



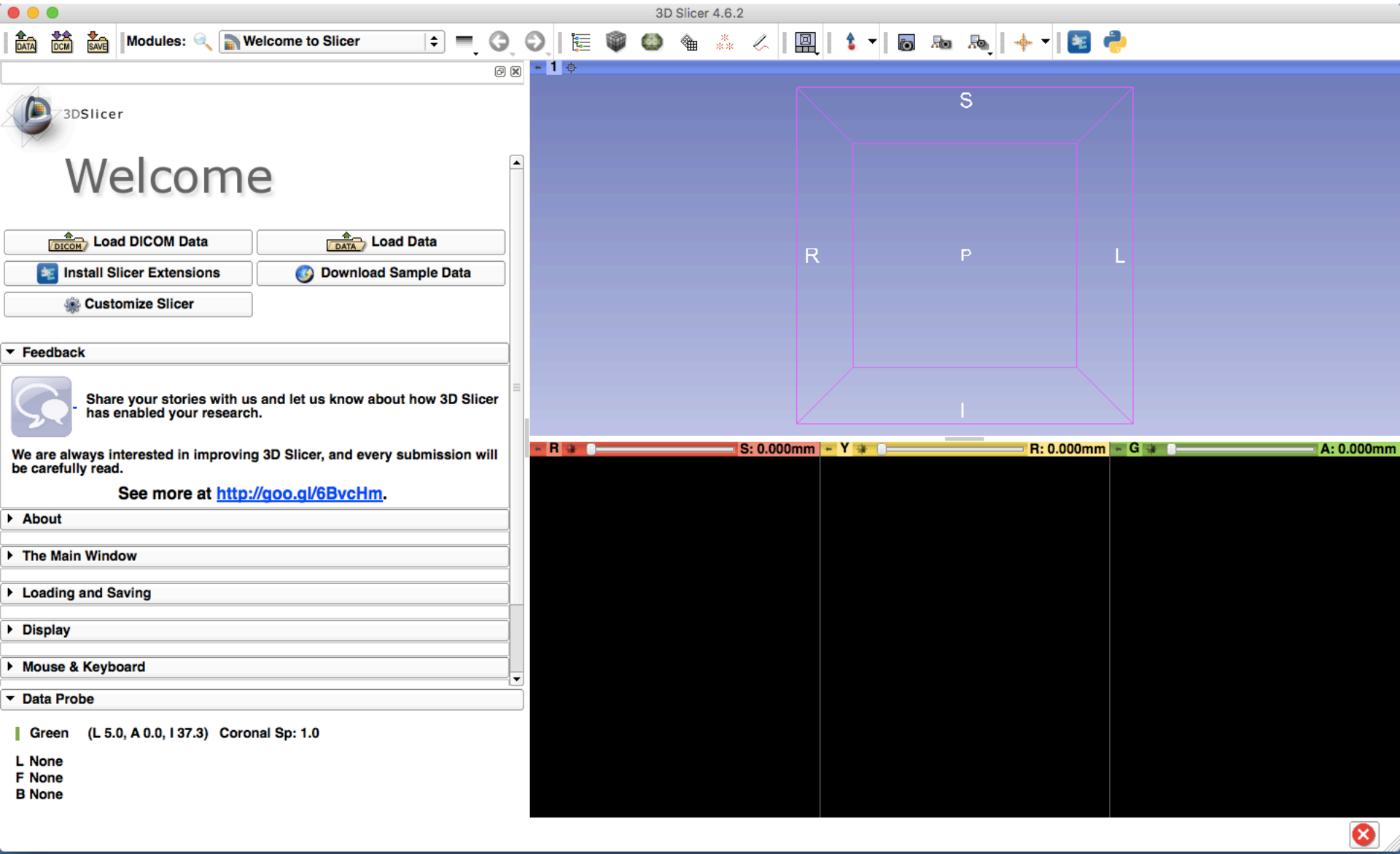
DWI Converter Tutorial

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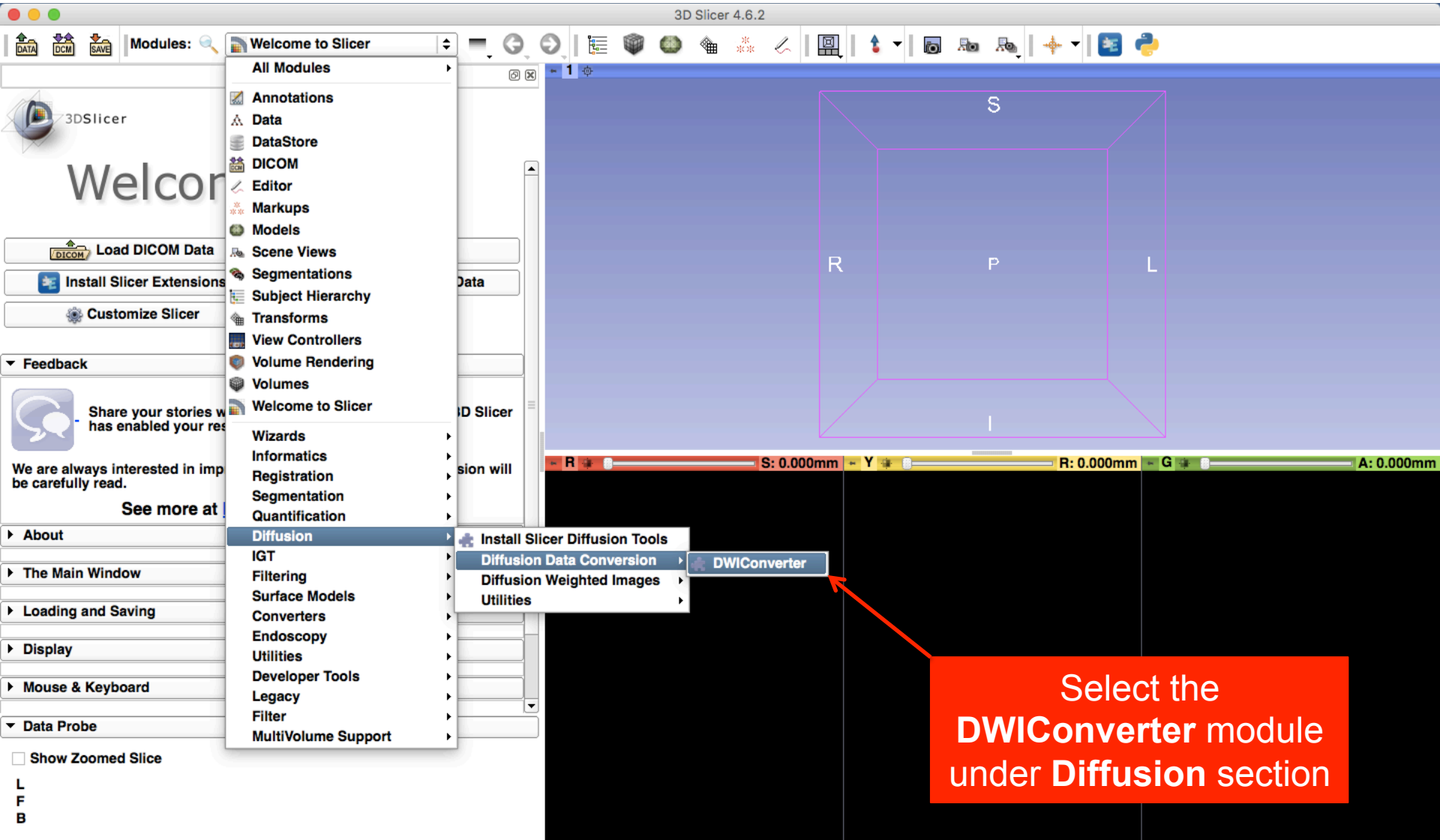




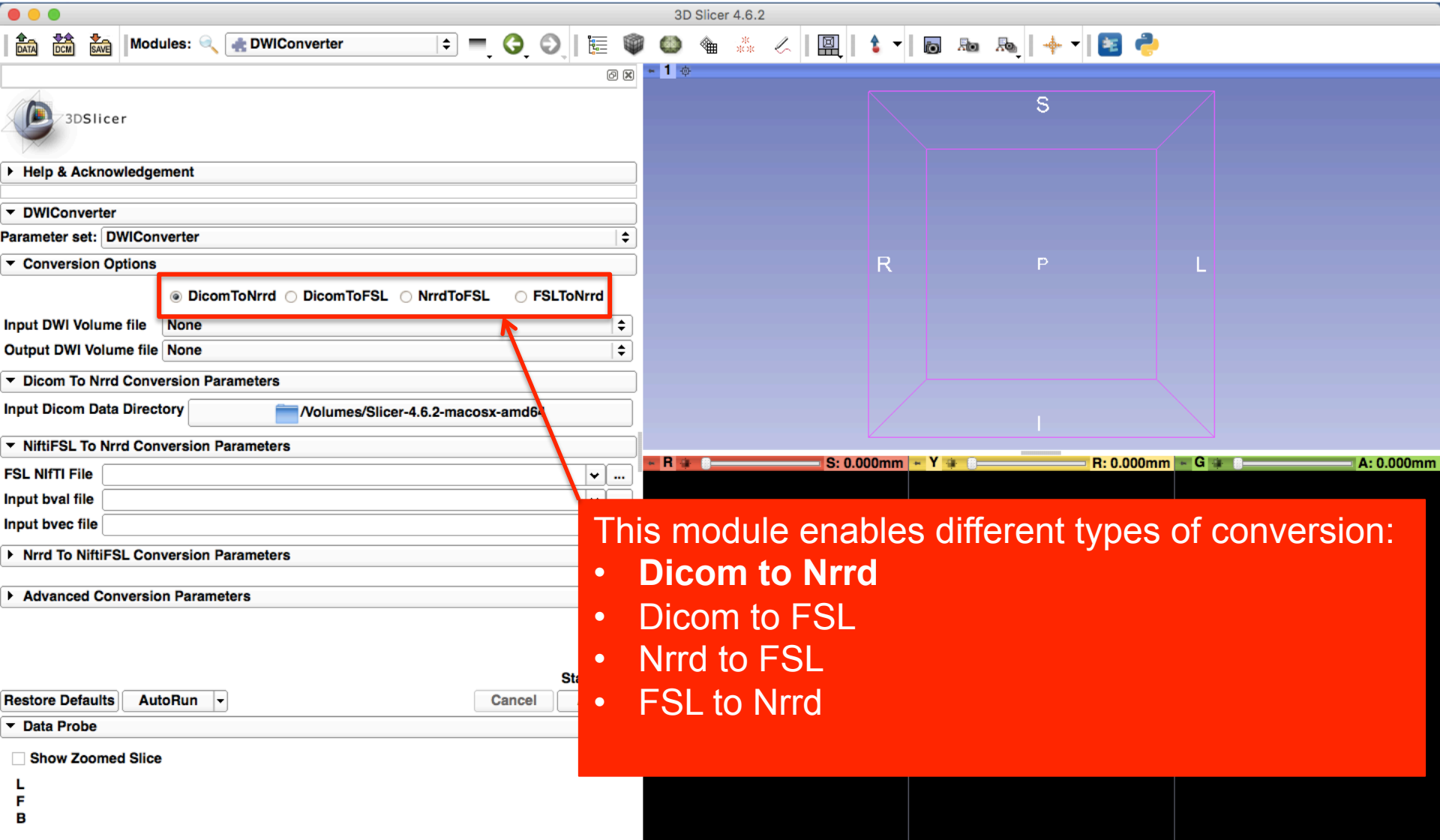
3DSlicer



DWI Converter Module



DWI Converter



DWI Converter

Select DicomToNrrd conversion

The screenshot shows the DWI Converter application window. The 'Parameter set' is 'DWIConverter'. Under 'Conversion Options', the 'DicomToNrrd' radio button is selected. The 'Input DWI Volume file' is 'None'. The 'Output DWI Volume file' is 'None'. A red box highlights the 'Output DWI Volume file' label and the dropdown menu. The dropdown menu is open, showing options: 'Rename current DiffusionWeightedVolume', 'Create new DiffusionWeightedVolume' (highlighted), 'Create new DiffusionWeightedVolume as...', and 'Delete current DiffusionWeightedVolume'. A red box highlights the 'Create new DiffusionWeightedVolume' option. A red arrow points from the 'Create and name your output (Nrrd file)' text to the 'Create new DiffusionWeightedVolume' option.

▼ DWIConverter

Parameter set: DWIConverter

▼ Conversion Options

☒ DicomToNrrd ☐ DicomToFSL ☐ NrrdToFSL ☐ FSLToNrrd

Input DWI Volume file None

Output DWI Volume file None

▼ Dicom To Nrrd Conversion

Input Dicom Data Directory

▼ NiftiFSL To Nrrd Conversion

Rename current DiffusionWeightedVolume

Create new DiffusionWeightedVolume

Create new DiffusionWeightedVolume as...

Delete current DiffusionWeightedVolume

Create and name your output (Nrrd file)

DWI Converter

This box should remain empty for Dicom to Nrrd conversion

The screenshot shows the DWI Converter application window. It features a 'Parameter set' dropdown menu set to 'DWIConverter'. Below this is a 'Conversion Options' section with two radio buttons: 'DicomToNrrd' (selected) and 'NrrdToDicom'. The 'Input DWI Volume file' field is currently set to 'None'. The 'Output DWI Volume file' field is also set to 'None'. A yellow tooltip box is positioned over the 'Input DWI volume' label, stating: 'Input DWI volume -- not used for DicomToNrrd mode.' At the bottom, the 'Input Dicom Data Directory' field is set to '/Volumes/Slicer-4.6.2-macosx-amd64'. Red arrows point from the text annotations to the 'Input DWI Volume file' field, the 'Input Dicom Data Directory' field, and the 'DicomToNrrd' radio button.

▼ DWIConverter

Parameter set: DWIConverter

▼ Conversion Options

☒ DicomToNrrd ☐ NrrdToDicom

Input DWI Volume file: None

Output DWI Volume file: None

▼ Dicom To Nrrd Conversion Options

Input Dicom Data Directory: /Volumes/Slicer-4.6.2-macosx-amd64

Input DWI volume -- not used for DicomToNrrd mode.

Select the directory of your Dicom data (the directory that you select should only contain DWI Dicom files)

DWI Converter

Check this box only for Siemens data

▼ **Advanced Conversion Parameters**

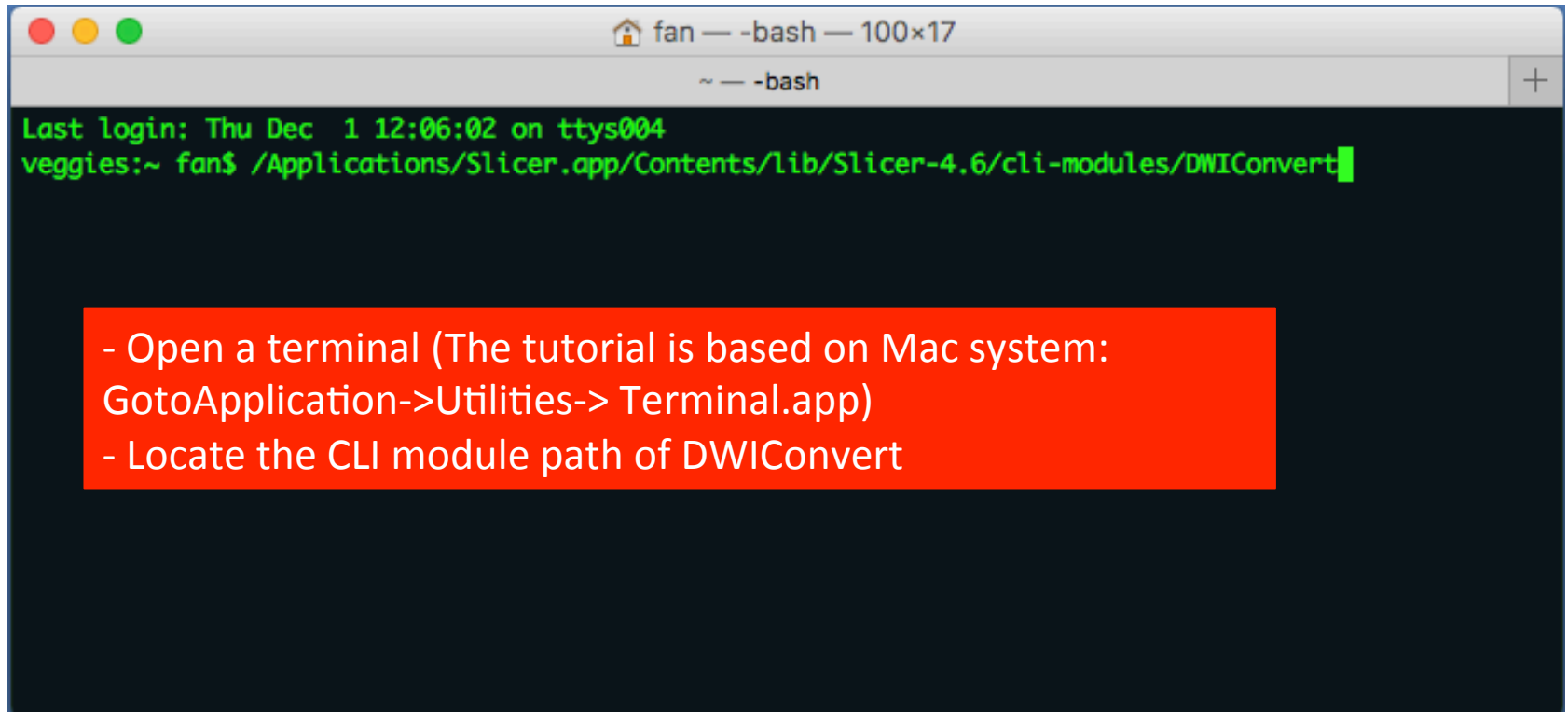
Output fMRI file	<input type="checkbox"/>
Write Protocol Gradients File	<input type="checkbox"/>
Use Identity Measurement Frame	<input type="checkbox"/>
Use BMatrix Gradient Directions	<input checked="" type="checkbox"/>
Output Directory	<input type="text" value="/Volumes/Slicer-4.6.2-macosx-amd64"/>
Gradient Vector File	<input type="text" value=""/> ▼ ...
Small Gradient Threshold	<input type="text" value="0.2"/>
Transpose Input BVectors	<input type="checkbox"/>
Allow lossy image conversion	<input type="checkbox"/>

Restore Defaults AutoRun ▼ Status: Idle Cancel Apply

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

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 a window size of '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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