

Stereology: Estimating Volume

The Stereology module estimates volume and surface area using the stereological method of point counting. The point counting method consists of overlaying the images entirely with a randomly positioned and oriented systematic array of test points and counting the number of occasions on which a point lies within the feature of interest.

1. Load the **Canine_Chest_CT.aww** data set from the **\$.\BIR\images\TutorialData** directory.
2. Open the **Stereology** module (**Measure > Stereology**).
3. The intensity scaling of the images must be changed so that they are viewable. Open the **Intensities** window (**View > Intensities**) and change the **Maximum** to **145**. Click **Done** to dismiss the window.
4. Open the **Grid Parameters** window (**Generate > Grid**) to set up a sampling grid that encompasses the heart (figure 1).
5. The heart first appears around slice **42** and remains visible until slice **94**. Set the **Starting Grid Slice** to **42**. Using Stereology, it is not necessary to sample every slice, set the **Grid Slide Increment** to **3** and **Number of Grid Slices** to **17**.
6. Click **Generate Grid**. Then, click **Done** to dismiss the **Grid Parameters** window.



note Any name can be chosen for the local database, however when creating multiple databases, following a coherent naming convention will simplify database management.

7. In the main Stereology window, click in the image display and drag your cursor over all grid points that lie on the heart (figure 2). If points that are not on the heart are mistakenly selected, hold **<Shift>**, click and drag the cursor over to deselect them.
8. When you are finished selecting points on the current slice, press the **Next Slice** PowerBar button to move to the next grid slice (specified earlier in the 'Grid Slice Increment' field) and select the appropriate points. Continue in this manner until all grid slices have been examined.
9. Open the **Statistics** window (**Generate > Statistics**) to view the estimated volume of the heart.
10. Close the Stereology module before proceeding to the next exercise.

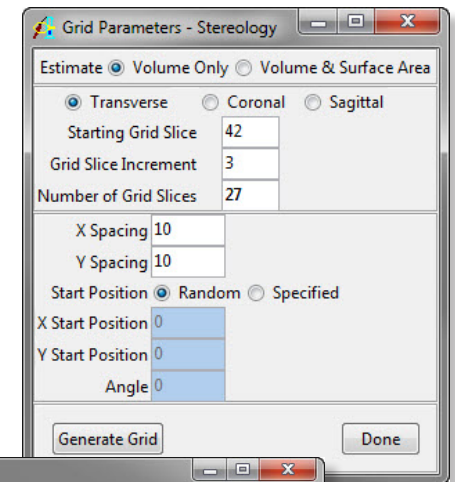


Figure 1

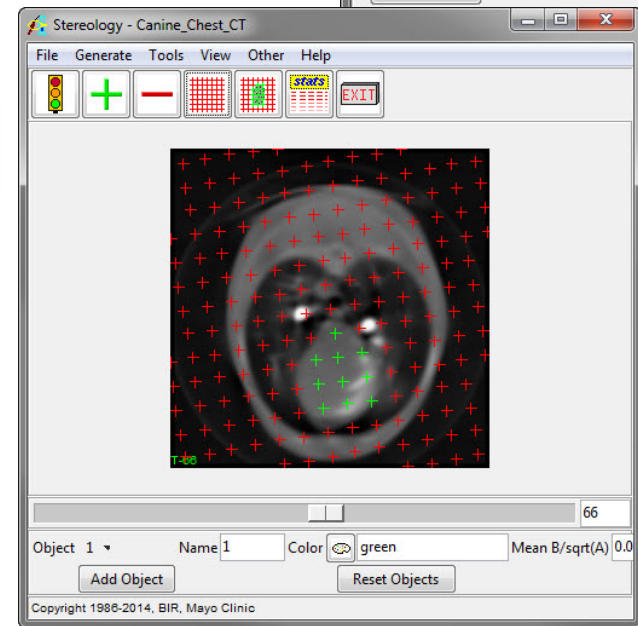


Figure 2