

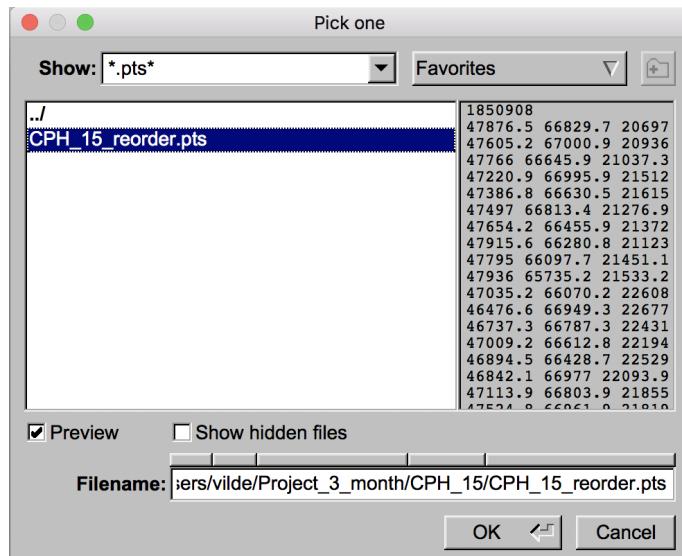
Meshalyzer Manual

July 12, 2017

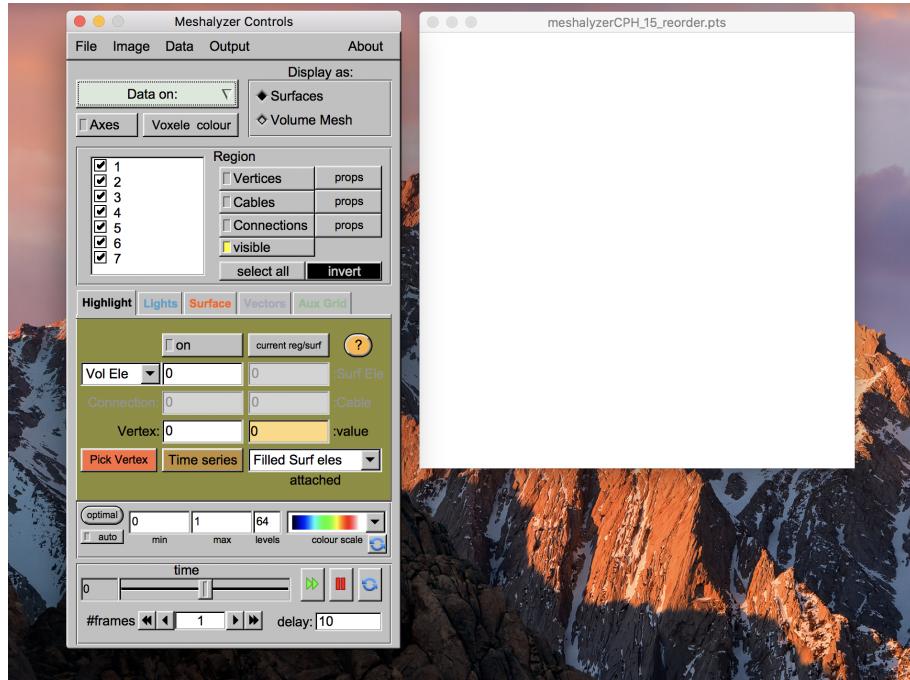
Meshalyzer is used to visualize coordinates for the different pacing sites. Inside each patient folder in FEM, there should be stored a .elem, .pts, .lon and .tris file. There is also a file called stim_coord.dat located in the patient folder. The five coordinates found from Meshalyzer should be stored in that particular file. As seen in stim_coord.dat, the five pacing sites are the RV apex, LV apex, RV outflow tract, LV mid free wall and LV mid septal wall.

Step 1 – Open Meshalyzer and Choose Files

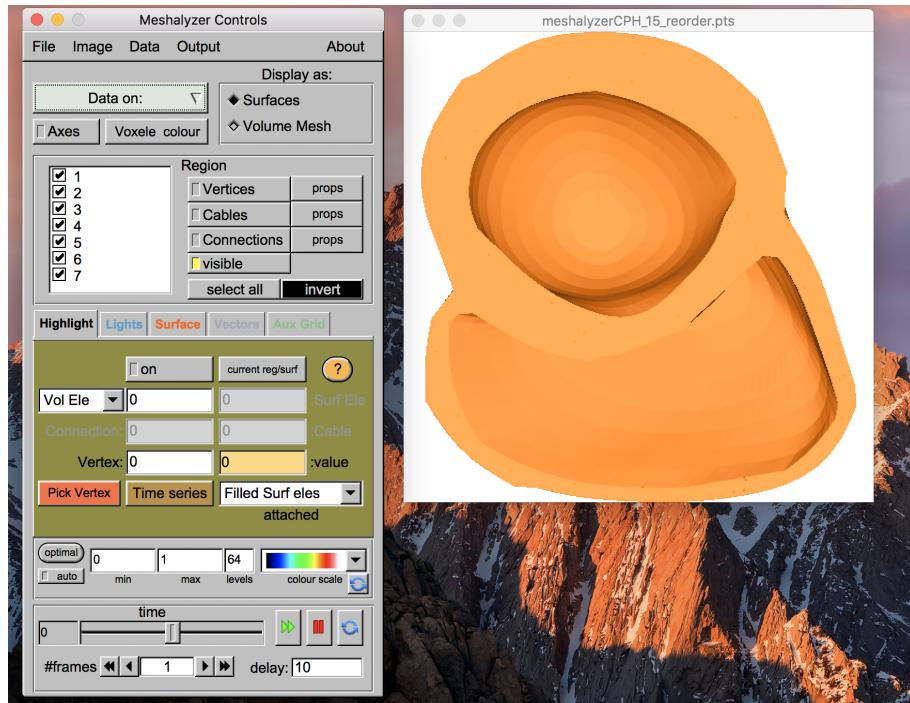
The image below illustrates how the Meshalyzer GUI should look when opening the program. Locate the patient folder you want to use. Click on the .pts file for that patient, and then OK.



Often, the surface is not yet computed, and the GUI will look like the image below.

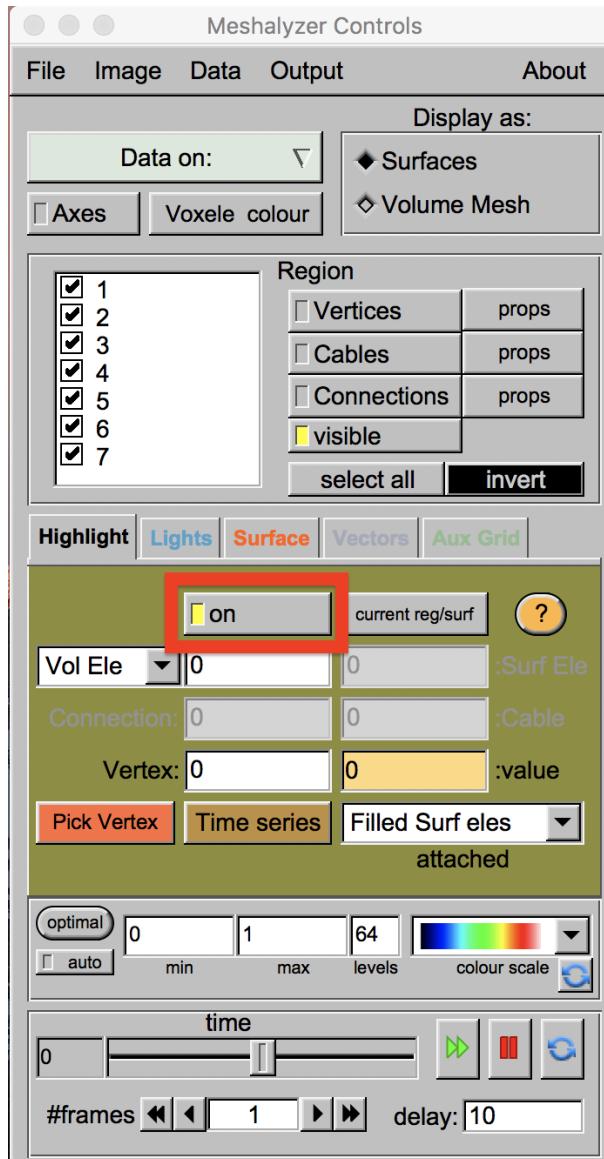


By clicking on File→Compute Surfaces→OK, you will enable surface generation, and the heart surface should look similar to the one shown here.

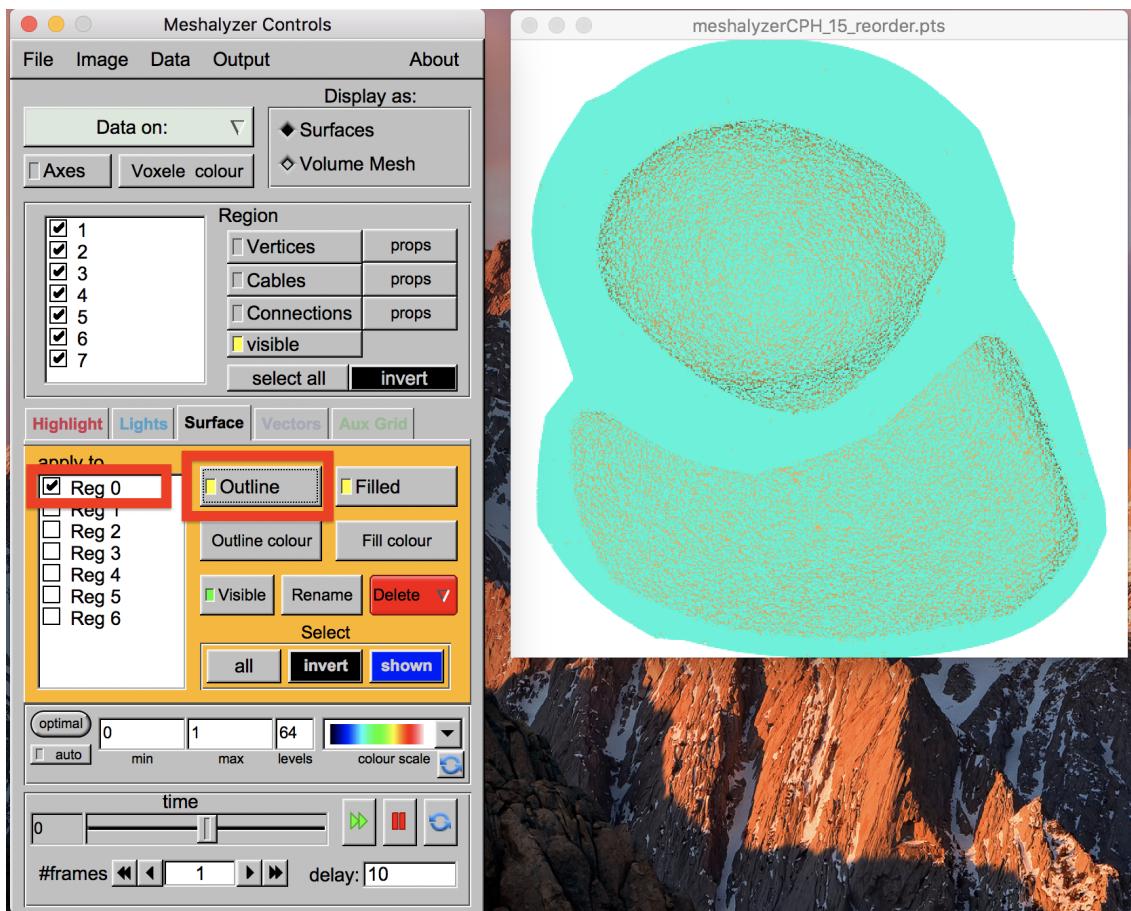


Step 2 – Visualize Nodes

To visualize all the nodes in the mesh, press the button "on" under Highlight.



Then, under Surface, only mark region 0 if you have regions for this patient. After clicking on "**Outline**", your mesh should look similar to the image below.



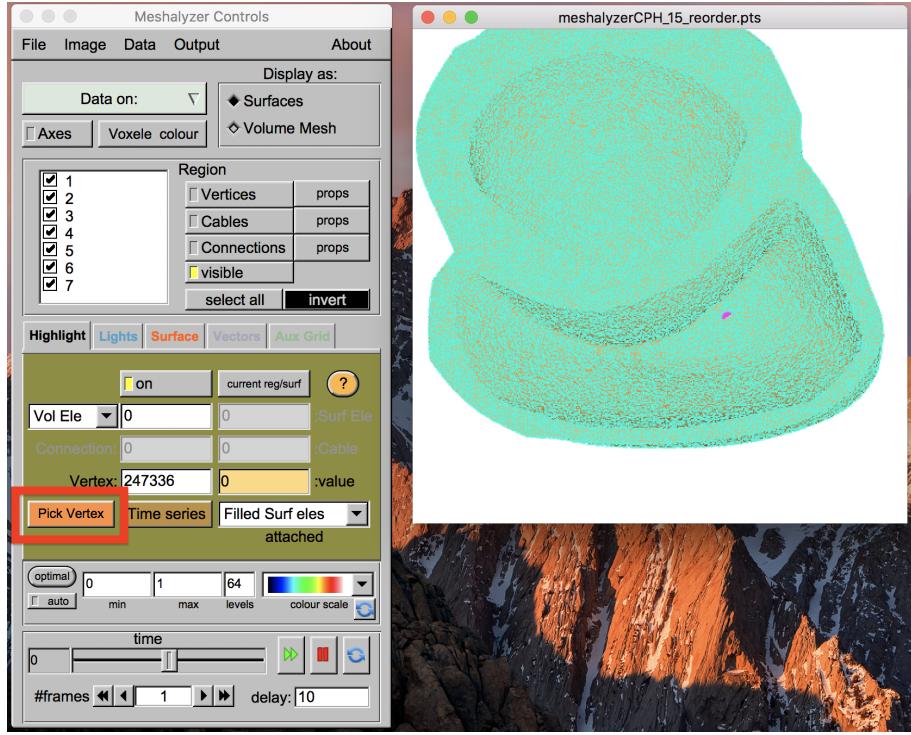
Step 3 – Pick the First Coordinate

The first coordinate to pick is the RV apex. Under Highlight, press the button "**Pick Vertex**".

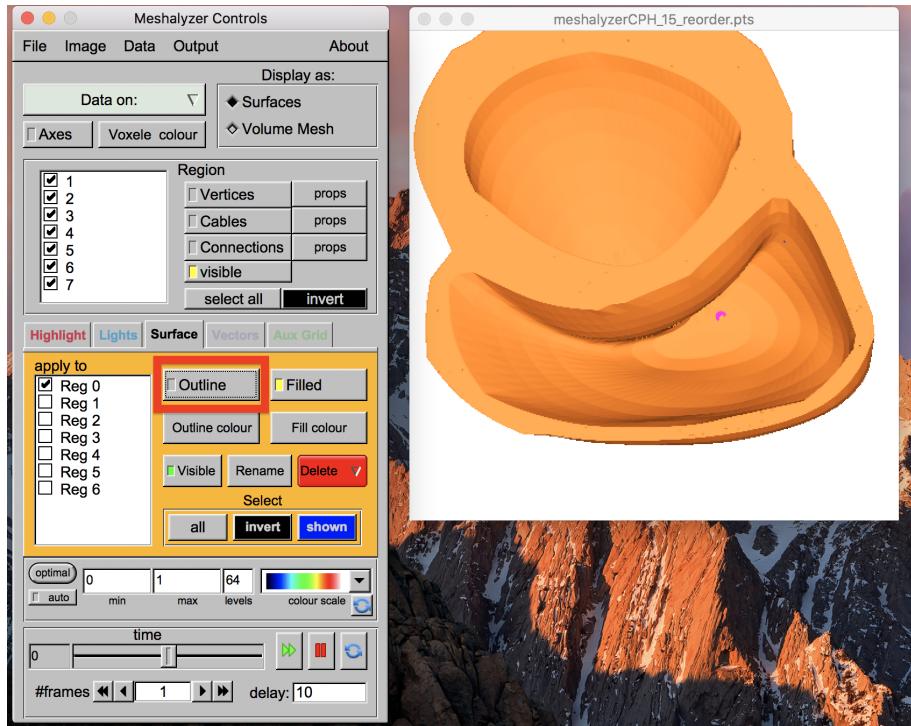
Then, click on the RV Apex in the mesh. A purple dot should appear as shown in the image below. Sometimes you need to click several times on the mesh before the purple dot appears.

Remember to press "**Pick Vertex**" each time.

If you have regions, and thereby scar regions in your mesh, do not pick coordinates from one of those regions. Always choose coordinates from healthy tissue (Region 0).

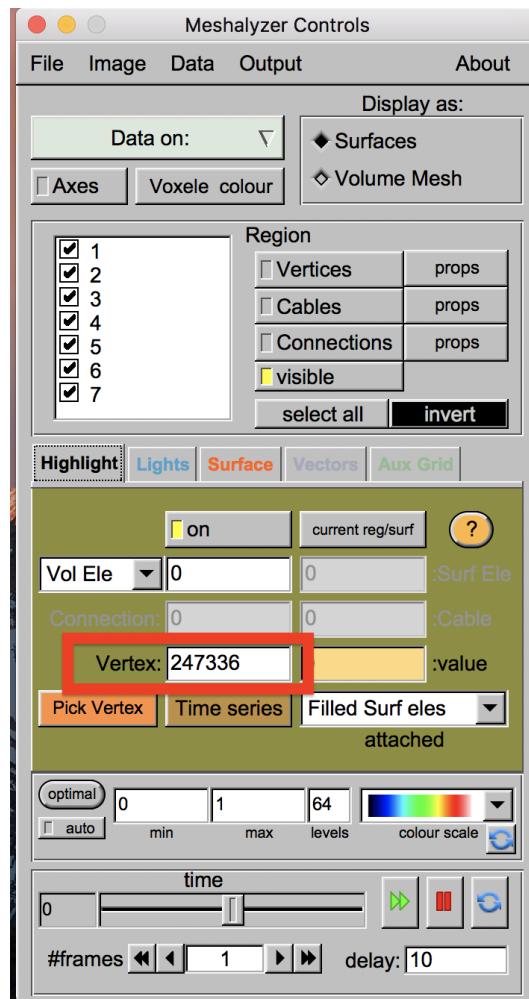


To check that your coordinate is actually in the RV Apex, it can be useful to turn off the "Outline" button. It will be easier to confirm you coordinate after doing so, as shown here.



Step 4 – Write Down Coordinate Number

When you are satisfied with the coordinate you picked out, you have to write it in the file `stim_coord.dat` in the patient folder. The coordinate number can be found under "Vertex:" in Highlight as shown below.

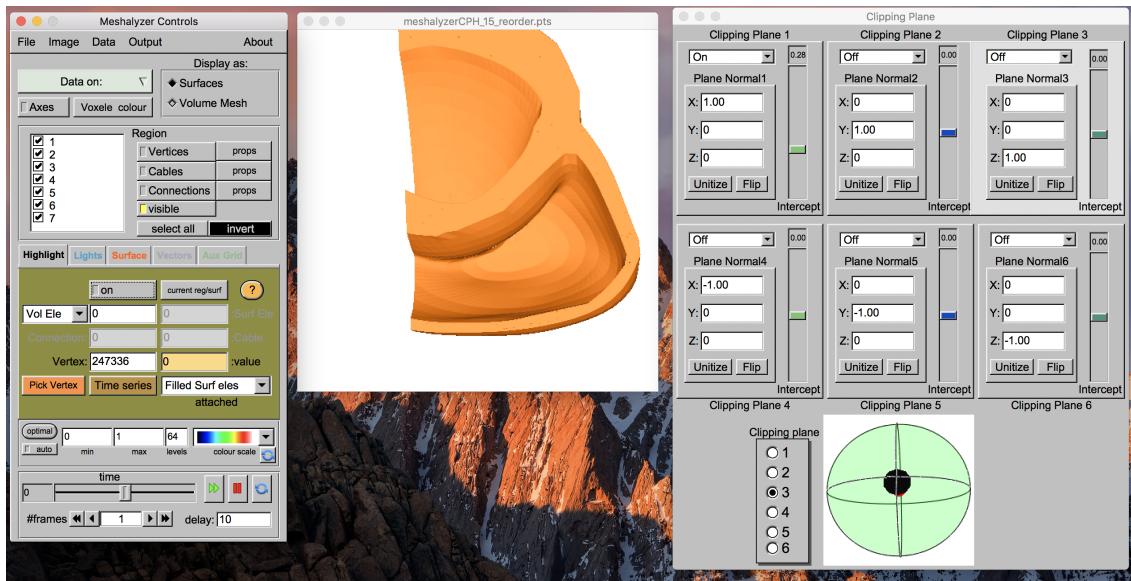


Replace `RV_APEX` in `stim_coord.dat` with the given coordinate number, as shown here.

```
[Vildes-MacBook-Pro:In_Silico_Heart_Models vilde$ cat stim_coord.dat
247336
LV_APEX
RV_OUTFLOW_TRACT
LV_MID_FREE_WALL
LV_MID_SEPTAL_WALL
```

Step 5 – Repeat for the other sites

Repeat step 2) – 4) for each of the four remaining sites. As mentioned, it can be difficult to find some of the coordinates. If so, "**Clipping Plane**" under Data is a handy tool. As illustrated below, it can remove parts of the mesh, making it easier to access the specific site.



Step 6 – stim_coord.dat

When done with all of the five sites, your `stim_coord.dat` file should look like the one illustrated here.

```
Vilde-MacBook-Pro:In_Silico_Heart_Models vilde$ cat stim_coord.dat
247336
652141
1777883
799674
1885458
```

It should always be stored inside the specific patient folder, together with the FEM files and the script `risk_strat_1_16.sh`.