

## Sample Two Lines

The Sample Two Lines tool provides users with an interactive tool for making point, distance, and angle measurements. The tool is useful for applications such as measuring midline shift in stroke CT images.

**Sample Options:** Provides users with access to the following sampling options:

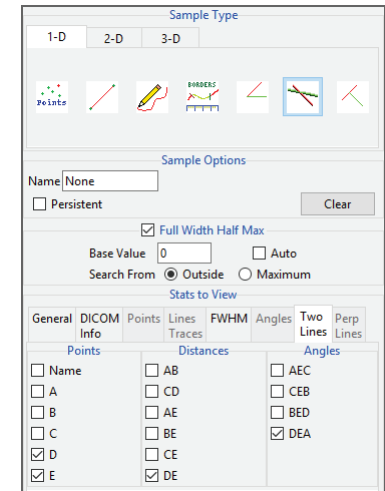
- **Name:** Assigns a name to the defined set of two-line measurements when reported to the log file.
- **Persistent:** Prevents previously defined two-line measurements for being cleared from the image.
- **Clear:** Clears all measurements from the image.

### Stats to View

- **General:** Allows reporting of general data parameters in the stats log file. See General under Sample Point(s) > Stats to View.
- **DICOM Info:** Allows users to report DICOM tag information. See the DICOM Info under Sample Point(s) > Stats to View.

### Two Lines:

- **Points:** Provides users with the option to report the following point related information and measurements:
  - **Name:** Reports the name entered in the Sample Options area for the two lines measurement.
  - **A:** Reports the X, Y, Z coordinate location for point A of the two line(s) tool.
  - **B:** Reports the X, Y, Z coordinate location for point B of the two line(s) tool.
  - **C:** Reports the X, Y, Z coordinate location for point C of the two line(s) tool.
  - **D:** Reports the X, Y, Z coordinate location for point D of the two line(s) tool.
  - **E:** Reports the X, Y, Z coordinate location for point E of the two line(s) tool.
- **Distances:** Provides users with the option to report the following distance measurements:
  - **AB:** Reports the distance between point A and point B.
  - **BE:** Reports the distance between point B and point E.
  - **CD:** Reports the distance between point C and point D.
  - **CE:** Reports the distance between point C and point E.
  - **AE:** Reports the distance between point A and point E.
  - **DE:** Reports the distance between point D and point E.
- **Angles:** Provides users with the option to report the following angle measurements:
  - **AEC:** Reports the 2D angle measurement for points A-E-C.
  - **BED:** Reports the 2D angle measurement for points B-E-D.
  - **CEB:** Reports the 2D angle measurement for points C-E-B.
  - **DEA:** Reports the 2D angle measurement for points D-E-A.



## Making Measurements using Sample Two Lines

Download the ICH\_CT.avw data set from [analyzedirect.com/data](http://analyzedirect.com/data) to follow along.

- Open Input/Output and load ICH\_CT.avw into Analyze. Select ICH\_CT and open Measure.
- Use the display configuration tools to display the 3 ortho sections making axial view the primary [1].
- Right click on the Max/Min option and select CT > Brain. This will provide a better display of the brain structure in the CT data [2]. Select the 1D [3] Sample Type and choose Sample Two Lines [4].
- To measure the displacement of the septum pellucidum from the midline at the level of the foramen of Monro, find a suitable axial slice to make the measurement on. [5]
- Click on the image to set the first point, A, and drag the end point of the first line, B, to the desired location. This is the midline [6]. Once the midline is set, the next line will automatically appear. To define the second line, move point D perpendicular to the midline of the septum pellucidum. [7] Point C may need adjusting to make the second line perpendicular to the first.
- Check the Points, Distances, and any Angles you want to measure. [8] In this example, the midline shift measurement is between point D and point E. Reviewing angle DEA will confirm whether the second line is perpendicular to the first. The angle should be 90 degrees.
- Measurements will be reported in the Stats review area. [9]

