3. AC-PC Alignment of Brain Data

 Select the data set to align along the AC-PC axis and open Transform.



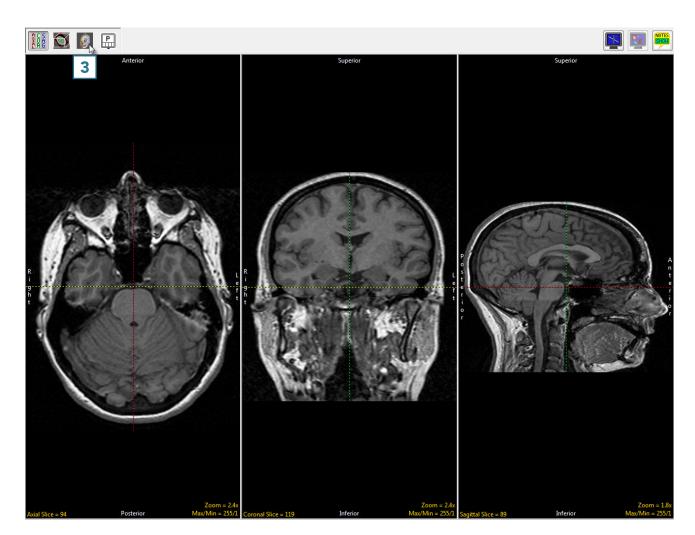
- Navigate to Spatial Transforms. 1
- Select the Apply Matrix tool. 2

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	0.0	1.0	0.0	0.0	
	0.0	0.0	1.0	0.0	
	0.0	0.0	0.0	1.0	
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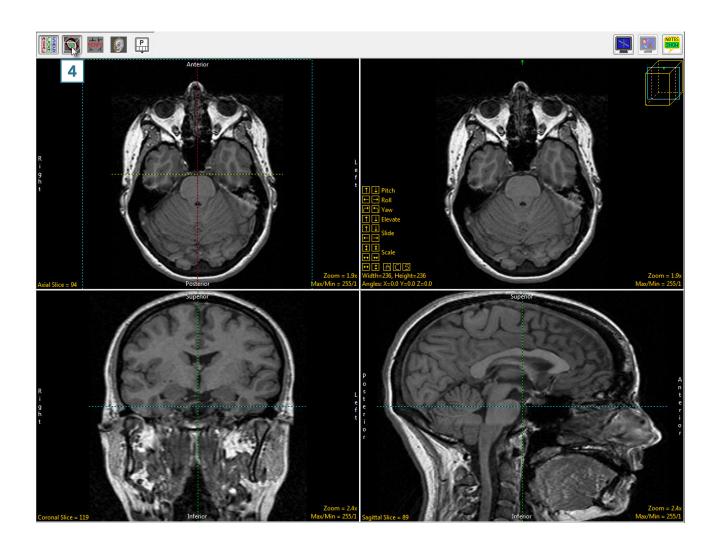
The optimal display settings for AC-PC alignment or any other manipulation of an oblique plane are as follows:

Switch off the rendering 3

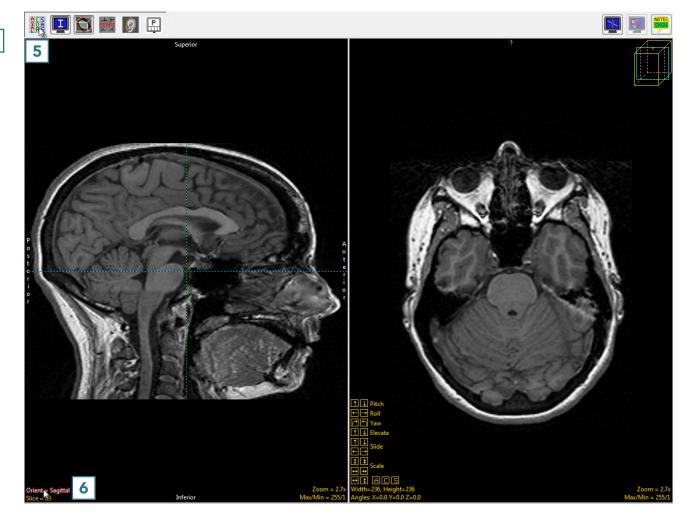
 (unless an object map is loaded, which might help visualize the oblique). Now the three orthogonal views are shown.



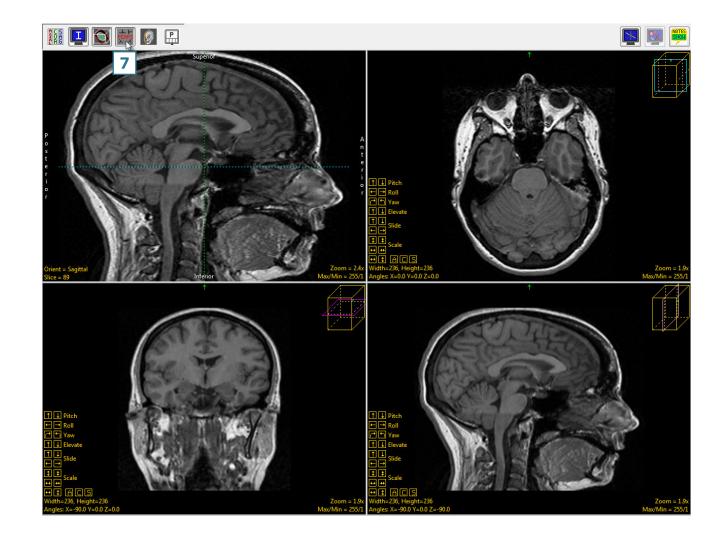
• Switch on the oblique. 4 Now, the oblique and the three orthogonal views are shown.



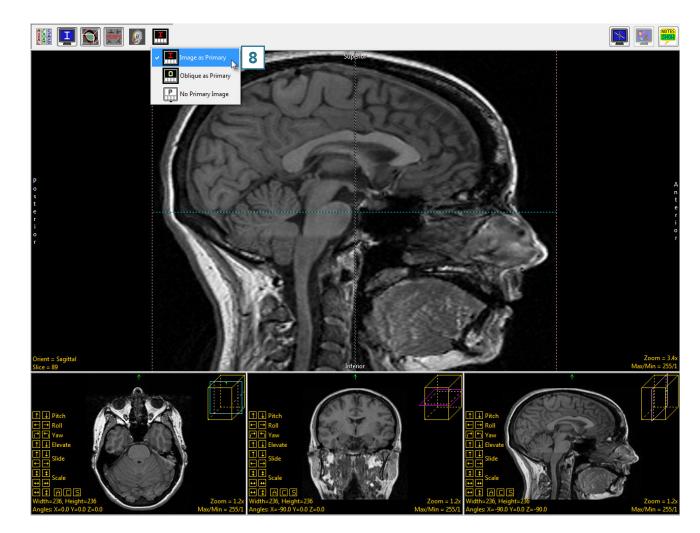
- Toggle the orthogonal orientations to a single image. 5
- Set this image to the sagittal view by clicking twice on the Orient parameter.
- Now the sagittal orientation and the oblique image are shown.



Switch on the perpendicular images.

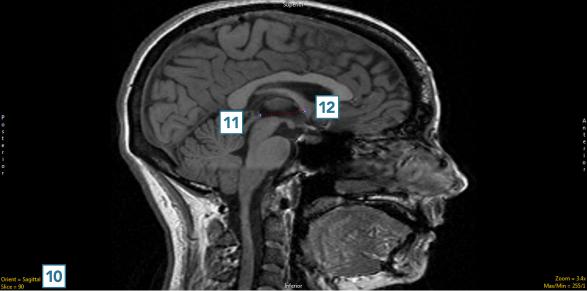


 The AC-PC line will be defined on the sagittal view, so doubleclick the sagittal image or select Image as Primary in the dropdown menu.



- Right-click on the sagittal image and select Perpendicular Axis
 to turn on the perpendicular axis tool.
- Navigate to the mid-sagittal slice, which for this data set is slice 90. **10**
- Drag the left endpoint of the perpendicular axis to the posterior commissure. **11**
- Drag the right endpoint of the perpendicular axis to the anterior commissure. **12**

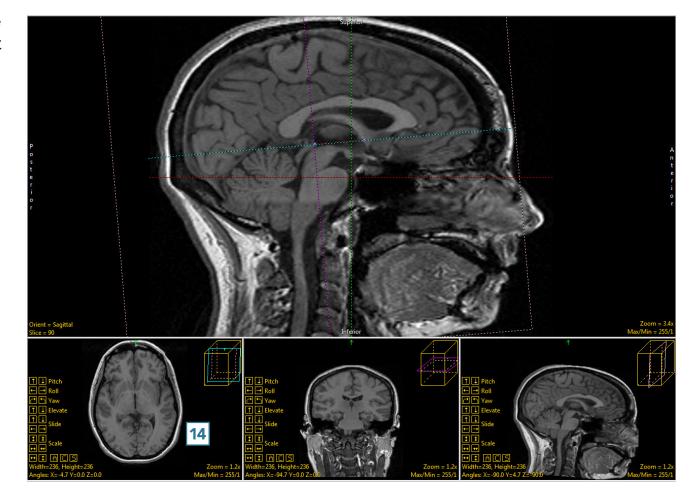




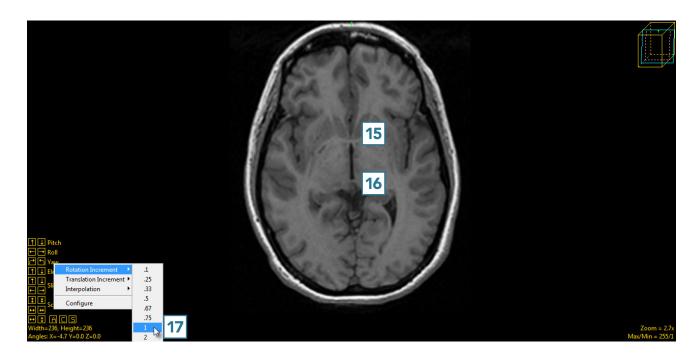
 To set the oblique plane to be parallel, rather than perpendicular, to the AC-PC plane, right-click on one of the perpendicular axis endpoints and set the Matrix to Create to Parallel.



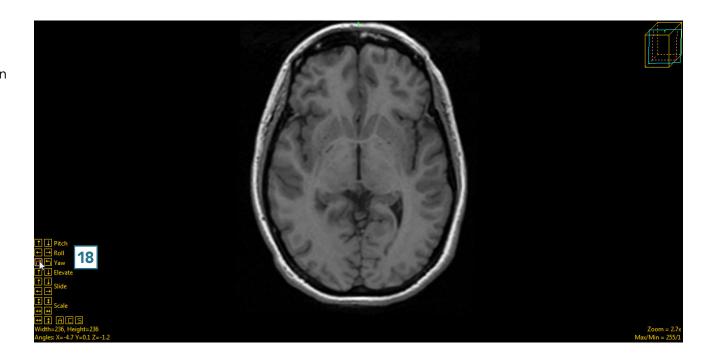
- Now the main oblique image (the leftmost of the three) is an AC-PC aligned axial image. **14**
- Double-click this image to make it the primary image.



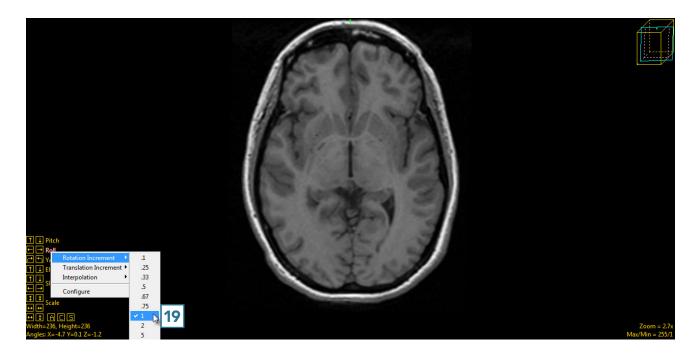
- The AC **15** and PC **16** can both be seen on the same oblique slice, indicating good AC-PC alignment.
- To adjust vertical alignment of the data set, right-click Yaw and set the Rotation Increment to 1. 17



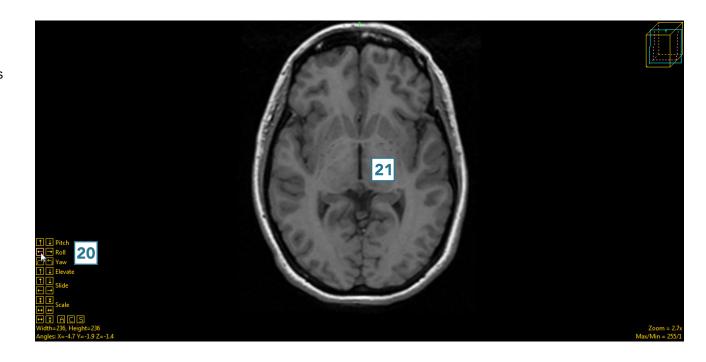
Use the left and right Yaw buttons to align the data set vertically. 18 The increment can be made even smaller to make smaller adjustments as needed.



 The last adjustment to be made to the oblique plane will be done using the Roll function.
 Right-click on Roll and change the Rotation Increment to 1. 19



 Click on the left and right roll buttons 20 to adjust the data set until the anatomical structures appear symmetrical. 21



• Click Apply Matrix **22** to apply the transformation.

Pad	Subregion	Resize	Shift Fl	ip Apply Matrix	Follow Path				
	0.999238	0.020560	-0.03315	0.106856					
	-0.01745	0.995657	0.091437	19.57691					
	0.034894	-0.09078	0.995258	-21.9265					
	0.0	0.0	0.0	1.0					
-				View	Transposed				
Manipulate Matrix Rotate X ✓ degree(s) 0 Apply Reset Matrix Load Matrix Save Matrix Transformed Volume Size: Maintained ● Best Fit									
Interpolation Type: 🔘 Nearest Neighbor 🔘 Linear									
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			linimim (1) pecified	1					
		Apply	Matrix 22	2					

• Click Save Volume **23** to save the transformed data set.



- In the Save Transformed window, choose to create a new workspace volume.
- Rename 25 and click Save Volume. 26
- Close Transform.

ave Transformed - Transform					
Replace	contents of 'MRI_3D_Head'.				
Oreate a	new workspace volume. 24				
Workspace					
File		2			
	Save Volume 26				