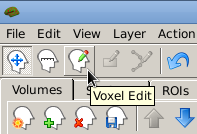
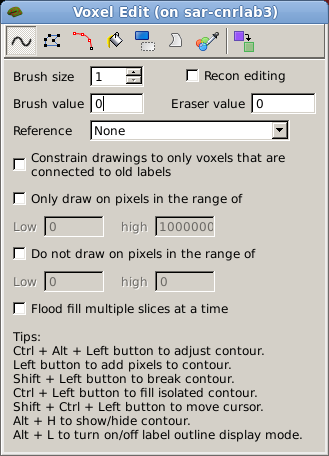
Based off - <https://sites.bu.edu/cnrlab/lab-resources/freesurfer-quality-control-guide/freesurfer-quality-control-step-3-fix-the-white-matter-surface/>

Freeview tips and tricks - <https://surfer.nmr.mgh.harvard.edu/fswiki/FsTutorial/OutputData_freeview>

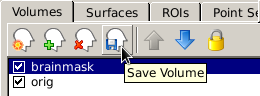
1. sshfs tinney.e@xfer.discovery.neu.edu:/work/cnelab/ADNIDOD/mri/ADNIDOD/freesurfer/ /Users/emmatinney/Downloads/log\_fc/
2. Log into ood.discovery.neu.edu
3. Open an XFCE terminal
   1. Interactive apps, XFCE terminal (alpha)
   2. Partition- short
   3. Time - however long you have to work currently
   4. No GPU
   5. CPU-2
   6. Memory - 2
4. Once terminal is open:
   1. Type- “module load freesurfer”
   2. Type - “export SUBJECTS\_DIR=/work/cnelab/TECHS/MRI/BID/sub-Pilot\_1/anat/”
   3. Type - “export SUBJ=**subject name**”
   4. freeview -v /work/cnelab/TECHS/MRI/BID/sub-Pilot\_1/anat/Pilot\_1/mri/orig.mgz -v /work/cnelab/TECHS/MRI/BID/sub-Pilot\_1/anat/Pilot\_1/mri/brainmask.mgz:colormap=jet:colorscale=0,1:opacity=0.3 -f /work/cnelab/TECHS/MRI/BID/sub-Pilot\_1/anat/Pilot\_1/surf/lh.pial:edgecolor='255,0,0' -f /work/cnelab/TECHS/MRI/BID/sub-Pilot\_1/anat/Pilot\_1/surf/rh.pial:edgecolor='255,0,0'
   5. Type - “export SUBJECTS\_DIR=/work/cnelab/TECHS/MRI/preprocessed\_data/anat/sub-01”
   6. Type - “export SUBJ=**sub-01**”
   7. freeview -v /work/cnelab/TECHS/MRI/preprocessed\_data/anat/sub-01/mri/orig.mgz -v /work/cnelab/TECHS/MRI/preprocessed\_data/anat/sub-01/mri/brainmask.mgz:colormap=jet:colorscale=0,1:opacity=0.3 -f /work/cnelab/TECHS/MRI/preprocessed\_data/anat/sub-01/surf/lh.pial:edgecolor='255,0,0' -f /work/cnelab/TECHS/MRI/preprocessed\_data/anat/sub-01/surf/rh.pial:edgecolor='255,0,0'
5. Now we load a subject to check
   1. Type “ freeview -v $SUBJECTS\_DIR/$SUBJ/mri/orig.mgz -v $SUBJECTS\_DIR/$SUBJ/mri/brainmask.mgz:colormap=jet:colorscale=0,1:opacity=0.3 -f $SUBJECTS\_DIR/$SUBJ/surf/lh.pial:edgecolor='255,0,0' -f $SUBJECTS\_DIR/$SUBJ/surf/rh.pial:edgecolor='255,0,0' ”
   2. freeview -v $SUBJECT\_DIR/$SUBJ/mri/T1.mgz -v $SUBJECT\_DIR/$SUBJ/mri/wm.mgz -v $SUBJECT\_DIR/$SUBJ/mri/brainmask.mgz -v $SUBJECT\_DIR/$SUBJ/mri/aseg.mgz:colormap=lut:opacity=0.2 -f $SUBJECT\_DIR/$SUBJ/surf/lh.white:edgecolor=blue $SUBJECT\_DIR/$SUBJ/surf/lh.pial:edgecolor=red $SUBJECT\_DIR/$SUBJ/surf/rh.white:edgecolor=blue $SUBJECT\_DIR/$SUBJ/surf/rh.pial:edgecolor=red
   3. Note that you should change subjectID to the actual subject you are working with
   4. After hitting enter, a Freeview window should open showing you the outputs you specified:
   5. Use the  to change which orthogonal view appears in the main viewing window. You can use  to change the organization of the viewing windows. To change which brain slice you are viewing, use the 'Page Up' or 'Page Down' keys on your keyboard or the up and down arrows. (Mac users: press the fn key while using the up and down arrows.)
6. Now we check the surfaces- locate non brain tissue inside the pial surfaces
   1. When you are looking for non-brain tissue in the pial surface, the best view to use is often the coronal view. Additionally, it is helpful to turn the various layers (pial surfaces and brainmask volume) on and off, so you can compare them against the anatomy in orig.mgz when deciding whether the boundaries are correct or need editing.
   2. Make sure the brain mask is covering the entire pial surface
7. To edit-
   1. Select voxel edit



* 1. Set brush value to 0 and eraser value to 1 to erase. Set brush to 1 and eraser to 0 to add. Adjust brush size as needed



* 1. Paint the areas of brainmask.mgz that are incorrectly included within the pial surface. Be careful to make sure “brainmask.mgz” is selected (highlighted) in your list of volumes!
  2. When you have corrected the defects, save the brainmask.mgz volume



1. Record what subject it is and screenshot errors and what you did to fix.
2. Now let's check the white matter
   1. freeview -v $SUBJECTS\_DIR/$SUBJ/mri/orig.mgz -v $SUBJECTS\_DIR/$SUBJ/mri/wm.mgz:colormap=heat:opacity=0.1 -f $SUBJECTS\_DIR/$SUBJ/surf/lh.white:edgecolor='0,0,0':edgethickness=1 -f $SUBJECTS\_DIR/$SUBJ/surf/rh.white:edgecolor='0,0,0':edgethickness=1
   2. Follow same steps for checking and editing as above
   3. Record and screenshot errors and what you did to fix.

export SUBJ=0267646

freeview -v $SUBJECT\_DIR/$SUBJ/mri/T1.mgz -v $SUBJECT\_DIR/$SUBJ/mri/wm.mgz -v $SUBJECT\_DIR/$SUBJ/mri/brainmask.mgz -v $SUBJECT\_DIR/$SUBJ/mri/aseg.mgz:colormap=lut:opacity=0.2 -f $SUBJECT\_DIR/$SUBJ/surf/lh.white:edgecolor=blue $SUBJECT\_DIR/$SUBJ/surf/lh.pial:edgecolor=red $SUBJECT\_DIR/$SUBJ/surf/rh.white:edgecolor=blue $SUBJECT\_DIR/$SUBJ/surf/rh.pial:edgecolor=red

export FREESURFER\_HOME=$HOME/freesurfer #this is the path for your installed freesurfer folder

source $FREESURFER\_HOME/SetUpFreeSurfer.sh

recon-all -autorecon-all -sd `pwd` -subjid 0011813 -i ADNIDOD\_0011813\_MR\_MT1\_\_GradWarp\_\_N3m\_Br\_20190815130636172\_S680217\_I1209608.nii -qcache

export FREESURFER\_HOME=$HOME/freesurfer #this is the path for your installed freesurfer folder

source $FREESURFER\_HOME/SetUpFreeSurfer.sh

module load freesurfer

recon-all -sd `pwd` -subjid 0306731 -autorecon-pial