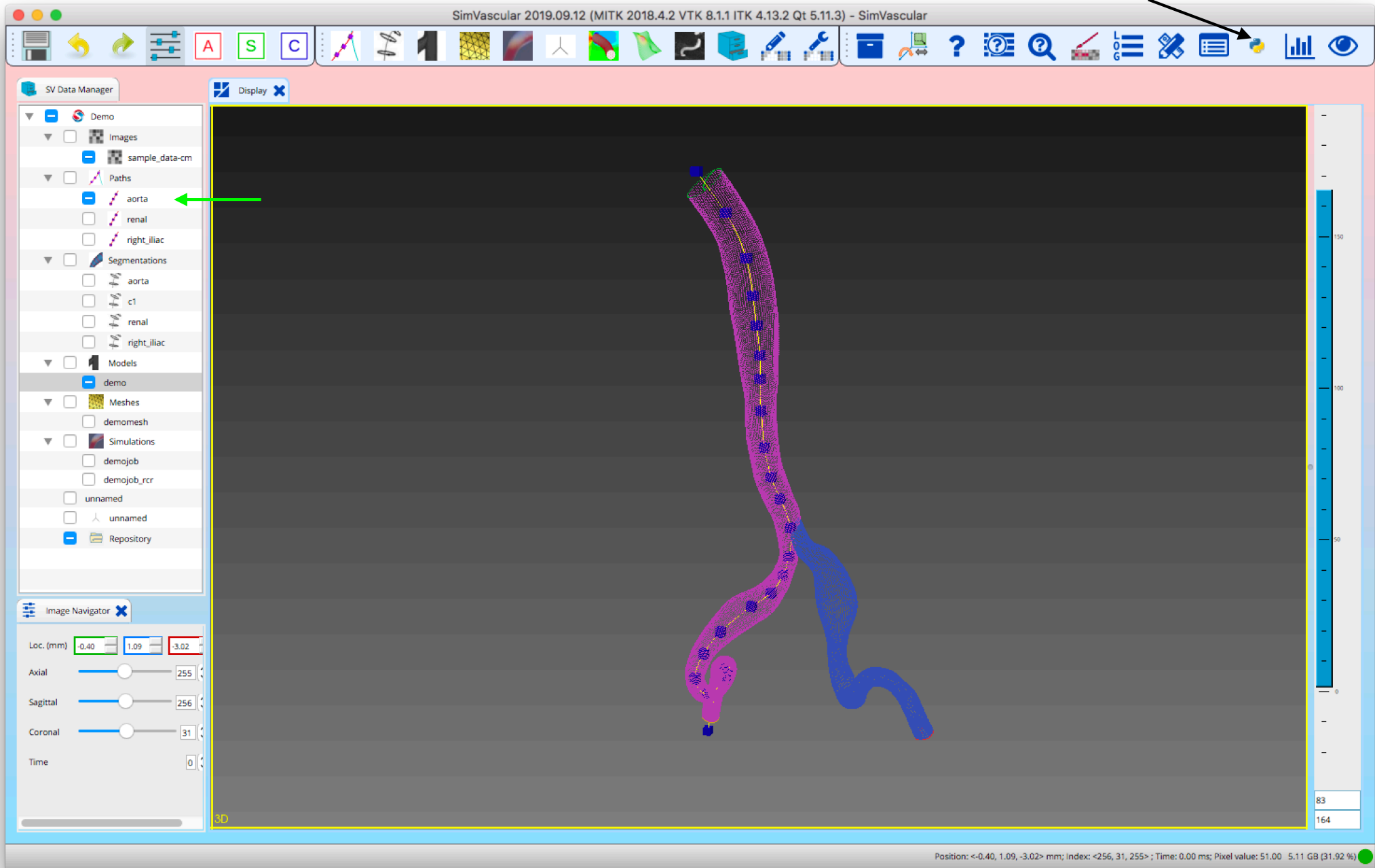
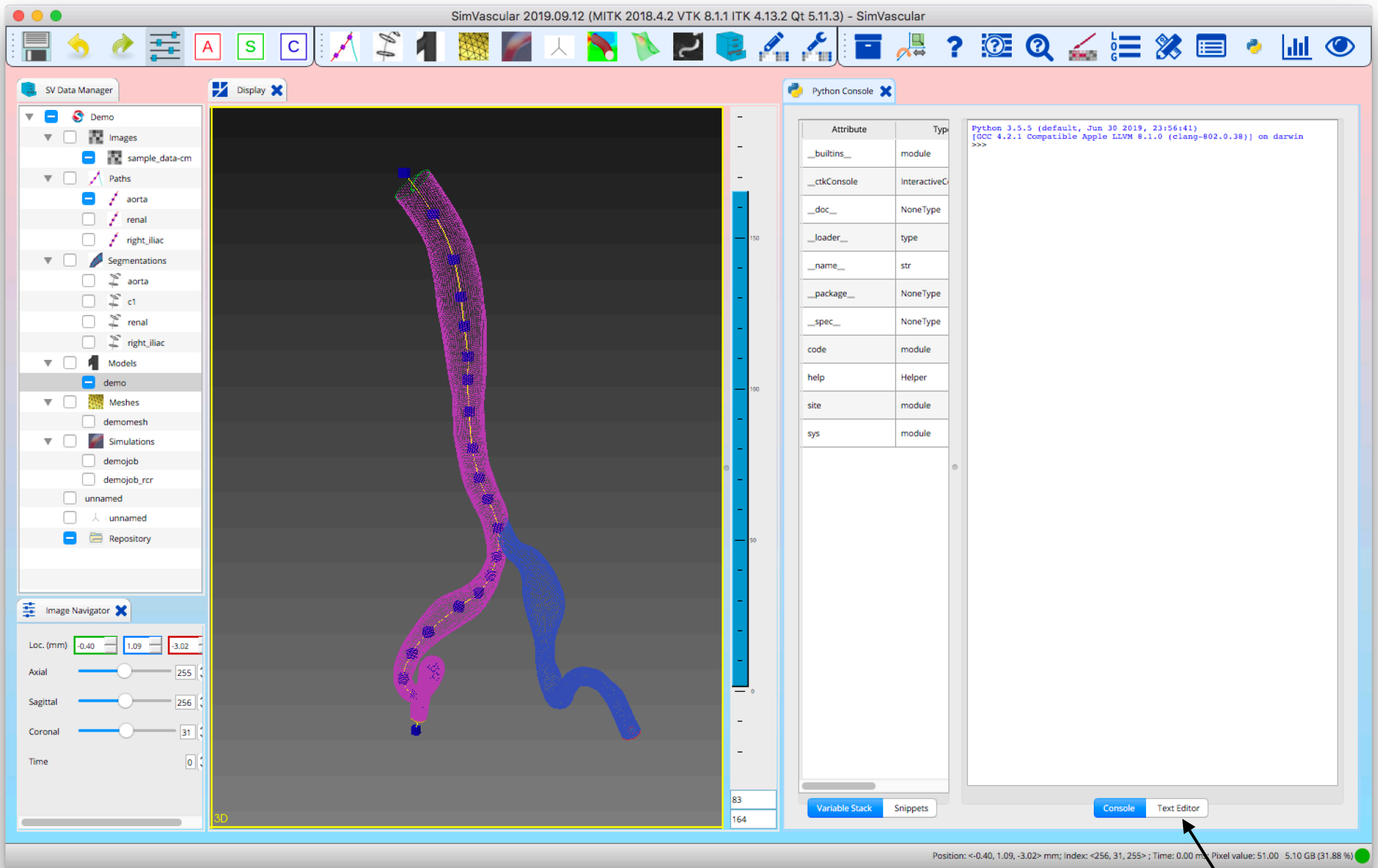


Python API

Open Python console





Select **Text Editor**

Select to read in a Python script

The screenshot displays the SimVascular software interface. The main window shows a 3D visualization of a vessel model, rendered in purple and blue, with a yellow line indicating a path. The interface includes several panels:

- SV Data Manager:** A tree view on the left showing the project structure. It includes categories like Images, Paths, Segmentations, Models, Meshes, and Simulations. The 'demo' model is selected under the 'Models' category.
- Image Navigator:** A panel at the bottom left with sliders for location (Loc. (mm)) and time. The location sliders are set to -0.40, 1.09, and -3.02 mm. The time slider is set to 0.
- Python Console:** A panel on the right side of the interface. It contains a table of attributes and their types, and a large text area for running Python scripts. An arrow points from the text 'Select to read in a Python script' to the folder icon in the Python Console toolbar.

The Python Console toolbar includes icons for opening a file, saving, and running a script. The attribute table lists the following attributes and their types:

Attribute	Type
__builtins__	module
__ctkConsole	InteractiveC
__doc__	NoneType
__loader__	type
__name__	str
__package__	NoneType
__spec__	NoneType
code	module
help	Helper
site	module
sys	module

The status bar at the bottom of the window displays the following information: Position: <-0.40, 1.09, -3.02> mm; Index: <256, 31, 255>; Time: 0.00 ms; Pixel value: 51.00 5.11 GB (31.91 %).

SimVascular 2019.09.12 (MITK 2018.4.2 VTK 8.1.1 ITK 4.13.2 Qt 5.11.3) - SimVascular

SV Data Manager | Display | Python Console

SV Data Manager

- Demo
 - Images
 - sample_data-cm
 - Paths
 - aorta
 - renal
 - right_iliac
 - Segmentations
 - aorta
 - c1
 - renal
 - right_iliac
 - Models
 - demo
 - Meshes
 - demomesh
 - Simulations
 - demojob
 - demojob_rcr
 - unnamed
 - unnamed
 - Repository

Display

File Explorer (Favorites): Recents, Dropbox, parkerda, Macintosh HD, programming..., Plugins, iCloud Drive, me, Desktop, Documents, Applications, topics

File List:

- AHA-notes
- aorta.pth
- Applications
- bin
- demo_area.csv
- demo_flow.csv
- demo.vtp
- Desktop
- Documents
- Downloads
- Dropbox
- me
- Movies
- Music
- node_modules
- Notes.sv-python-api
- path_length.py**
- Pictures
- programm_languages

path_length.py

```
#!/usr/bin/env python

"""
This script is used to compute the length of a path created by the
SimVascular 'SV Path Planning' module.

A Path name corresponds to a data node under the SimVascular
'SV Data Manager' 'Paths' node.

Example: SimVascular DemoProject

path_length.py

Python Source - 2 KB
Created Monday, September 23, 2019 at 11:44 AM
Modified Monday, September 23, 2019 at 11:44 AM
Last opened --
Add Tags...
```

Image Navigator

Loc. (mm): -0.40, 1.09, -3.02

Axial: 255

Sagittal: 256

Coronal: 31

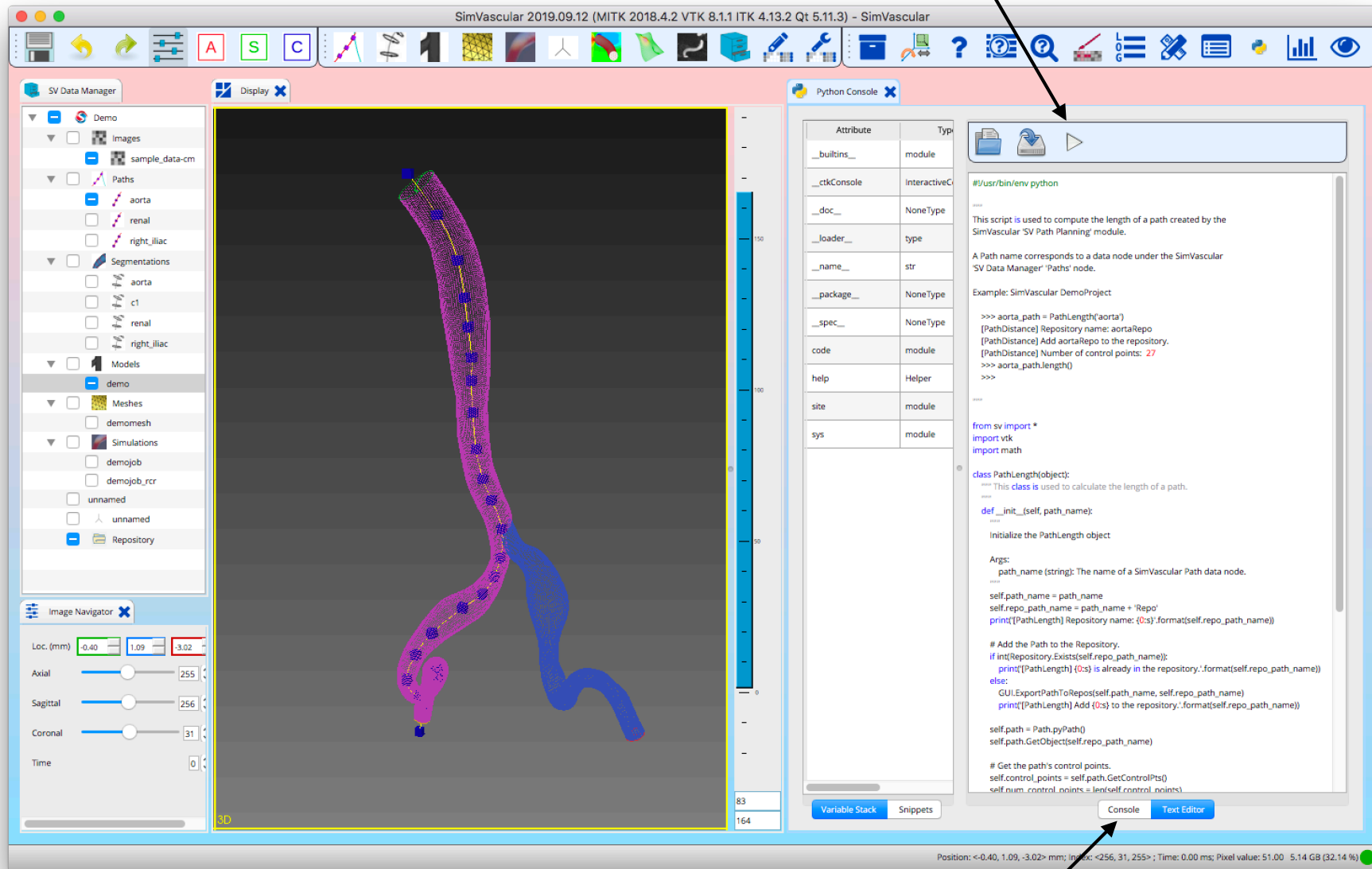
Time: 0

3D

Position: <-0.40, 1.09, -3.02> mm; Index: <256, 31, 255>; Time: 0.00 ms; Pixel value: 51.00 5.16 GB (32.24 %)

Select Python script to read in

1. Select the play button to execute the script.



2. Select **Console** to go back to the Python console

Python Console

Attribute	
CircleContour	module
Contour	module
GUI	module
Geom	module
Image	module
Itklis	module

```
Python 3.5.5 (default, Jun 30 2019, 23:56:41)
[GCC 4.2.1 Compatible Apple LLVM 8.1.0 (clang-802.0.38)] on darwin
>>> aorta_path = PathLength('aorta')
[PathLength] Repository name: aortaRepo
[PathLength] Add aortaRepo to the repository.
[PathLength] Number of path points: 616
>>> aorta_path.length()
[PathLength] Path length: 47.057
>>> |
```

1.0 Create a PathLength object for the **aorta** path.

```
>>> aorta_path = PathLength('aorta')
```

2.0 Compute the length of the aorta path

```
>>> aorta_path.length()
[PathLength] Path length: 47.057
```

Attribute	
CircleContour	module
Contour	module
GUI	module
Geom	module
Image	module
Itklis	module
LevelSetContour	module
Math	module

```
Python 3.5.5 (default, Jun 30 2019, 23:56:41)
[GCC 4.2.1 Compatible Apple LLVM 8.1.0 (clang-802.0.38)] on darwin
>>> aorta_path = PathLength('aorta')
[PathLength] Repository name: aortaRepo
[PathLength] Add aortaRepo to the repository.
[PathLength] Number of path points: 616
>>> aorta_path.length()
[PathLength] Path length: 47.057
>>> right_iliac_path = PathLength('right_iliac')
[PathLength] Repository name: right_iliacRepo
[PathLength] Add right_iliacRepo to the repository.
[PathLength] Number of path points: 305
>>> right_iliac_path.length()
[PathLength] Path length: 23.2169
>>> |
```

1.0 Create a PathLength object for the **right_iliac** path.

```
>>> right_iliac_path = PathLength('right_iliac')
```

2.0 Compute the length of the aorta path

```
>>> right_iliac_path.length()
[PathLength] Path length: 23.2169
```