



NA-MIC

National Alliance for Medical Image Computing

<http://www.na-mic.org>

Cardiac MRI Toolkit LA Segmentation Workflow

Salma Bengali, Alan Morris, Josh Cates,
Rob MacLeod

CARMA Center

Email: salma.bengali@carma.utah.edu

NA-MIC Tutorial Contest: Summer 2014



Learning Objective

This tutorial demonstrates how to use the LA Segmentation Workflow in the Cardiac MRI Toolkit Slicer extension.



Pre-Requisite

To use this tutorial, you would need to have completed:

Data Loading and Visualization

by Sonia Pujol, Ph.D., Harvard Medical School

<http://www.slicer.org/slicerWiki/index.php/Documentation/4.0/Training>



Material

This tutorial requires the installation of the Slicer nightly binary and the tutorial dataset. These are available at the following locations-

Slicer download page: <http://download.slicer.org/>

Tutorial dataset: Cardiac MRI Toolkit Tutorial Data

[http://wiki.na-mic.org/Wiki/index.php/
File:CMRToolkitLAWorkflowData_TutorialContestSummer20
14.zip](http://wiki.na-mic.org/Wiki/index.php/File:CMRToolkitLAWorkflowData_TutorialContestSummer2014.zip)

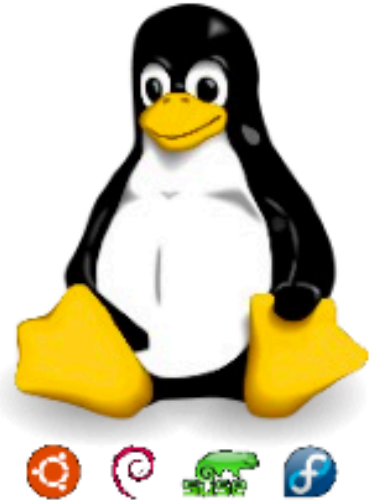


Platforms

This tutorial was designed for-



10.8.5



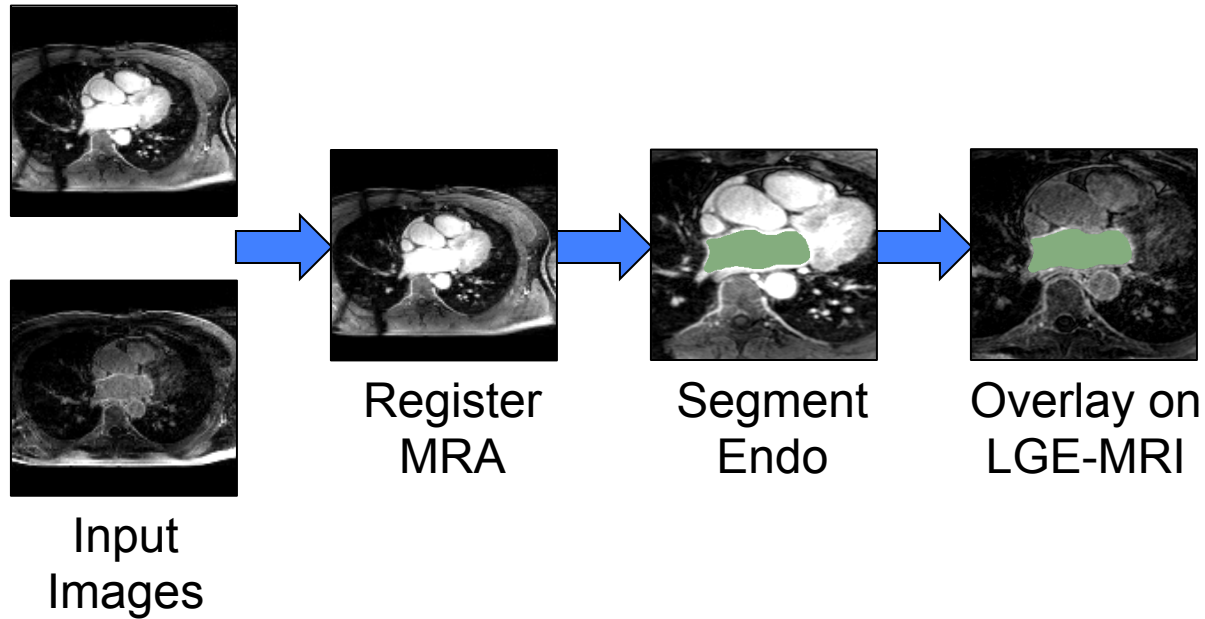


About This Tutorial

- This tutorial explains the usage of the LA Segmentation Workflow module which is part of the Cardiac MRI Toolkit Slicer extension
- The tutorial contains screen shots which will explain how to run each step



Overview





1. Get the Extension

The extension can be downloaded using the Extension Manager, after installing the latest nightly binary of Slicer:

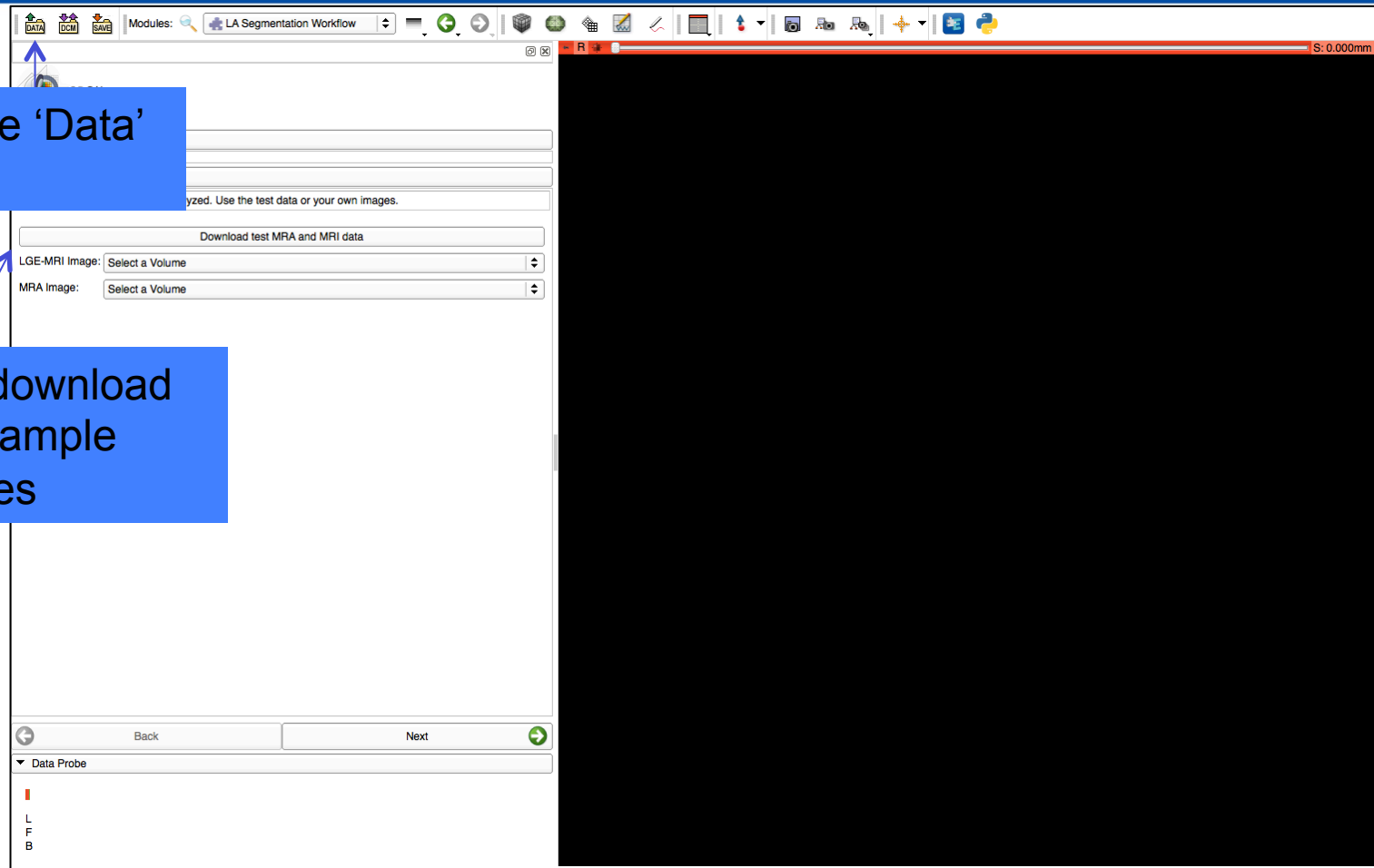
<http://download.slicer.org/>

The extension can be built manually after downloading our source code from the CARMA Center GitHub repo:

https://github.com/carma-center/carma_slicer_extension



2. Load/Download Images

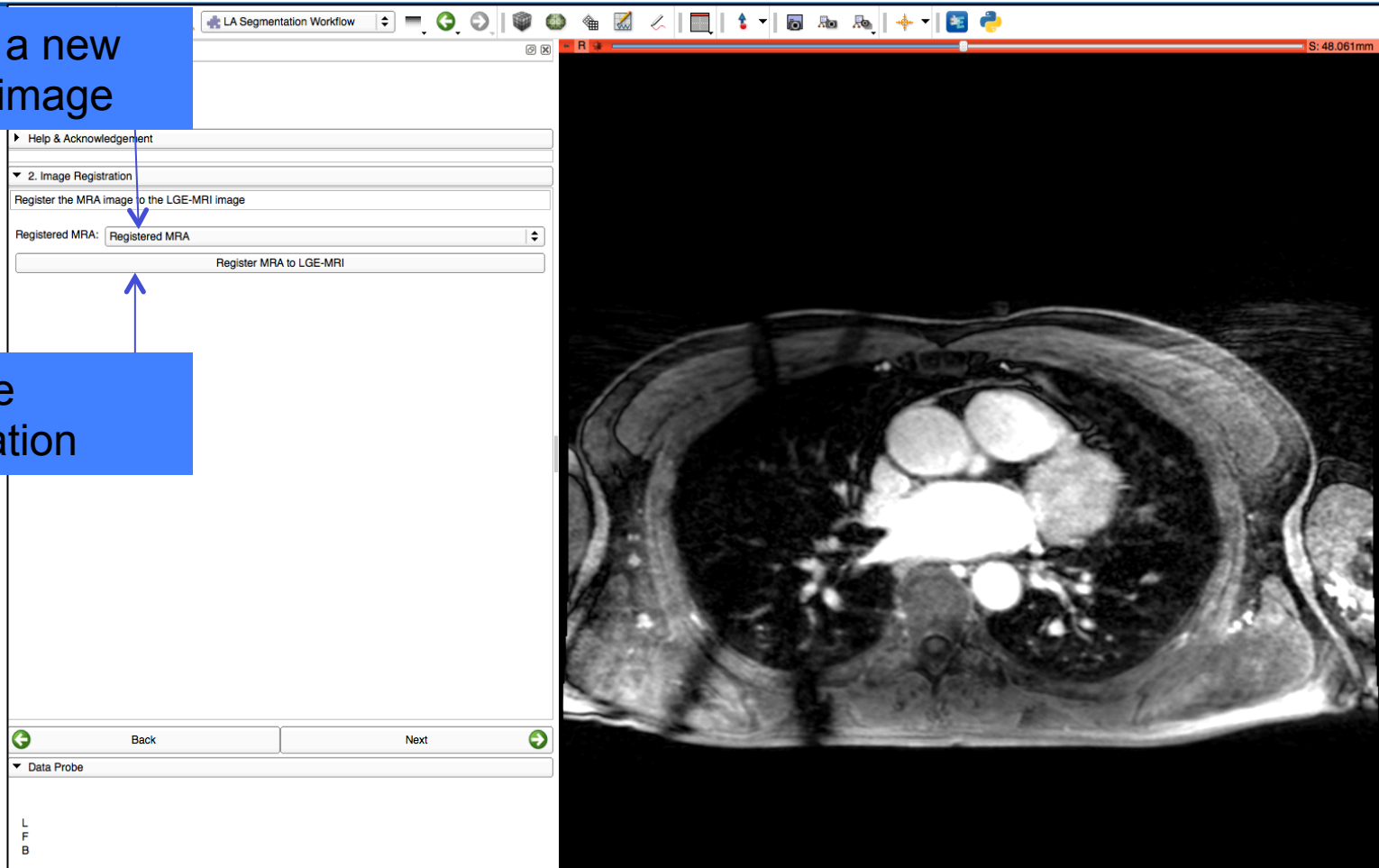




3. Register the MRA to MRI

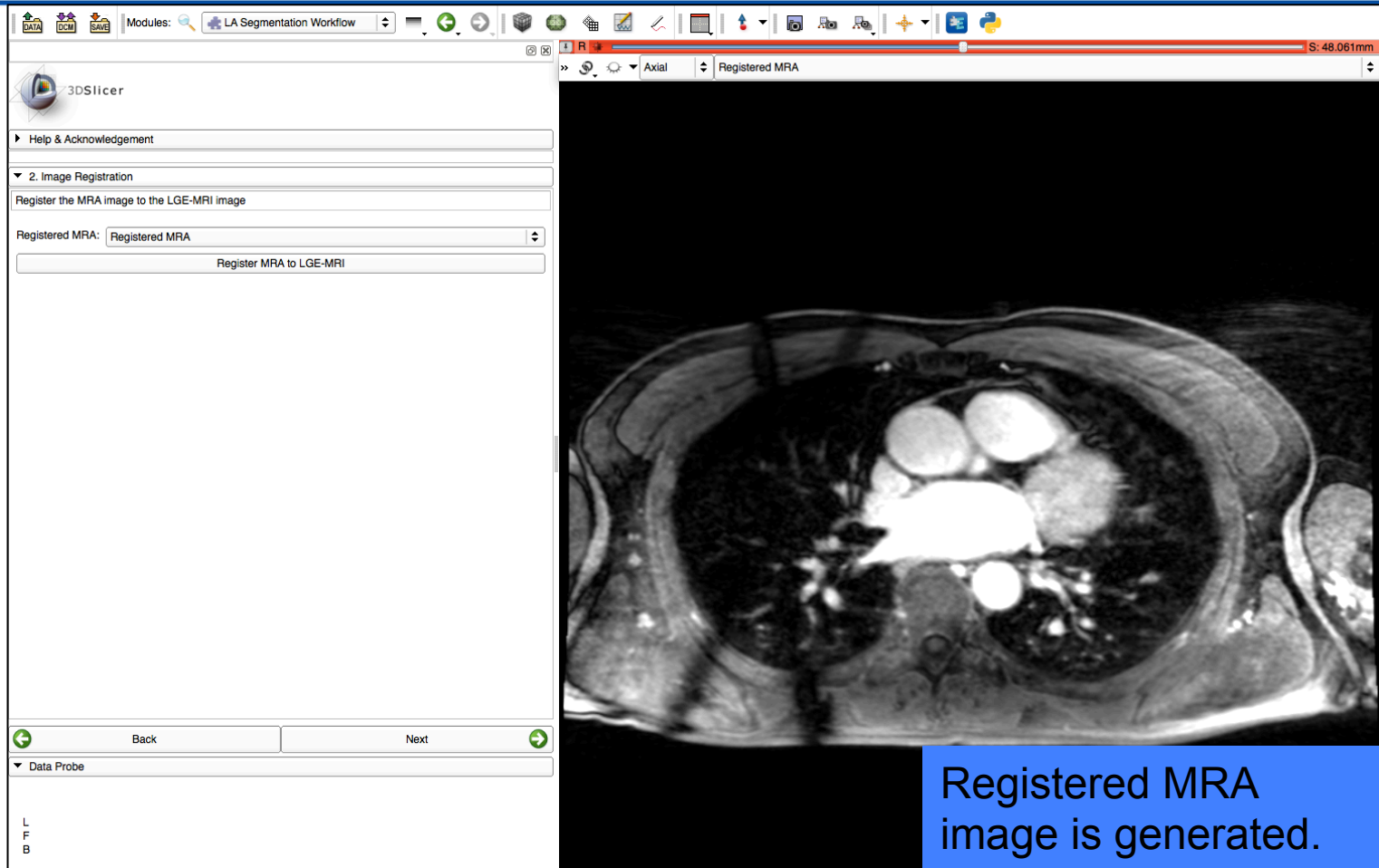
Create a new output image

Run the registration



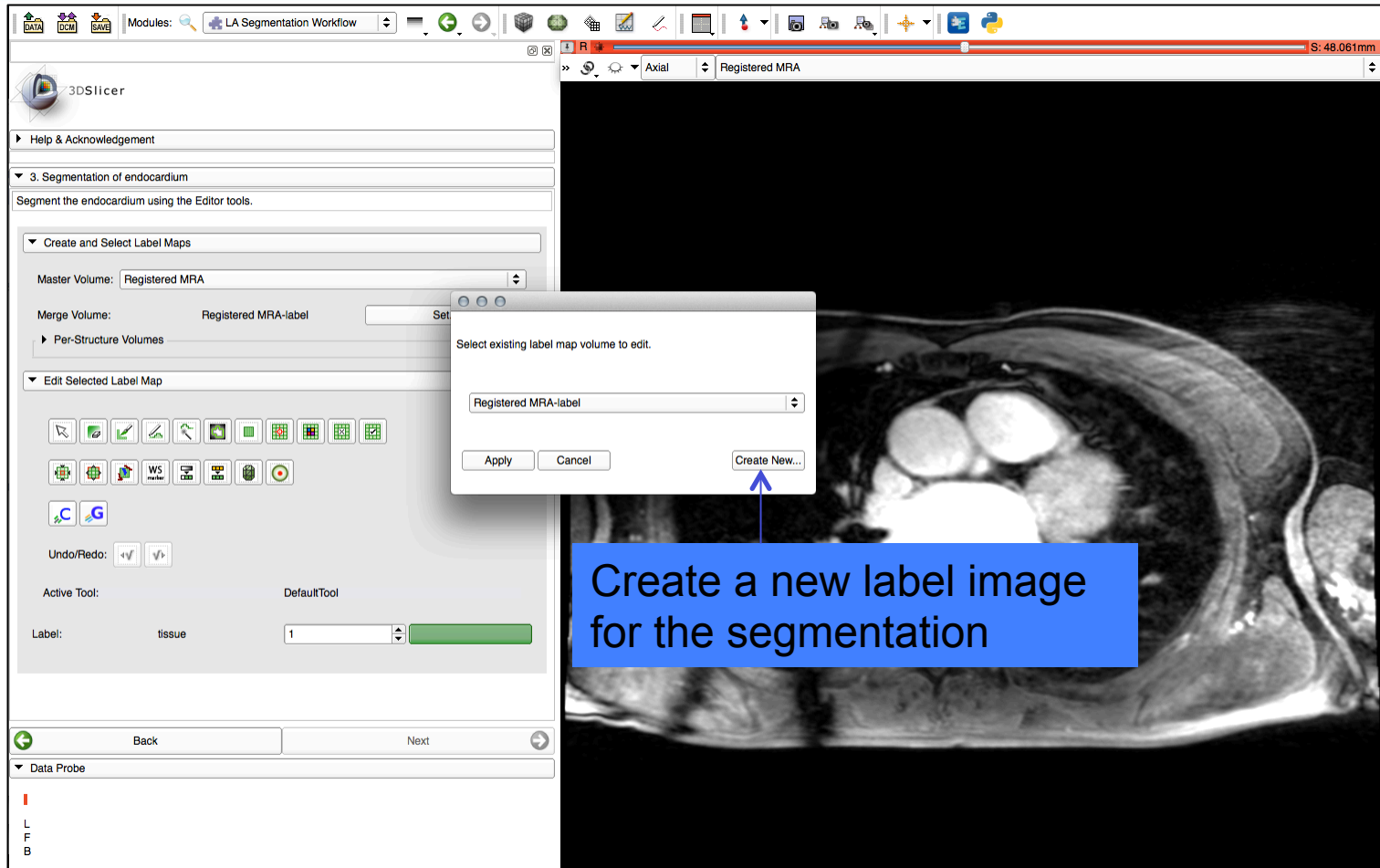


3. Register the MRA to MRI



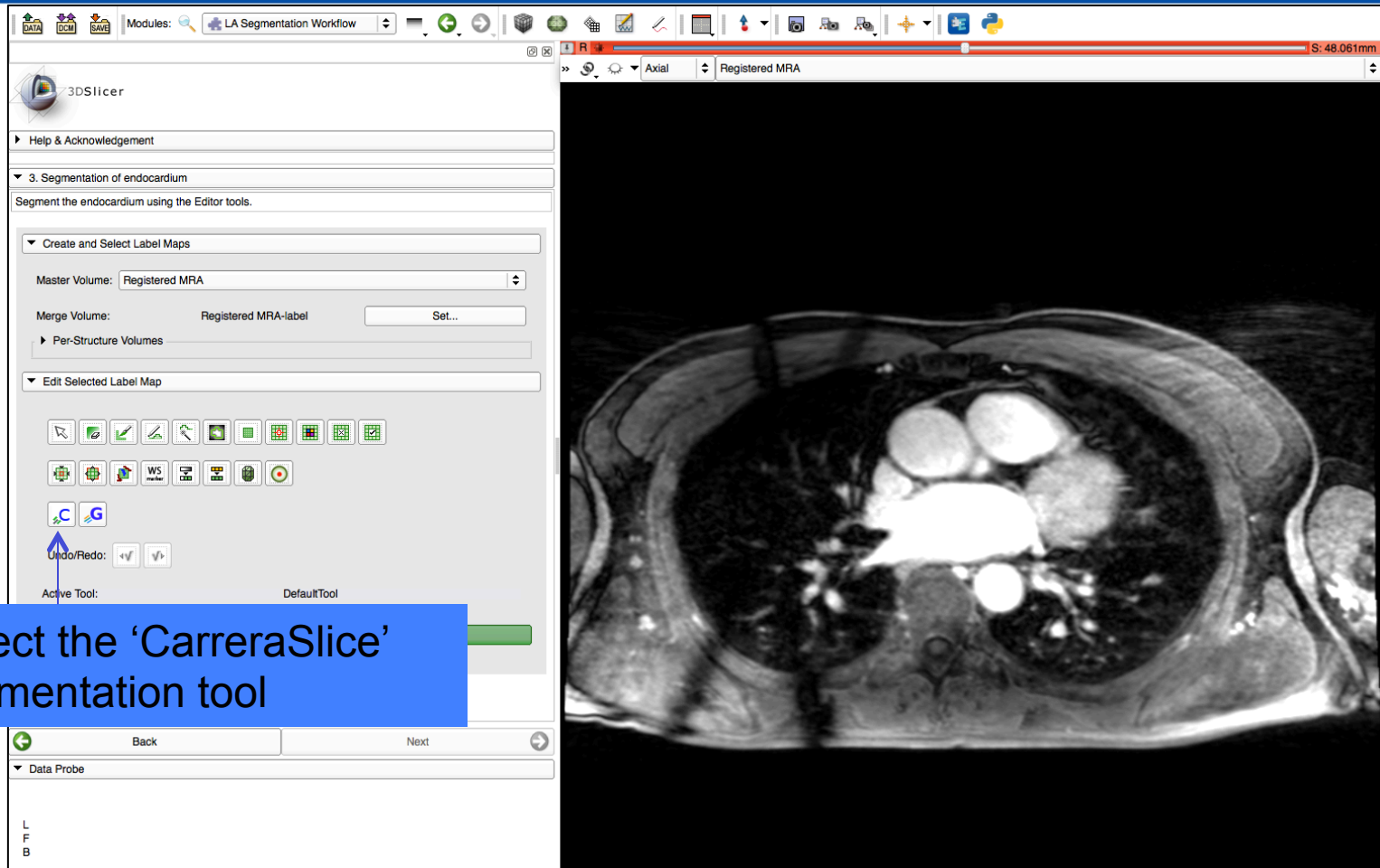


4. Segment the LA





4. Segment the LA



Select the 'CarreraSlice' segmentation tool



4. Segment the LA

3DSlicer

Help & Acknowledgement

3. Segmentation of endocardium

Segment the endocardium using the Editor tools.

Create and Select Label Maps

Master Volume: Registered MRA

Merge Volume: Registered MRA-label Set...

Per-Structure Volumes

Edit Selected Label Map

Undo/Redo: [Undo] [Redo]

Active Tool: DefaultTool

Label: tissue 1

Back Next

Data Probe

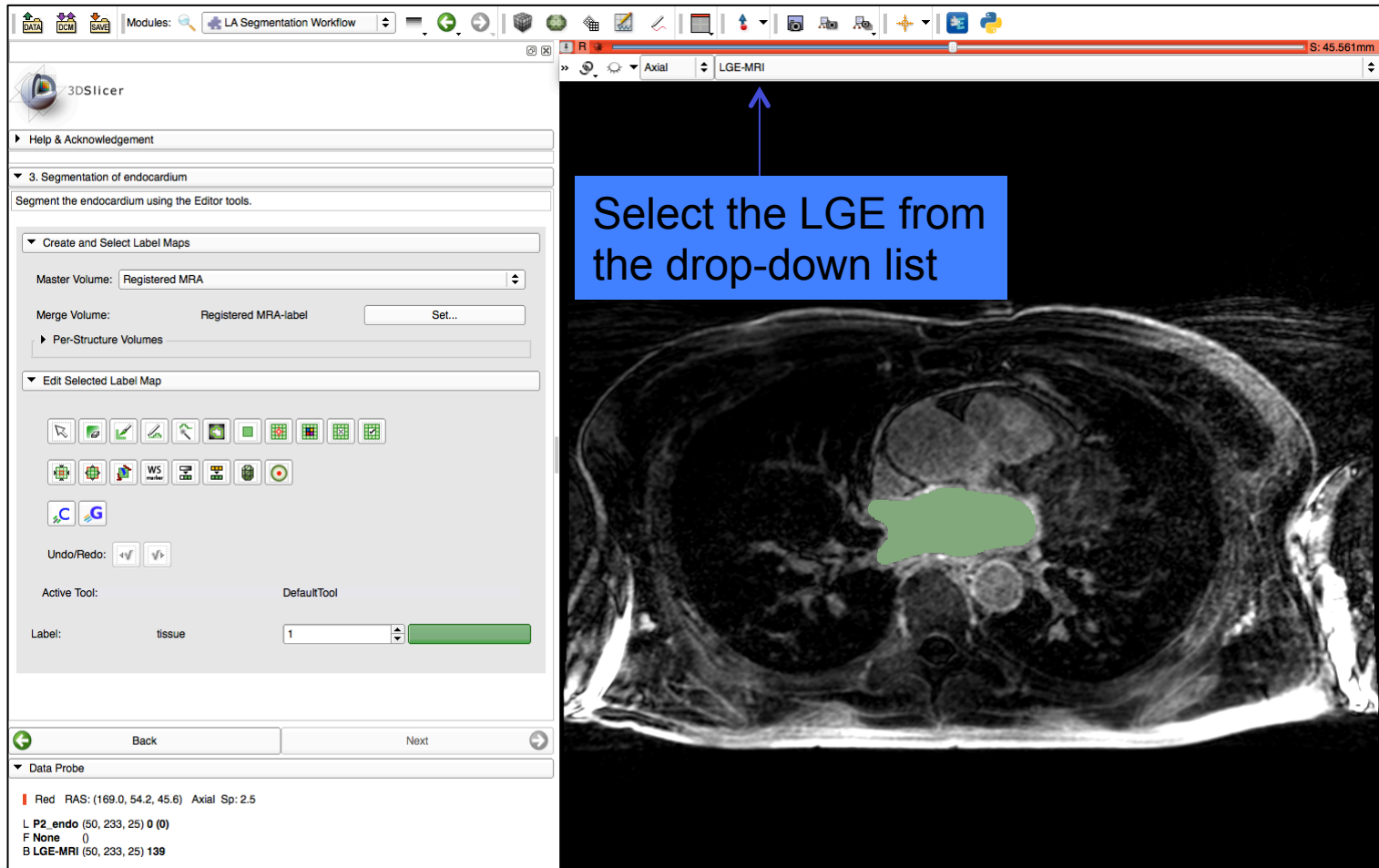
L
F
B

S: 43.061mm

Create final LA segmentation

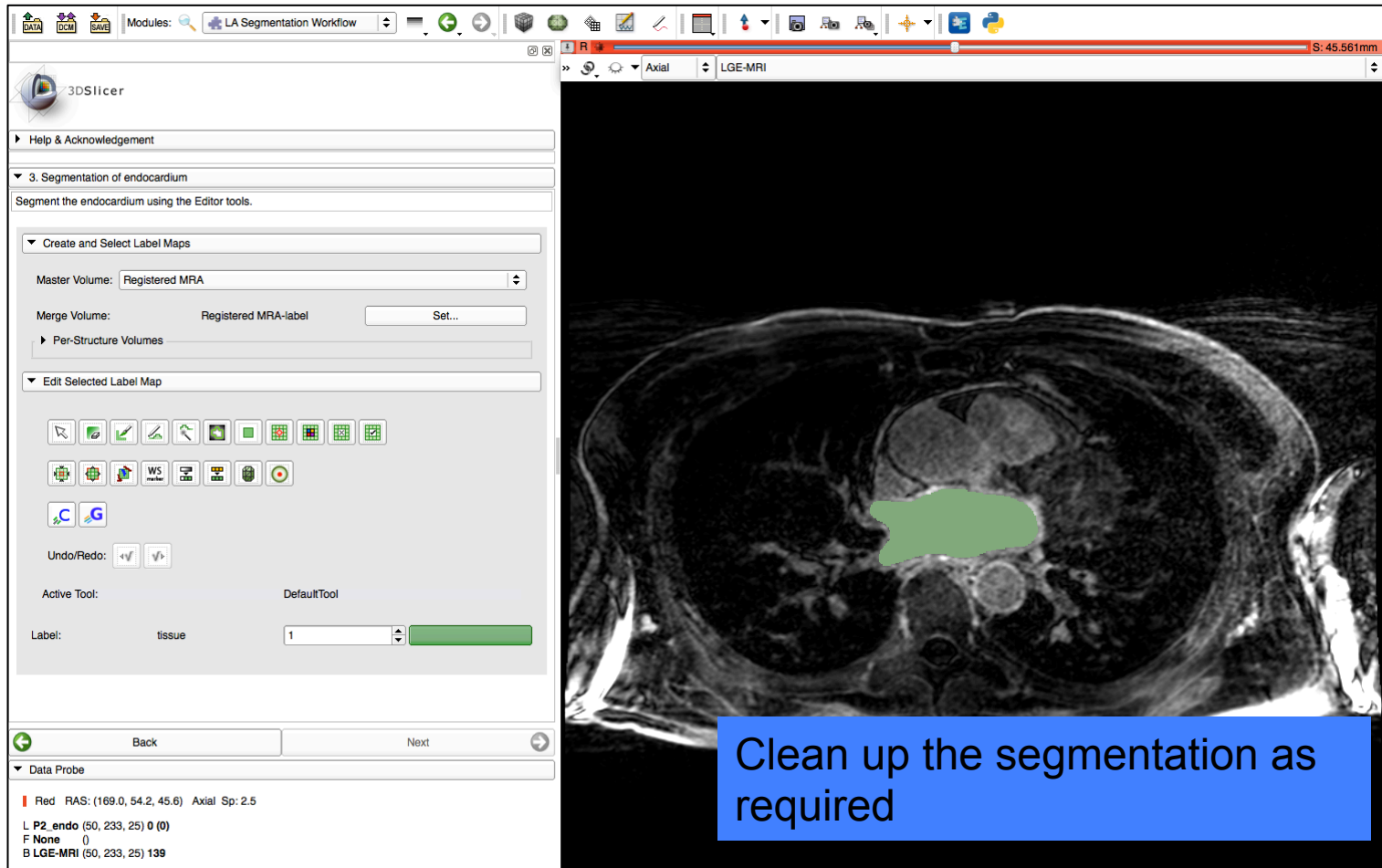


5. Overlay on LGE-MRI





5. Overlay on LGE-MRI





Conclusion

We have demonstrated the use of our LA Segmentation Workflow module for the purpose of segmentation of the left atrium using gated MRAs and LGE-MRIs.



Acknowledgments



National Alliance for Medical Image Computing
NIH U54EB005149



Thank You!