Volume Render: Tissue Map Tool

The Tissue Map tool provides a control interface that allows for the creation of unique visualizations. This exercise will demonstrate how to use the tool to generate visualizations of different tissues.

1. Load the **CT_Heart.avw** data set from the **$:\BIR\images\TutorialData** directory.
2. Open the **Volume Render** module (**Display > Volume Render**).
3. Open the **Render Types** window (**Generate > Render Type**).
4. Select the **Volume Compositing** render type (figure 1). Then open the Tissue Map tool by clicking the **Tissue Map** button.
5. A tissue map is a mapping of the voxel values within a volume to a given color and opacity. The Tissue Map tool provides several control options to aide in the creation of a tissue map for a volume.
6. The Tissue Map tool provides four control "points" to manipulate which voxel values are mapped to specific colors and opacity (figure 2).
   - **Start**: The starting voxel value within the volume mapped to a specific color (chosen from the color drop-down menu) with 0% opacity.
   - **Min:** The minimum voxel value within the volume that will be mapped to a specific color and set opacity (e.g. 44%).
   - **Max:** The maximum voxel value within the volume that will be mapped to a specific color and set opacity (e.g. 44%).
   - **End:** The ending voxel value within the volume mapped to a specific color with 0% opacity.
7. Click **Render** to view the rendering with the default parameters (displayed in the main Volume Render window).

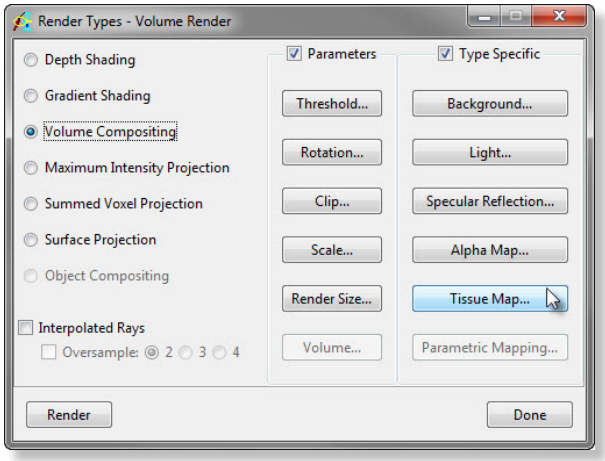

Figure 1

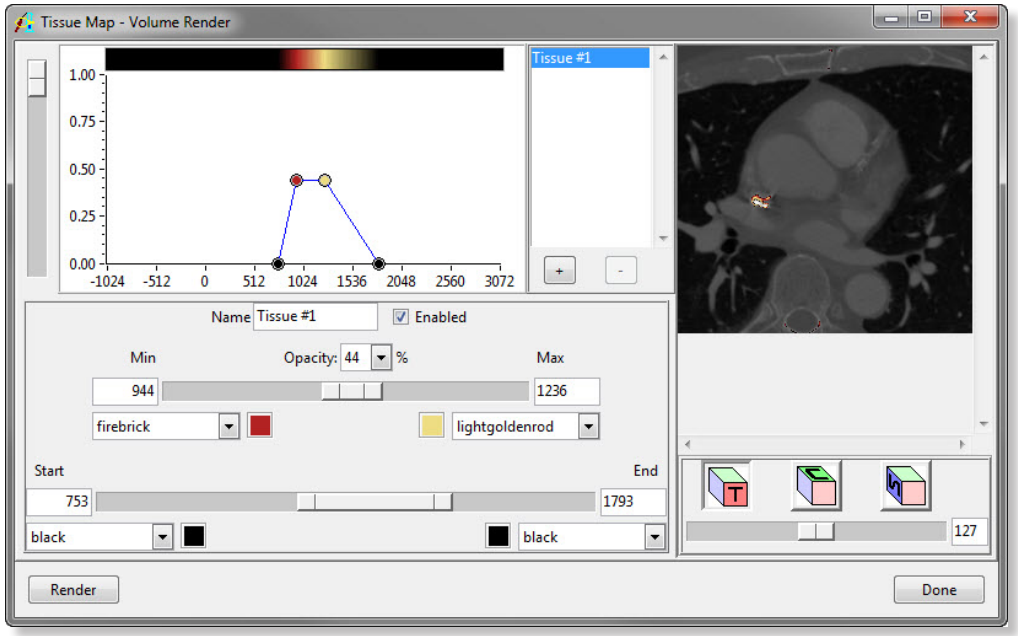

Figure 2

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8. Use the slider bars, or type the numbers in the appropriate text box in the Tissue Map tool to set the following (figure 3):
   - **Start: 157**
   - **Min: 200**
   - **Max: 500**
   - **End: 3072**
9. Select **60** from the **Opacity** drop-down menu. Click **Render** to view the effect of the changes (figure 4).
10. Now, experiment by moving the control points in the graphical display. Click **Render** as desired.
11. Right-click in the graphical display and select **Show Histogram**; the volume histogram will be calculated and displayed. This option may help determine voxel values associated with tissues.
12. Several default tissue maps are also available, rightclick in the graphical display and choose **Default Tissue Maps > CT2**; once loaded, click **Render** (figure 5).
13. Experiment with adding a second tissue to the tissue map by clicking the **+** button to the right of the graphical display. Click Render as desired to see the effect.
14. Close the Volume Render module before proceeding to the next exercise.

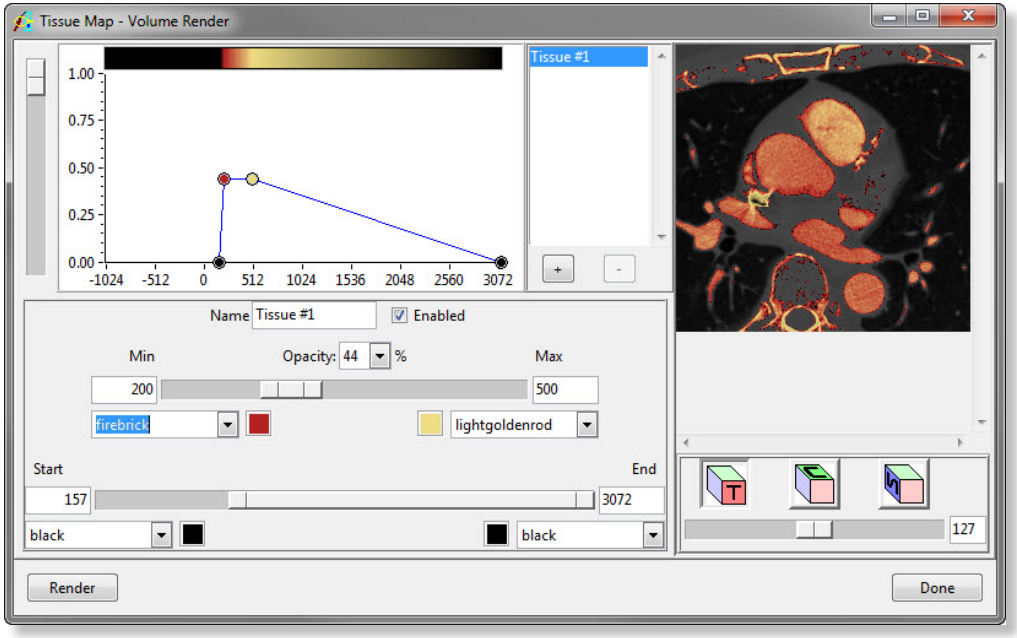

Figure 3

Figure 4

Figure 5