

# Volume Edit: Liver Segmentation

Manual segmentation is often necessary when semi-automatic segmentation fails. While manual segmentation can be time consuming, Analyze has tools to speed up segmentation time. The propagate regions option uses shaped-based interpolation to extend the definition a region to slices on which it was not defined. For example, if the user defined a region on every third slice, the tool could be used to fill in the region on the slices in between.



1. Load the **CT\_Liver.awv** data set from the **\$:\BIR\images\TutorialData** directory.
2. Open the **Volume Edit** module (**Segment > Volume Edit**).
3. Click on the **Intensities** button and adjust the minimum and maximum intensities.
4. Use the slice slider bar underneath the Coronal view and navigate to slice 100
5. Select the manual tab and then the **Spline Edit** tool. Check the **Smart Edge** option and set the **Sensitivity** to **3**.
6. Begin clicking around the outside of the liver on the Coronal slice 100 (figure 1). Once finished double click to close the spline.
7. Once the spline has been closed and the points are correctly set, click **Apply**.
8. Navigate to Coronal slice **125**. Use spline edit to define the liver and click **Apply**.
9. Repeat the same process for Coronal slice **150 & 175** (figure 2).

- note*
- Control points can be moved using the middle mouse button (or <Shift> + Left mouse button).
  - To add a control point click with the left mouse button.
  - To delete a control point, right click on the control point and select "Delete Control Point".



Figure 1



Figure 2

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10. Select the **Semi Automatic** tab and click on the **Propagate Objects** option.
11. Set the **Propagation Type** to the **Current Object** and select **Coronal**.
12. Click **Propagate**.
13. The module will use shape-based interpolation to generate regions on the slices between the defined regions (figure 3).
14. Close the module before proceeding to the next exercise.

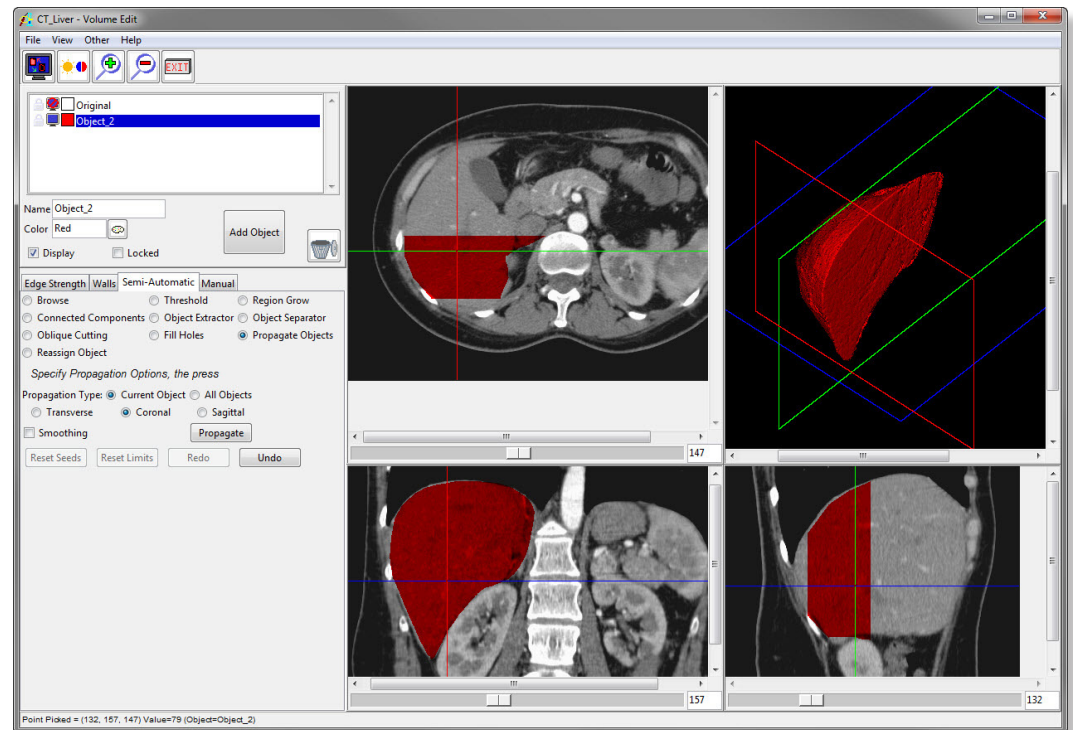


Figure 3