

Stereo Investigator v.2017

Cavalieri Estimator Guide



USING CAVALIERI WITH A LIVE IMAGE

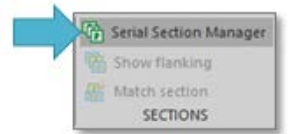
Use the Cavalieri method of point counting to calculate ROIs areas and volumes.

1. Place a reference point.

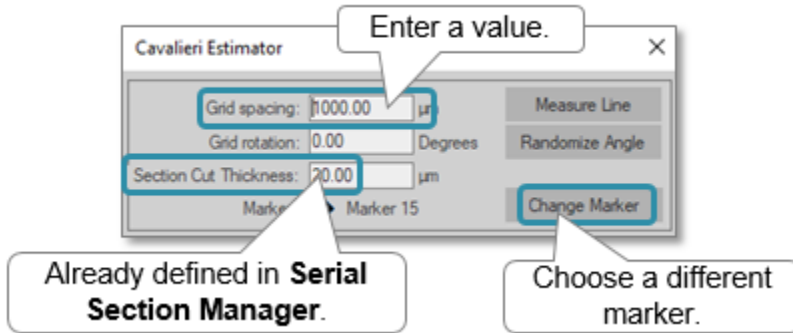
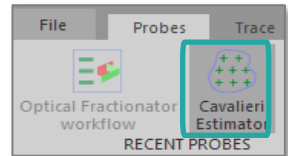
2. Select the lens that matches the objective.



3. Use **Trace>Sections>Serial Section Manager** to define sections.



4. Click **Probes>Cavalieri Estimator**.

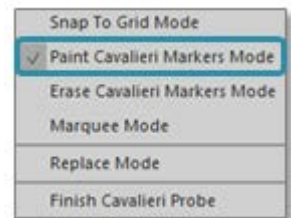


i To change the shape and color of grid points: Go to **File>Preferences>Colors and tick marks** panel.

5. **Paint Cavalieri markers** is the default marking mode.

Right-click to select another marking mode.

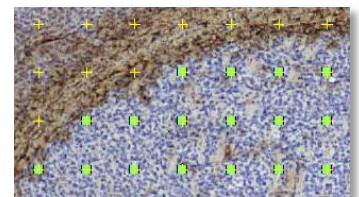
Hold down **SHIFT** to toggle between **Paint** and **Erase** modes.



6. Mark all the points that overlay the area of interest on the section.

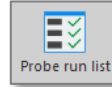
Consistent marking is critical!

Approach each grid point from the same quadrant to determine whether the grid point is over the area of interest.



USING CAVALIERI WITH A LIVE IMAGE

7. Move to the next section and mark points as needed.
8. When finished with all the sections, end the probe run. In the Probes ribbon, de-select **Cavalieri Estimator**.
9. Use **Probes>Stereology results>Probe run list** to view results.

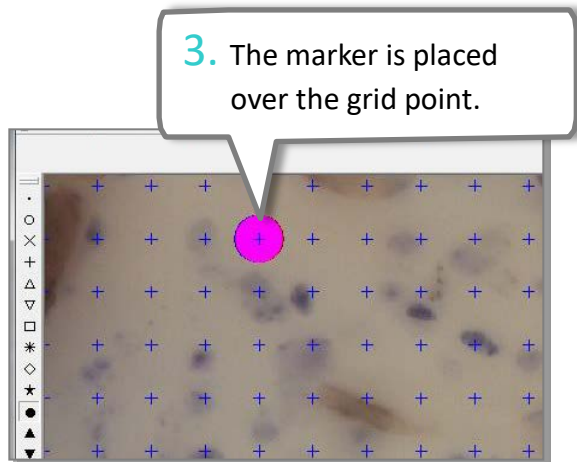
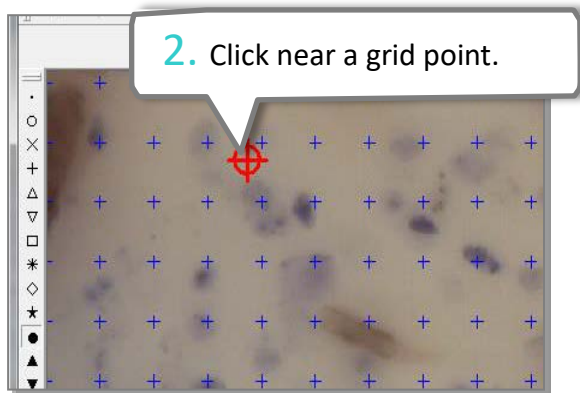
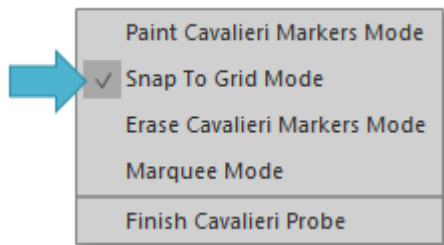


CAVALIERI MARKING MODES

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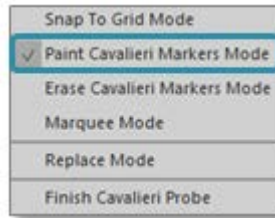
SNAP TO GRID MODE

1. Right-click in the Tracing window and select **Snap to grid**.



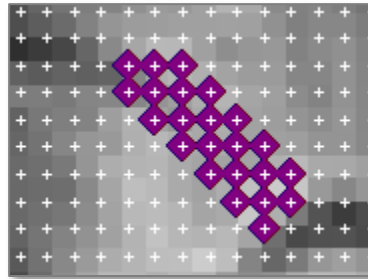
PAINT CAVALIERI MARKERS MODE

Paint Cavalieri markers is the default mode.



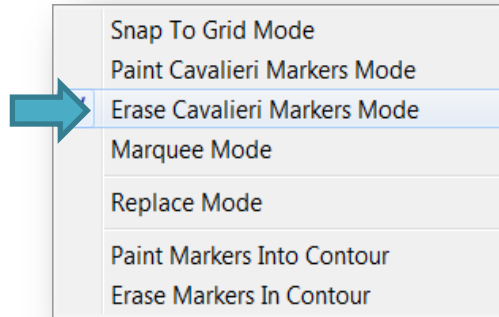
1. Adjust the size of the circular cursor with the mouse wheel to increase the number of points marked at a time.

2. Drag the mouse to mark multiple points.



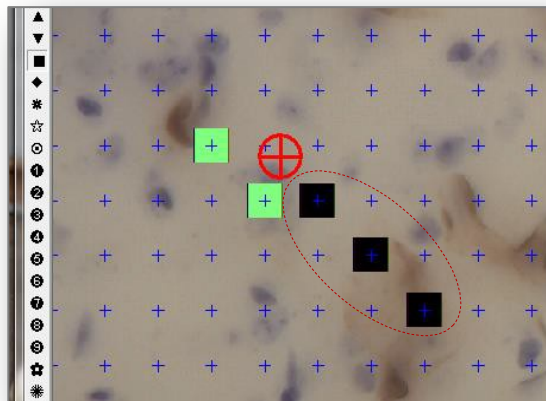
ERASE CAVALIERI MARKERS MODE

1. Right-click in the Tracing window and select **Erase Cavalieri markers** mode.



2. Adjust the size of the circular cursor with the mouse wheel to increase the number of points erased at a time.

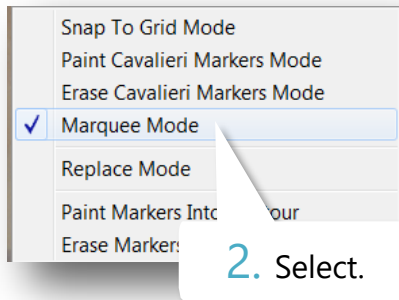
3. Drag the mouse to erase multiple markers.



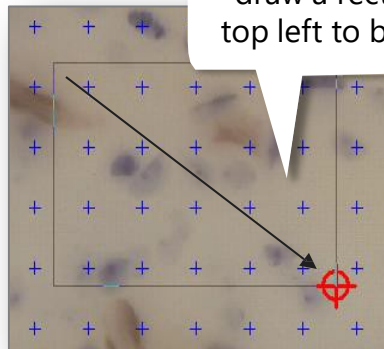
 Deleted markers appear black for a few seconds.

MARQUEE MODE

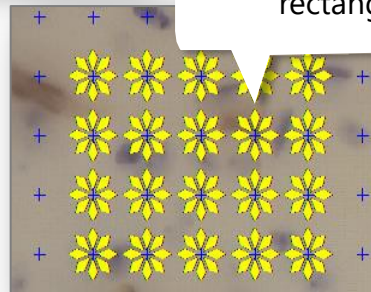
1. Right-click in the Tracing window.



3. Drag the mouse to draw a rectangle (from top left to bottom right).

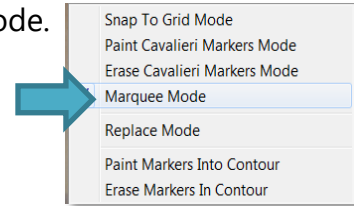


4. Markers fill the rectangle.

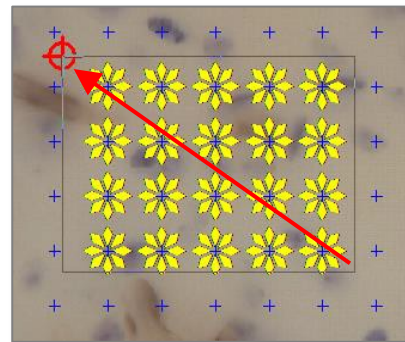


MARQUEE MODE: DELETING MARKERS

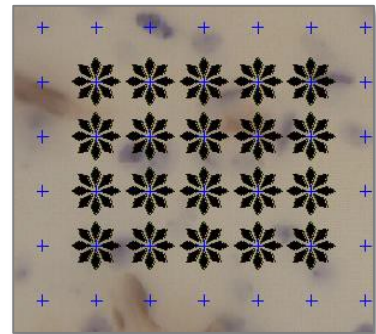
1. Right-click in the Tracing window and select **Marquee** mode.



2. Drag the mouse to draw a rectangle from bottom right to top left.

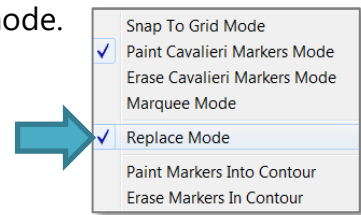


Markers in the rectangle are erased but the deleted markers may still appear in black for a few seconds.



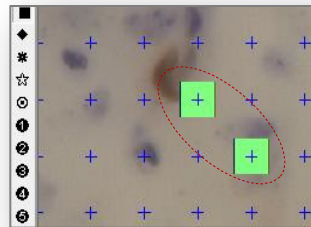
REPLACE MODE

1. Right-click in the Tracing window and select **Replace** mode.

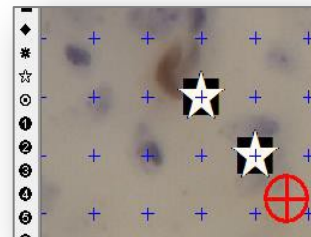


2. Select a different marker in the **Markers** toolbar.

3. Drag the mouse over the markers to replace.



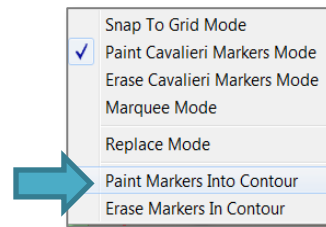
The markers are replaced deleted markers may still appear in black for a few seconds.



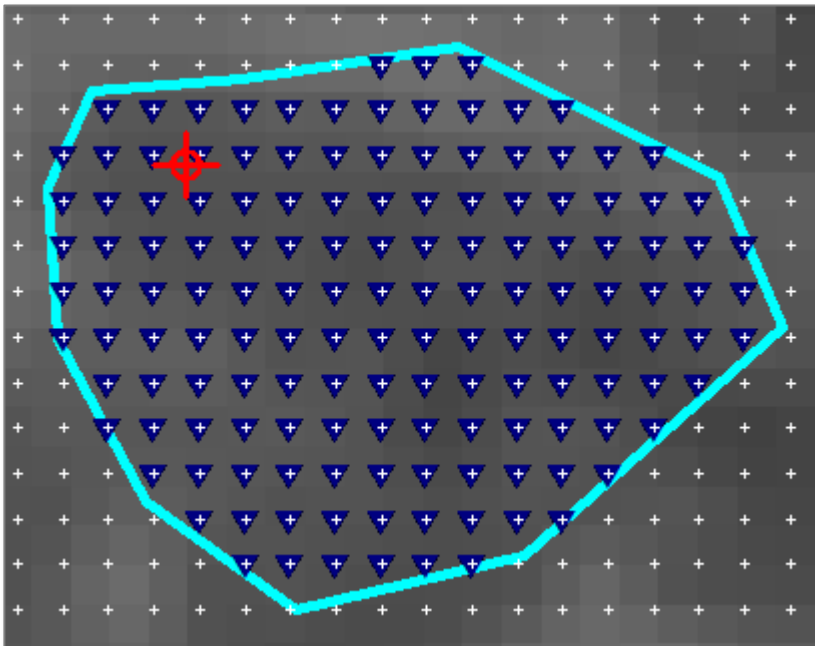
PAINT MARKERS INTO CONTOURS MODE

Useful when contours are already accurately traced for another task (e.g., Optical Fractionator, highlighting anatomical regions).

1. Right-click in the Tracing window and select **Paint markers into contours**.

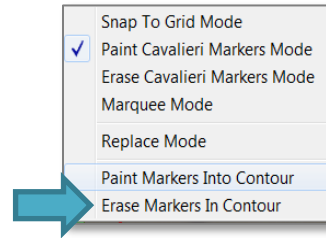


2. Click inside the contour.

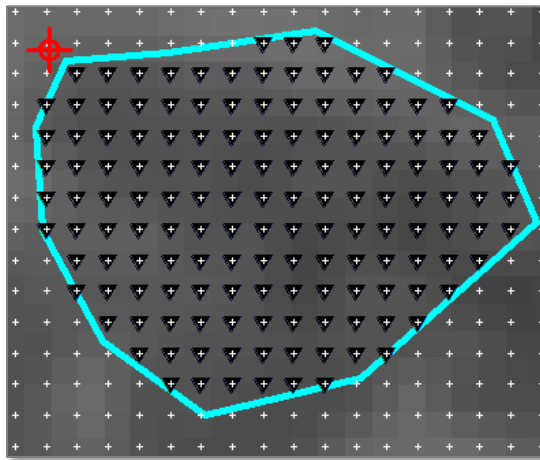


ERASE MARKERS IN CONTOUR MODE

Right-click in the Tracing window and select **Erase markers in contours**.



Deleted markers appear in black for a few seconds.



RESOURCES

Webinar: Stereological Techniques for Area & Volume Estimation
http://youtu.be/huWr_jQNozY

Stereology.info: Cavalieri Estimator page
<http://www.stereology.info/cavalieri-estimator/>