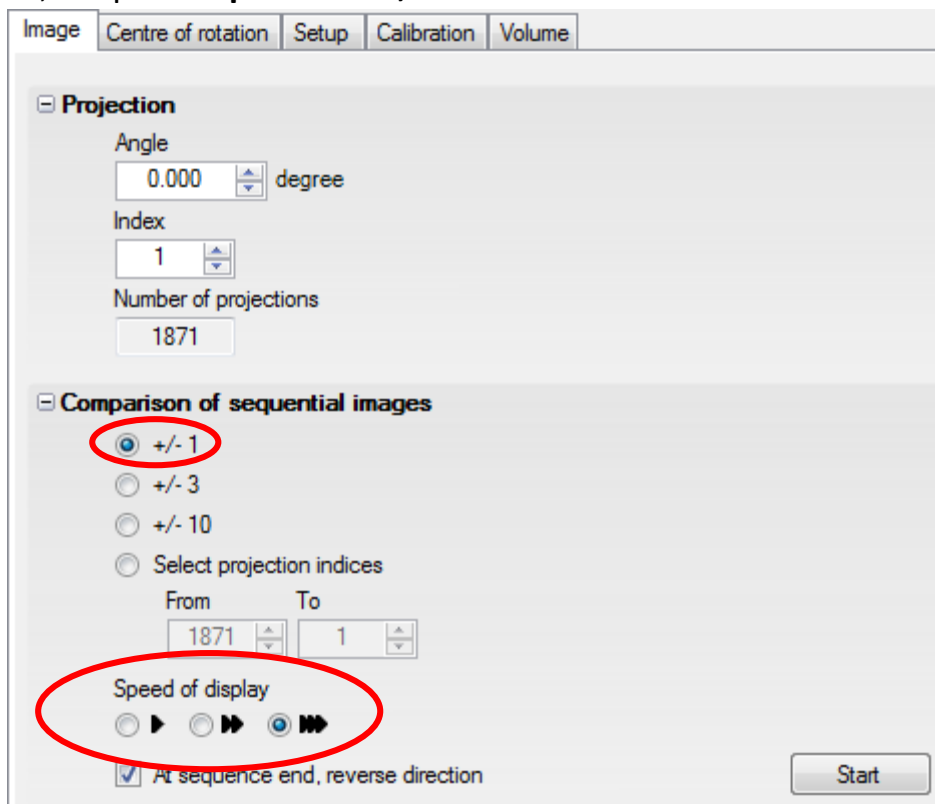


Operating Procedures for RECO1 & RECO2

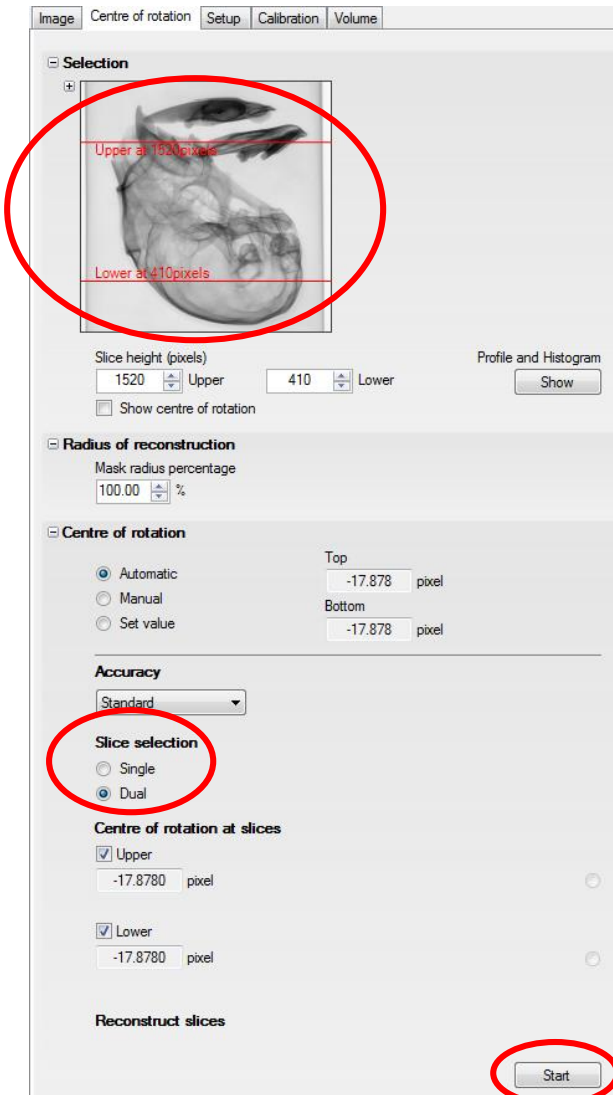
Reconstruction of Data



- 1) Open **CT Pro 3D**
 - a. Remember, when the computer you are working on is receiving files from the scanner, it cannot reconstruct data
 - b. You will need to use the other RECO computer to reconstruct during scans
- 2) **File** -> **Open** -> navigate to your scan's .xtekct file (usually on D drive or possibly on the Teilhard server)
- 3) **Image Tab** -> **Comparison of sequential images** -> check **+/-1**, set speed to fastest, keep **At sequence end, reverse direction** checked and click **Start**

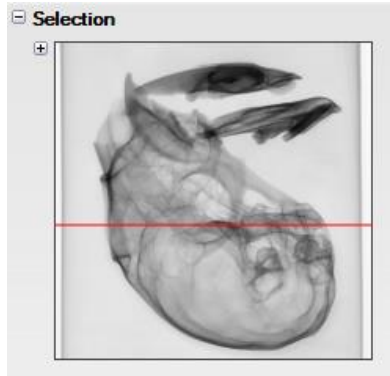


- 4) Watch image on right, if sample changes place significantly it may need to be rescanned or be the cause of artifacts discovered later on in procedure. Take note, but proceed either way.
- 5) **Centre of rotation Tab -> Centre of Rotation -> Slice selection -> select Dual**

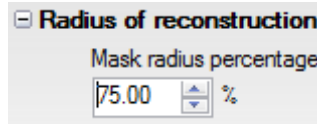


- 6) Move red lines in top left image to intersect sample at two different, semi-distant points
 - a. Make sure these cross sections contain a decent amount of contrast in the image otherwise the center of rotation calculation may fail.
- 7) Click **Start**
- 8) Within 1-2 minutes **Found** should appear next to **Upper** and **Lower**

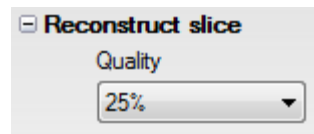
- 9) Check Image at right, if it's in focus proceed onto next step, if it's out of focus consult a SMIF staff member for using the **Manual** option under **Center of rotation**
- 10) **Setup Tab** and position red line to create a cross section of your sample



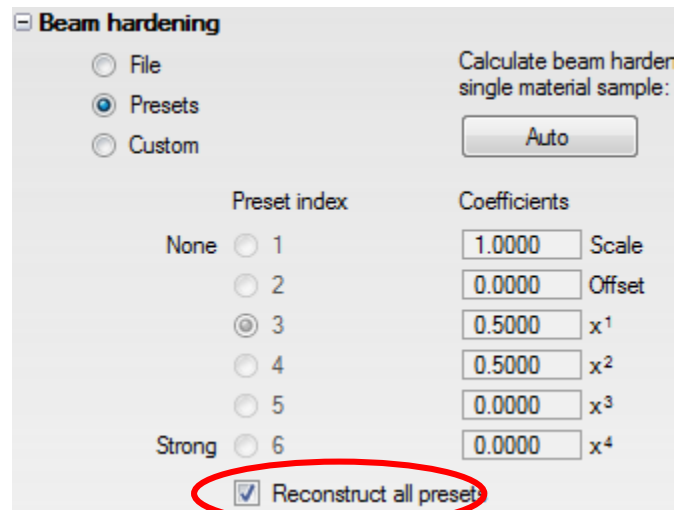
- 11) Under **Radius of reconstruction**, change **mask radius percentage** to **75%**



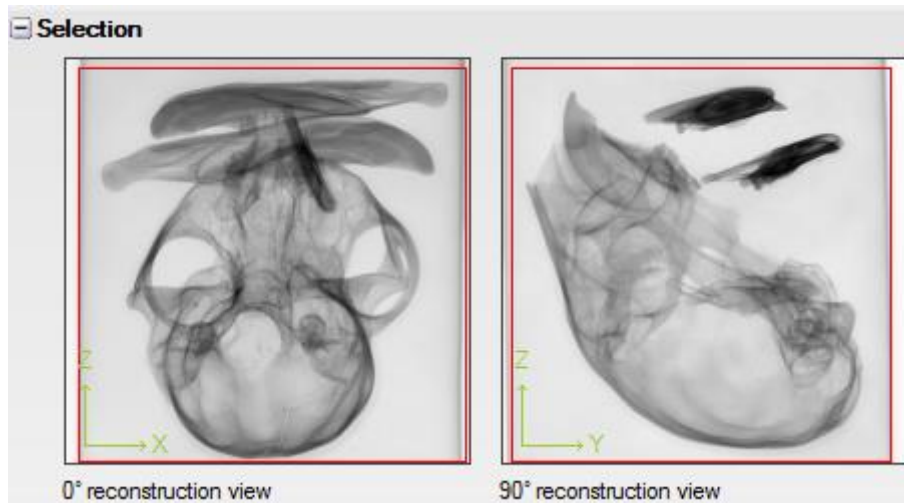
- 12) Under **Reconstruct slice** at bottom of panel, change **Quality** to **25%**



- 13) Under **Beam hardening** menu check **Reconstruct all presets** and click **Start** at bottom of left panel

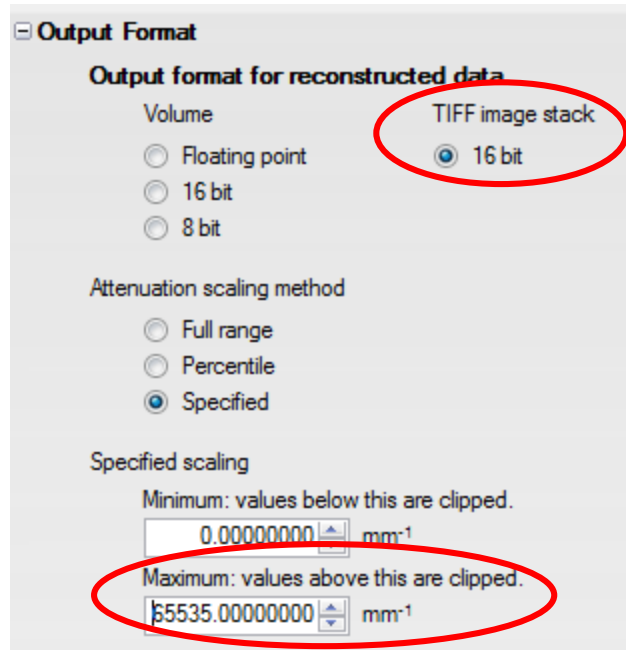


- 14) Cycle through the presets leaving selected the one that results in the best quality image on the right
- 15) Under **Noise reduction** menu check **Reconstruct all presets** and click **Start** at bottom of screen (same process as steps 13 and 14)
- 16) Cycle through the presets leaving selected the one that results in the best quality image on the right
- 17) When satisfied with reconstruction image quality at right, change **Mask radius percentage** back to **100%** and **Quality back to 25%**
- 18) Go to **Volume Tab**
- 19) Crop image on right in both views by selecting the appropriate view from the top left of the screen by dragging the sides of the red box
 - a. Make sure that you leave a good amount of space on either edge as you could be cropping your sample on other not currently viewable angles

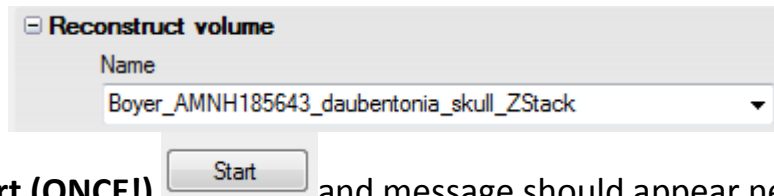


- 20) Double check to make sure box does not clip out any part of your region of interest


21) Under **Output Format** select **16bit** under **TIFF image stack** and change **Maximum: values above this are clipped** to **65535** under **Specified scaling**

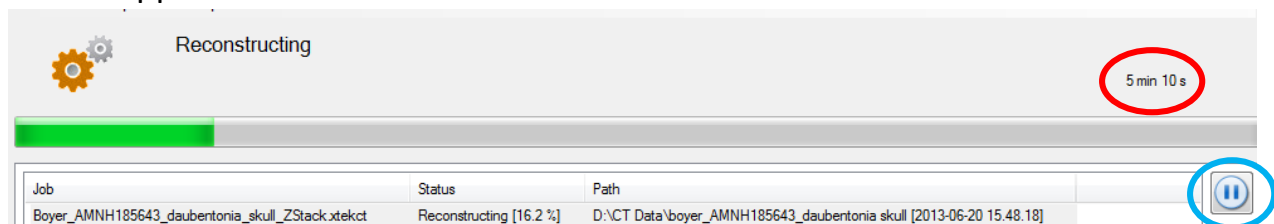


22) **Reconstruct volume** -> Name should be in form to that in below image



23) Click **Start (ONCE!)** and message should appear next to button stating "CT agent accepted file (YourFileName.xtekct)"

24) **Right-Click**  , select **Restore** and **CT Agent** window should appear to indicate reconstruction time



25) Note time and status of CT Agent before trying to reconstruct additional scans on computer or loading current scan into Volume Graphics

- Multiple reconstructions can be set up to run one after the other by repeating this procedure and selecting the **Pause** button in CT Agent
- When ready, the press the **Play** button and the reconstructions will be completed in the order they are in on the CT Agent Queue

26) When CT Agent says “**Idle**” your scan has been reconstructed and saved

