt is '~ — -bash'. The terminal output shows 'Last login: Thu Dec 1 12:06:02 on ttys004' followed by the command 'veggies:~ fan\$ /Applications/Slicer.app/Contents/lib/Slicer-4.6/cli-modules/DWIConvert' with a green cursor at the end.

```
fan — -bash — 100x17
~ — -bash

Last login: Thu Dec 1 12:06:02 on ttys004
veggies:~ fan$ /Applications/Slicer.app/Contents/lib/Slicer-4.6/cli-modules/DWIConvert
```

- Open a terminal (The tutorial is based on Mac system: GotoApplication->Utilities-> Terminal.app)
- Locate the CLI module path of DWIConvert

Using DWI Converter in CLI

```
fan -- -bash -- 110x66
~ -- -bash
Last login: Thu Dec 1 12:06:02 on ttys004
veggies:~ fan$ /Applications/Slicer.app/Contents/lib/Slicer-4.6/cli-modules/DWIConvert --help
USAGE:
/Applications/Slicer.app/Contents/lib/Slicer-4.6/cli-modules/DWIConvert
[--returnparameterfile <std::string>]
[--processinformationaddress <std::string>] [--xml] [--echo]
[--deserialize <std::string>]
[--serialize <std::string>]
[--allowLossyConversion]
[--transposeInputBVectors]
[--smallGradientThreshold <double>]
[--gradientVectorFile <std::string>] [--outputDirectory <std::string>]
[--useBMatrixGradientDirections]
[--useIdentityMeasurementFrame]
[--writeProtocolGradientsFile]
[--fMRI] [--outputBVectors <std::string>] [--outputBValues <std::string>]
[--inputBVectors <std::string>] [--inputBValues <std::string>]
[--fsINIFTIFile <std::string>] [-i <std::string>]
[-o <std::string>] [--inputVolume <std::string>] [--conversionMode <DicomToNrrd|DicomToFSL|NrrdToFSL|FSLToNrrd>] [--] [--version] [-h]

Where:
--returnparameterfile <std::string>
  Filename in which to write simple return parameters (int, float,
  int-vector, etc.) as opposed to bulk return parameters (image,
  geometry, transform, measurement, table).

--processinformationaddress <std::string>
  Address of a structure to store process information (progress, abort,
  etc.). (default: 0)

--xml
  Produce xml description of command line arguments (default: 0)

--echo
  Echo the command line arguments (default: 0)

--deserialize <std::string>
  Restore the module's parameters that were previously archived.

--serialize <std::string>
  Store the module's parameters to a file.

--allowLossyConversion
  The only supported output type is 'short'. Conversion from images of a
  different type may cause data loss due to rounding or truncation. Use
  with caution! (default: 0)

--transposeInputBVectors
  FSL input BVectors are expected to be encoded in the input file as one
  vector per line. If it is not the case, use this option to transpose
  the file as it is read (default: 0)
```

Run `'/Applications/Slicer.app/Contents/lib/Slicer-4.6/cli-modules/DWIConvert --help'` to find detailed documentation of the usage of DWIConvert

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- National Alliance for Medical Image Computing (NA-MIC)
namic.org



- National Center for Image Guided Therapy (NCIGT)
ncigt.org



- Neuroimage Analysis Center (NAC)
nac.spl.harvard.edu



- Surgical Planning laboratory (SPL)
spl.harvard.edu