

Exercise 29 : Image Edit Manual Segmentation and Object Map Creation

As discussed in Exercise 13: Volume Render Advanced Controls, object maps are special image files that are used in Analyze to partition and identify structures as belonging to a particular segmented object. This exercise will demonstrate how to create an object map containing manually segmented objects.

1. Load the **MRI_3D_Head.avw** data set from the **\$(\BIR)\images\TutorialData** directory.
2. Open the **Image Edit** module (**Segment > Image Edit**).
3. Choose **File > Create Object Map**. The **Objects** window (**View > Objects**) will automatically be returned (figure 1).
4. Click **Add Object** [A] to create a new empty object (Object_2).
5. Change **Name** from Object_2 to **Brain** [B]. Click **Done** to dismiss the Objects window.
6. Open the **Slice** window (**Generate > Slice**), and use the slider bar to move to **Slice 122**.
7. At the bottom of the main Image Edit window, set **Change** to **Object Map** and choose **Brain** from the **Defined Object** drop-down menu [C].
8. Select the **Auto Trace** tool, the Image Edit window will automatically update to display Auto Trace parameters (figure 2).
9. Position the cursor near the center of the brain and click to set a seed point. Use the double-ended slider bar [D] at the bottom of the window to adjust the threshold range until a reasonable trace of the brain is obtained. A **threshold minimum of 34** and **maximum of 129** works well for this data set.
10. Select the **Delayed Flood Fill** tool and place a fill point inside the auto-traced region (click inside the region).
11. Select the **Auto Trace** tool again.
12. Click **Apply & Advance**. The next slice will appear in the image display (the slice number is displayed in the lower left corner [E]).



note | If you did not set the 'Change' option to Object Map (step 7) the defined region will appear black in the Edit Review tool.

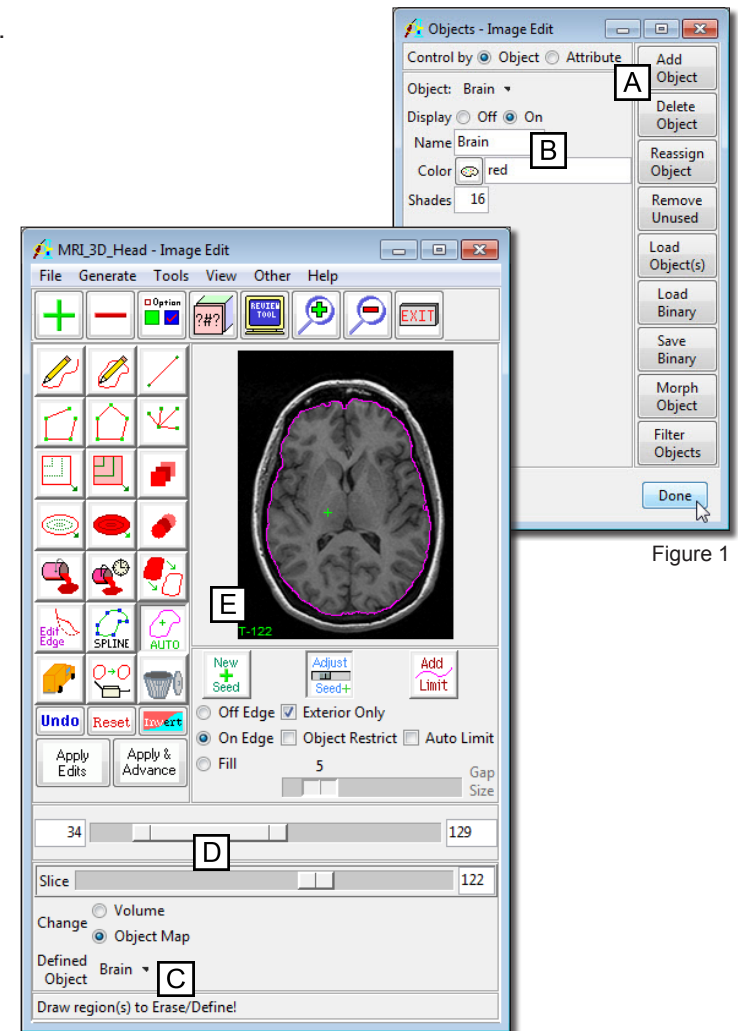


Figure 1

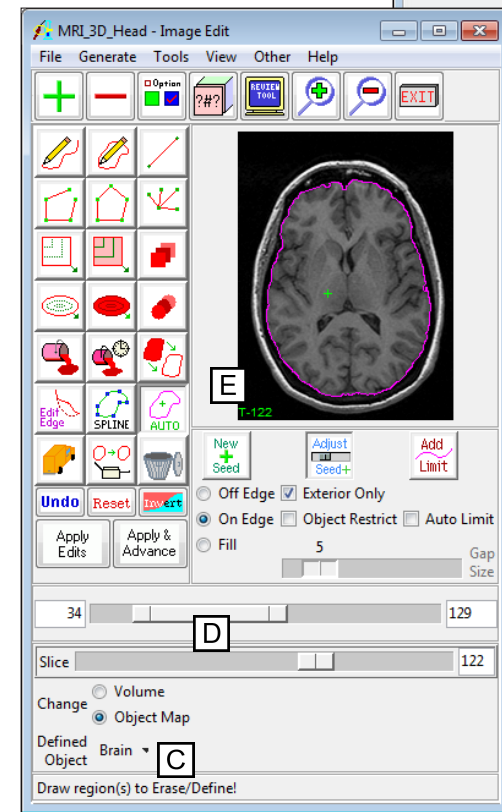


Figure 2

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13. View the edited object map by opening the **Edit Review Tool (Tools > Edit Review)**.
14. Select the **Previous** option in the Edit Review tool. The change can also be viewed by selecting the **Sagittal** option.
15. With the **Auto Trace** tool selected, continue to segment slices by clicking **Apply & Advance** in the main Image Edit window. Segment the brain on **20 slices** (to slice 142).



tip | If the auto trace does not apply to a slice, or leaks to unwanted structures, try the following: 1) adjust the threshold range, 2) draw a limit after selecting the 'Add Limit' button, or 3) turn on the 'Auto Limit' option and adjust the 'Gap Size'. Additionally, the auto trace can be adjusted on a slice by moving the seed point with the 'Move' button selected.

16. To save the created object map for use in other Analyze modules, choose **File > Save Object Map**. Save the object map as **xxx_mybrain.obj** (where 'xxx' are your initials).

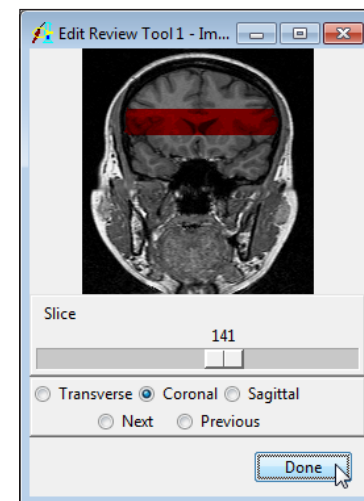


Figure 3

Additional Task

1. Viewing the Object Map in Volume Render



1. In the Analyze workspace, select the **MRI_3D_Head** data set and open the **Volume Render** module (**Display > Volume Render**).
2. Choose **File > Load Object Map** and load the **xxx_mybrain.obj** object map (saved earlier in step 16).
3. Open the **Objects** window (**View > Objects**). Set **Control by** to **Attribute** and set the **Display** attribute to **Off** for the **Original** object.



4. Click **Render**. You should see a rendering of the object you created in the Image Edit module.



5. Use the **Rotation** window (**Generate > Rotation**) to generate different views of the object (figure 2).

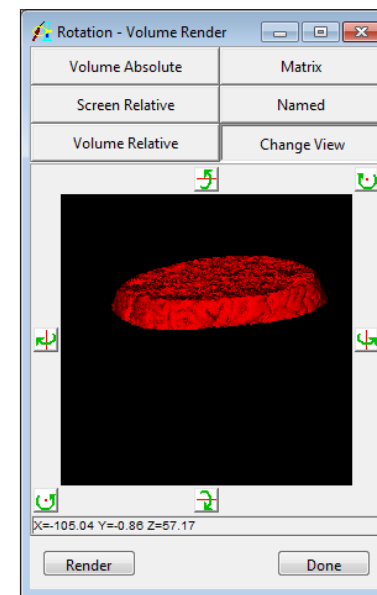


Figure 1