Line Profile: Intensity-based Line Measurement

The Line Profile module enables calculation of image intensities along straight lines and freehand traces. Coordinate points and angle measurements can also be made. All measurements can be logged and saved to disk.

1. Load the **MRI_3D_Head.avw** data set from the **$:\BIR\images\TutorialData** directory.

2. Open the **Line Profile** module (**Measure > Line Profile**).

3. Use the slice slider to move to slice **97**.

4. To calculate the intensity values along a straight line in this slice, select the **Line** tool in the main Line Profile window (figure 1).

5. Position the cursor on the image and click to begin drawing. The **Sequence** window (**Generate > Sequence**) provides X and Y coordinate slider bars for precise positioning of lines.

6. The **Profile** window (figure 2) will automatically be returned when a line is drawn, displaying the intensity profile of the line. The Profile window allows profiles, statistics, distances, and FWHM (full width half max) measurements to be logged.

   note To log FWHM, open the Profile Options window (Generate > Profile) and set 'Full Width Half Max' to 'On'.

7. Click **Log Profile** in the Profile window. To save the Line Profile Log as a .stats file for use in another application (such as Microsoft Excel), select **Save** in the Log window.

8. Select the **Trace** tool in the main Line Profile window to draw a freehand trace.

9. Select the **Caliper** tool (figure 3), an **Angle Measure** window will automatically be returned. The Caliper tool provides a series of repositionable points and lines, enabling measurement of user-specified angles and distances on a selected slice. The Angle Measure window will automatically update with any repositions.

10. Close the Line Profile module before proceeding to the Additional Task.
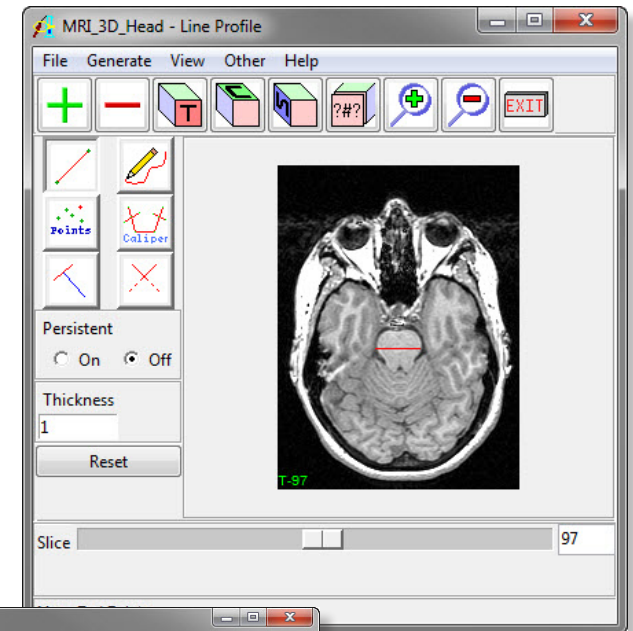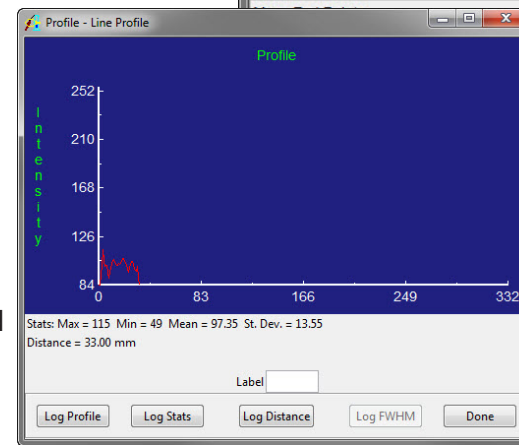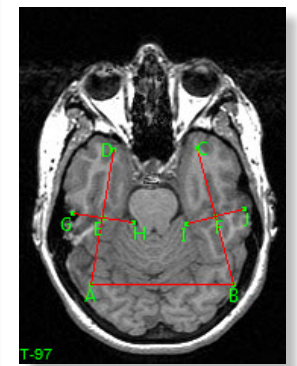

Figure 1

Figure 2

Figure 3

tip If a structure of interest is in another orientation, choose Generate > Orientation to choose between transverse, coronal, and sagittal orientations, or define your own oblique orientation.

Line Profile: *Radial Sequence Tool*

1. The **Radial Sequence** tool in the Line Profile module enables users to sample a radial sequence of profiles.

2. Load the **VH_Abdomen.avw** data set from the **$:\BIR\images\TutorialData** directory.

3. Open the **Line Profile** module (**Measure > Line Profile**).

4. Open the **Profile Options** window (**Generate > Profile)** and set **Full Width Half Max** to **On**.

5. Select the **Line** tool and then draw a line starting in the middle of the right femur, finishing outside (figure 3).

6. Open the **Radial Sequence** tool (**Generate > Radial Sequence**).

7. Set the **Angle Increment** to **10**. When sampling a radial sequence the angle is incremented until a full 360 degrees from the starting position has been sampled.

8. Set **Log Profile**, **Log Stats**, and **Log FWHM** to **On**.

9. Click **Sample Radial Sequence**.

10. When the process has run, a Stats Log, Profile Log, and FWHM Log (figure 5) will be returned. To save any of the log files, right click and select **Save Log**.

11. Close the Line Profile module before proceeding to the next exercise.
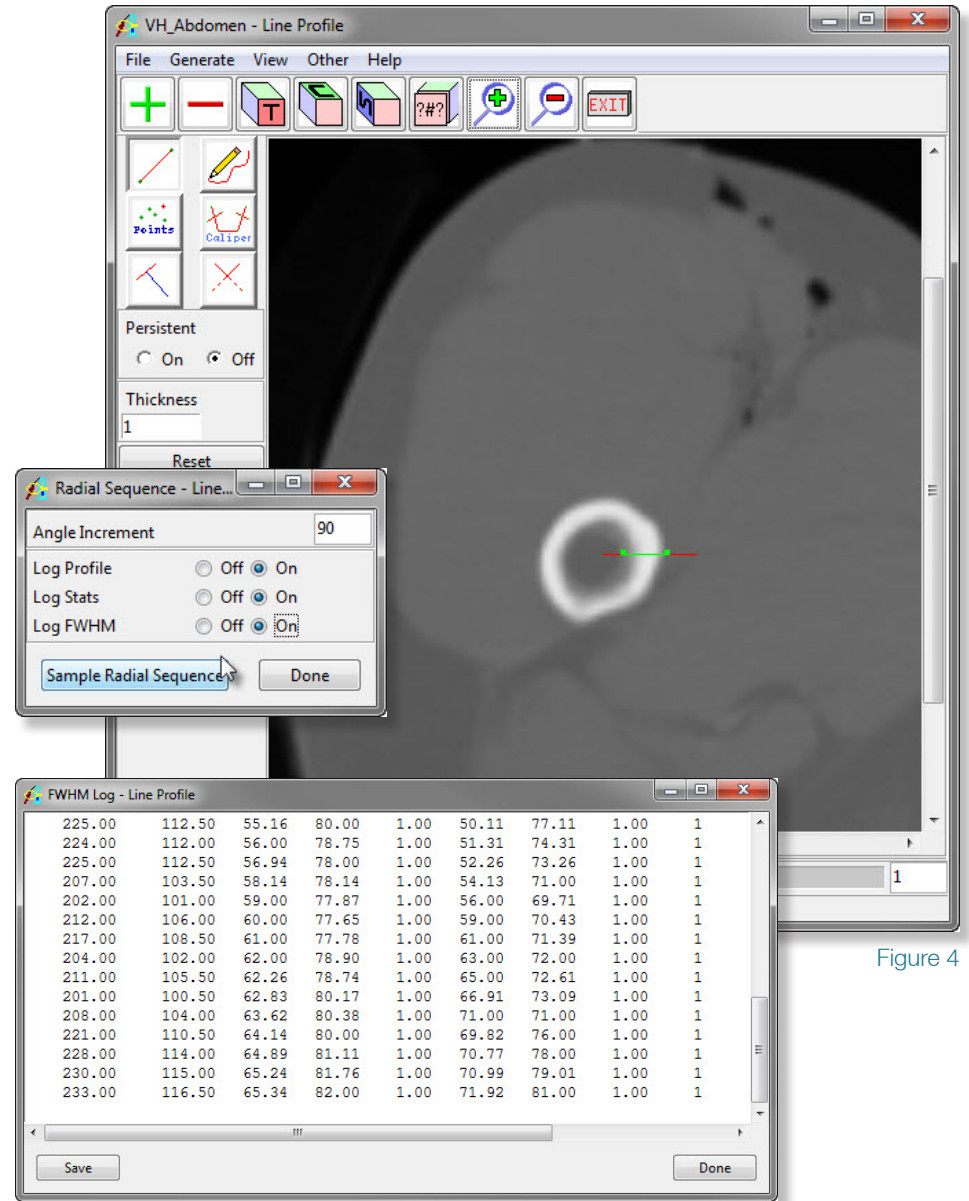

Figure 4

Figure 5

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