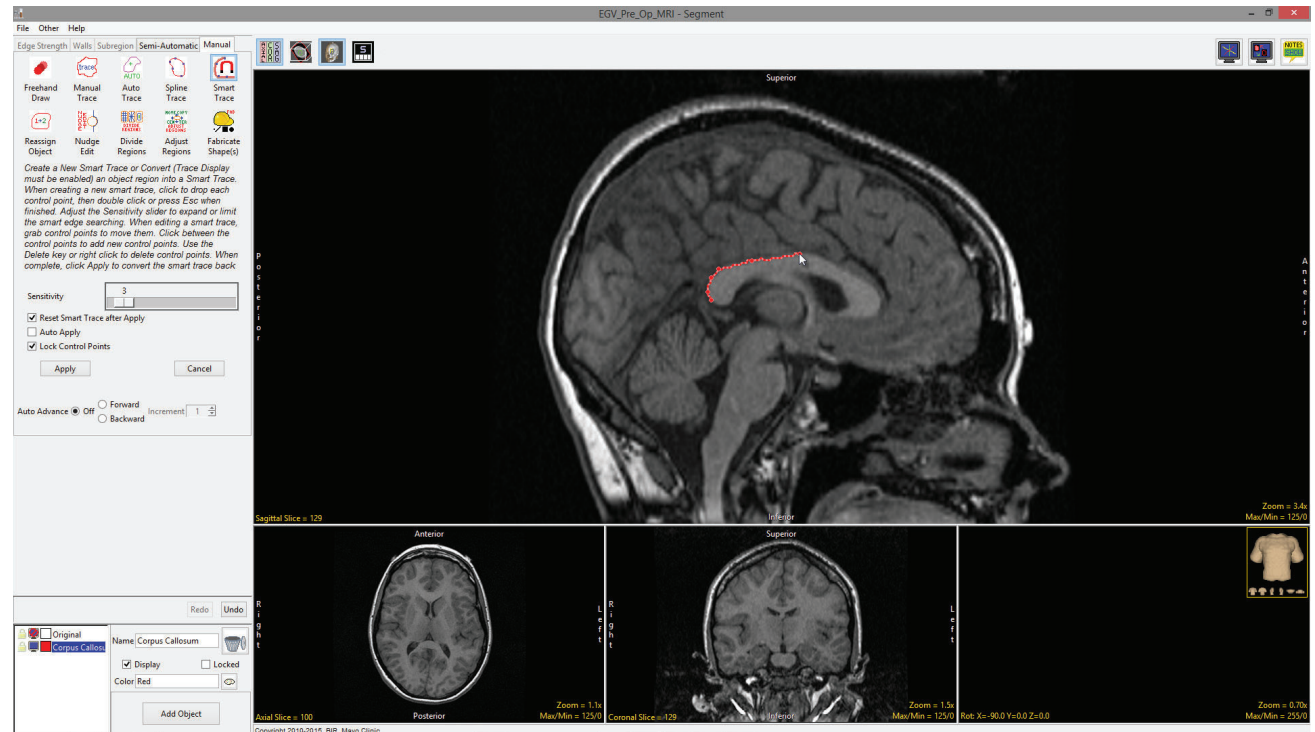# Smart Trace

The Smart Trace tool detects regions of high rate of change of voxel intensity (gradient) representing edges. The tool snaps to the edges of these regions. The sensitivity of the smart edge can be adjusted using the slider or the mouse scroll wheel.

The following options are available:

Sensitivity: The sensitivity of the smart edge can be adjusted using the slider or the mouse scroll wheel. The lower the value the less sensitive the tool is, the higher the value the more sensitive the tool is.

Reset Smart Trace after Apply:
Resets (deletes) the smart trace after the region is defined. Smart trace regions are defined after the user double-clicks to close and end the tracing process and then pressing the Apply button, selecting the 'A' key on your keyboard, or having the Auto Apply option selected.

Smart Trace Options

Auto Apply: When selected automatically applies the Smart Trace region.

Lock Control Points: Allows users to lock or unlock (default) the smart trace controls points. Unlocking the control points allows users to move the control points.

Auto Advance: The auto advance option automatically moves users to a new slice, as defined by the auto advance options, once the current edit is defined. Note the auto advance will occur after the user releases the left mouse button and the edit is applied to the current slice. The auto advance option is a productivity tool allowing users to move through the image data without having to move the cursor from the current orientation window that regions are being defined on. The following options are available.

- Off: Off is the default option for auto advance. When off is selected auto advance is disabled.

- Forward: Specifies that auto advance will move forward through the image data (slice number increases).

- Backwards: Specifies that auto advance will move backwards through the image data (slice number decreases).

- Increment: Specifies the number of slices the auto advance will move forward or backwards.

Right click options: Right clicking on the Smart Trace provides users with the following options:

- Apply: Applies the trace.

- Cancel: Cancels the trace, deleting the trace and controls points.

- Auto Apply on Control Point Adjust: This option is only available when Auto Apply is enabled and when editing a Smart Trace or trace converted to a Smart Trace. When selected any edits made to the Smart Trace will be automatically applied when a control point is moved.

- Delete Control Point: Deletes the control point the cursor if currently over.

- Delete Spline: Deletes the trace and controls points.

Note: Clicking on an object border when the Smart Trace is selected will convert the object region into a Smart trace with adaptable control points.

Smart Trace Region Definition

To follow along, download the data set MRI_3D_Head from analyzedirect.com/data and load into Analyze using Input/Output.

- Select the data set and open Segment.
- Select Manual [1] and choose Smart Trace. [2].
- Left-click in the image to set the first control point [3].
- Move the cursor along the edge of the object and click to set additional control points [4]. To adjust the sensitivity of the smart edge, use the mouse scroll wheel. Scrolling up will increase the sensitivity and scrolling down will decrease sensitivity.
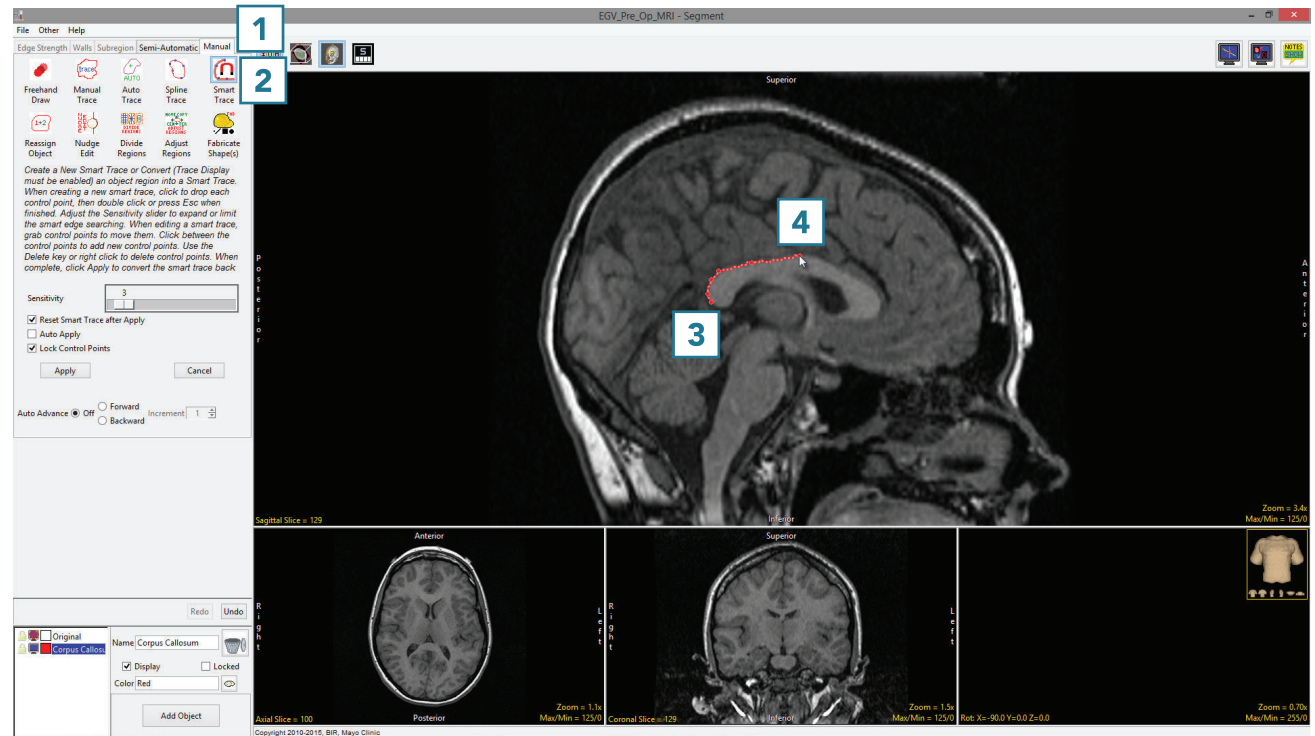
Smart Trace Region Definition (continued)

- When the trace is complete, double-click to close the spline [5].
- If needed, control points can be moved. Uncheck the Lock Control Points option, click on a control point and drag it to a new location. The Smart Trace will update.
- Control points can be deleted. Select a control point, right-click and select Delete Control Point.
- Select Apply or use the A key to apply the trace.
- Use File > Save Object Map to save your work.