Surface Project plugin Quick Start guide

1. Install and Update Fiji image processing software http://fiji.sc/
2. Go to Plugins→Install plugin… and select the Surface Project jar file.
   a. This will install Surface project 3D onto your plugins menu (and copy the .jar file into the plugins folder of Fiji)
   b. Note: You may need to restart Fiji once if you get an error when you run the plugin after installing.
3. Load your image stack
4. Convert the image stack to RGB (Image→Type)
   a. Note: it is important to have separate data channels in unique image channels. E.g. "yellow" data is stored in both red and green channels of an image – it is better to store this in an empty image channel (e.g.) blue. You can do this with the tools of Fiji's Image→Color menu.
5. Run StackProject3D from the plugins menu.
6. A window called 'Triangles' will pop up. This will show output as we define the surface.
7. Move through your original stack image using the slider at the bottom of the window (or mouse wheel). When you are at a plane you wish to mark a control point on, **left click** on the image. A text console will appear, noting that a point has been captured, and the Triangle image will update to include the point. As you click more points, more triangles will be formed on the Triangles image:
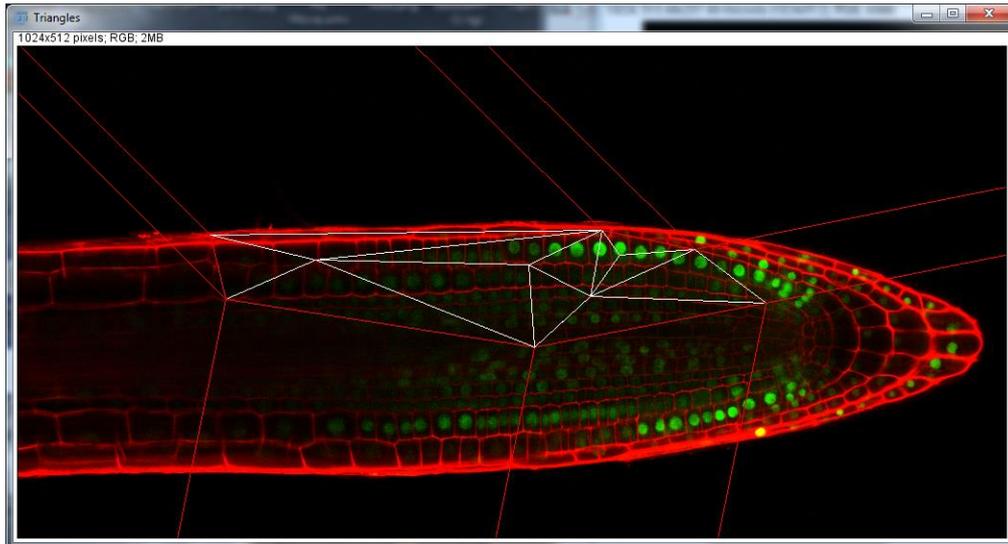
8.

    a. Note: you are viewing the 2D (x, y) position of the formed triangle points, but each point also has a depth coordinate stored with it, which is the plane on which you click the left button. These triangles are used to define the surface through the 3D data.

9. Define more triangles, as required.

10. When you are done, click the **middle button** on your original stack window the window.

11. A depth map (showing depth versus triangles) and output window will be produced.
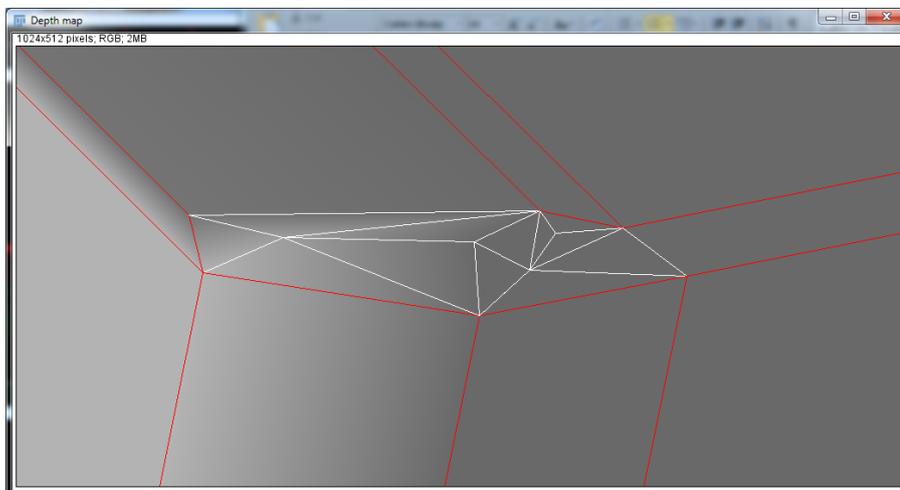
12.

13. Save the output in a non-compressed format (bmp/tiff) etc ready for use elsewhere.

The 'Duplicate data' window can be used to view an estimation of the resulting surface. A blue region is filled to indicate the surface on each slice. To view this in 3d:

1. select the Duplicate Data stack
2. Add a suitable z-slice step size, if needed:
    a. Image→Properties, voxel depth
3. Plugins→3d viewer
4. Set resampling factor to 1