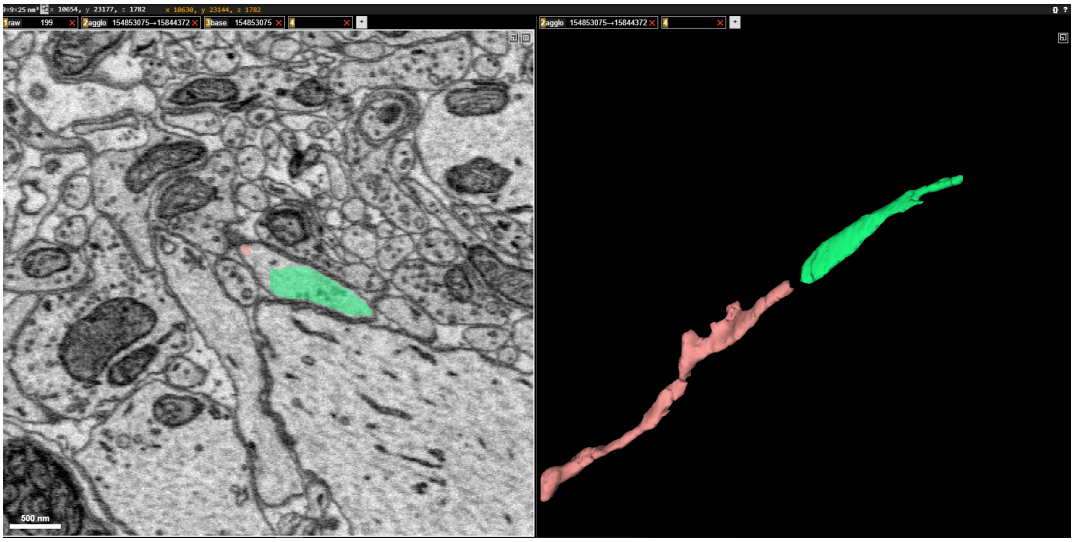
Instructions For US Keyboard

The goal is to reconstruct whole cells in a segmentation by correcting mistakes of the agglomeration. Agglomeration mistakes are either false segment splits or false mergers. False segmentation mergers cannot be fixed with this tool, their location should be stored to correct otherwise. Reconstruction starts with one segment, usually containing the soma. From there follow along one neurite and add falsely split segments and remove falsely merged segments.

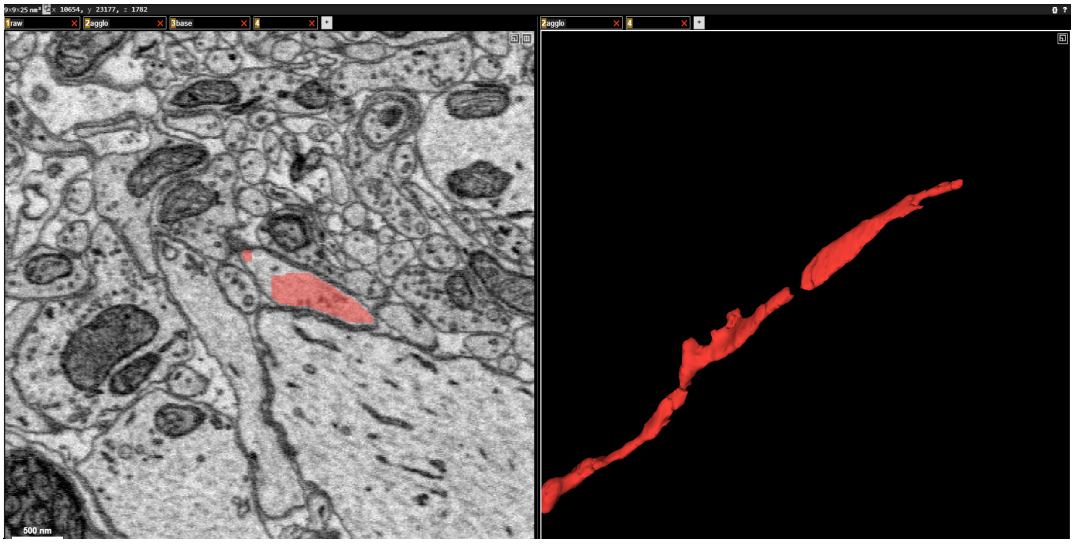
1. Merging False Splits

Example:



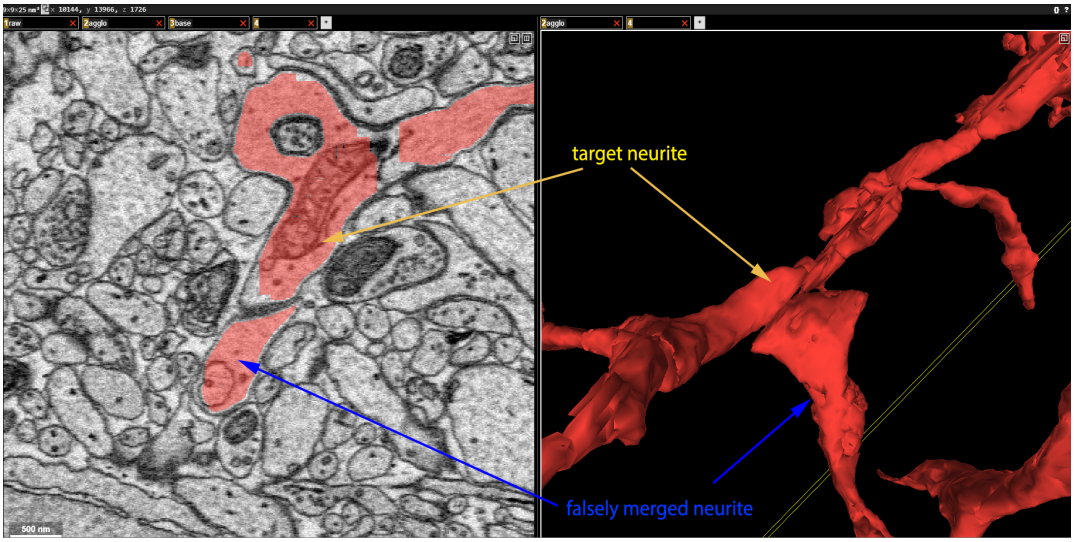
1. Move the cursor above the falsely split segment and press 'q', try to target a location close to the target branch!

2. Move the cursor above the target branch close to the falsely split segment and press 'd'

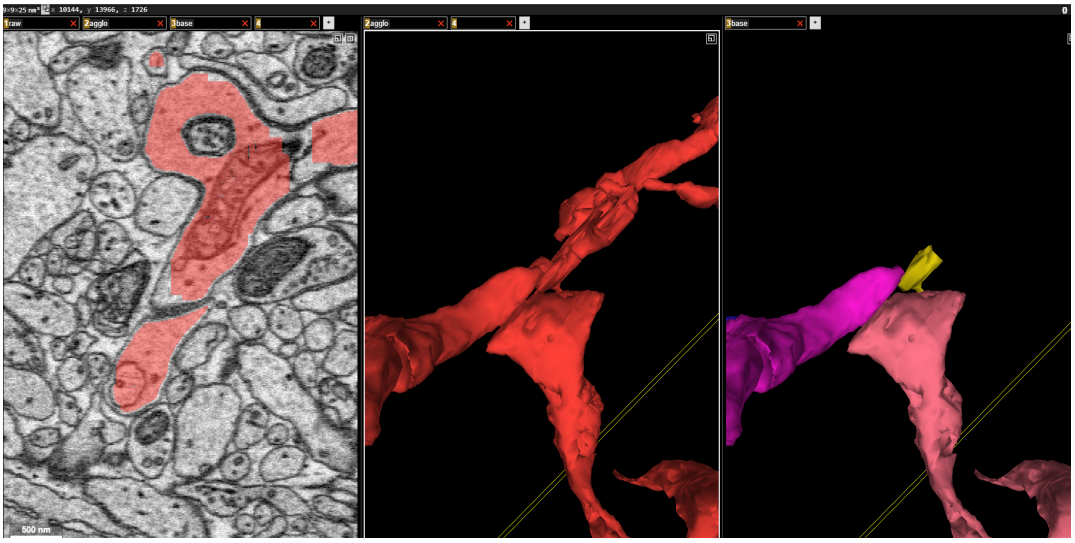


2. Splitting False Agglomeration Mergers

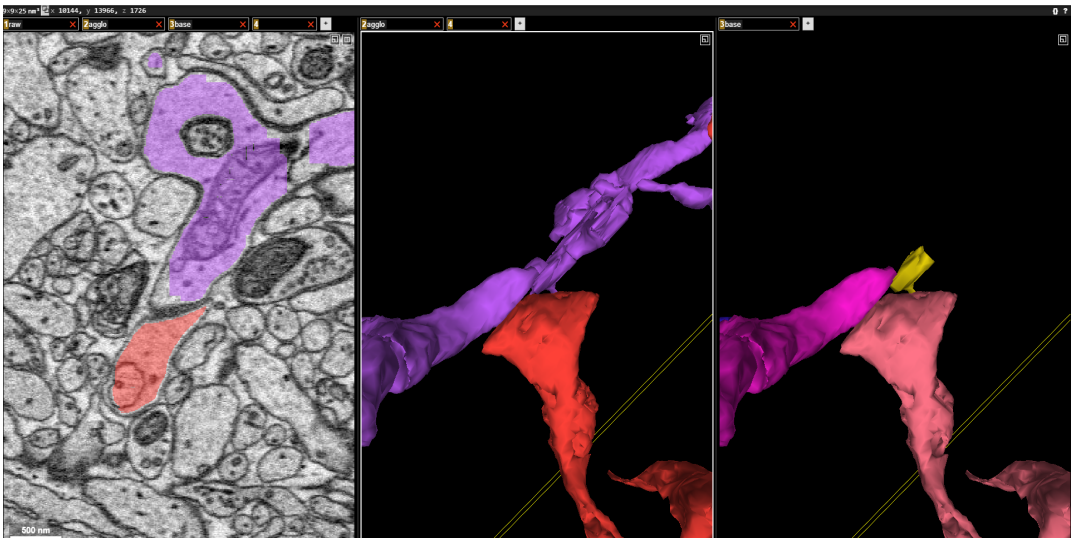
Example:



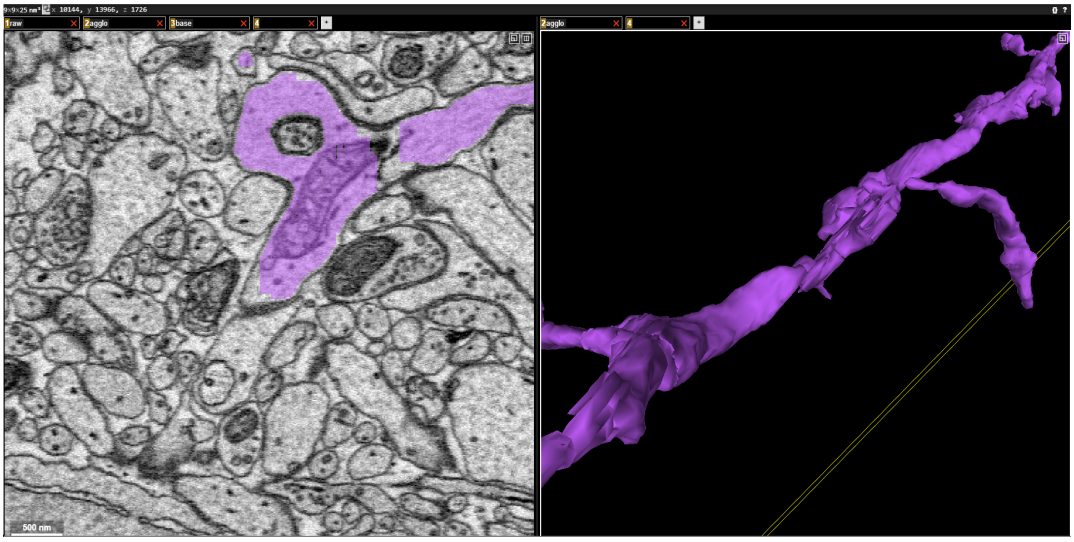
1. Move the cursor to one of the segments that is likely to be involved in the false merger and press 'c'. All segments connected to this segment are displayed. Playing with the opacity of the agglomeration layer 2 and the base volume layer 3 can help to determine the falsely merged segments



2. Find the wrongly merged pair:
   - If the segment is not merged to one in the wrong branch, hover over the next segment in the base volume and press 'c' again.
   - If a merged segment is found, move the cursor to this segment and split edges by pressing 'control+x'. The viewer will refresh.

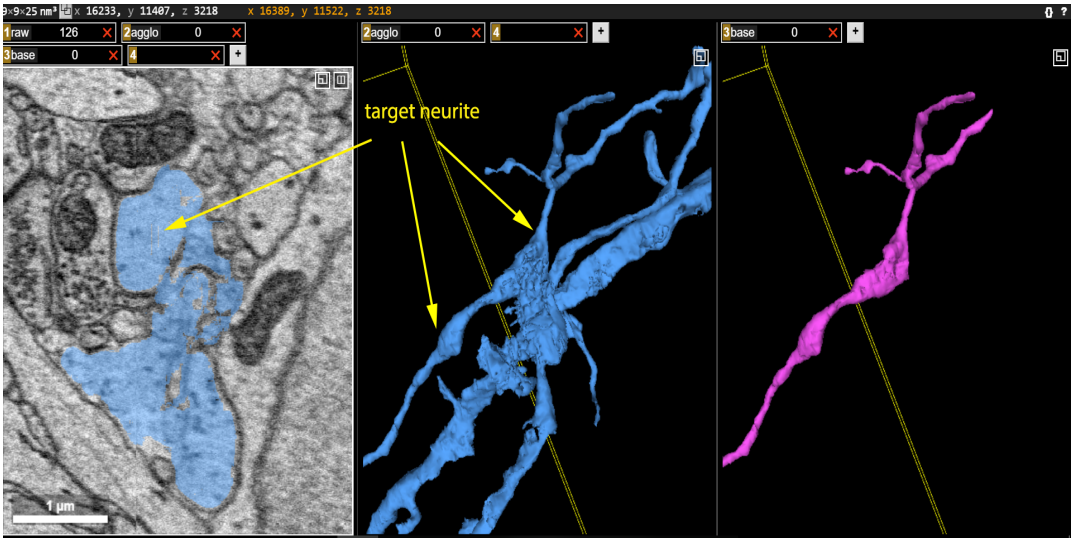


3. If the merged branches were split successfully, hover over the segment or branch that does not belong to the target neuron and confirm the merge split by pressing 'k'.



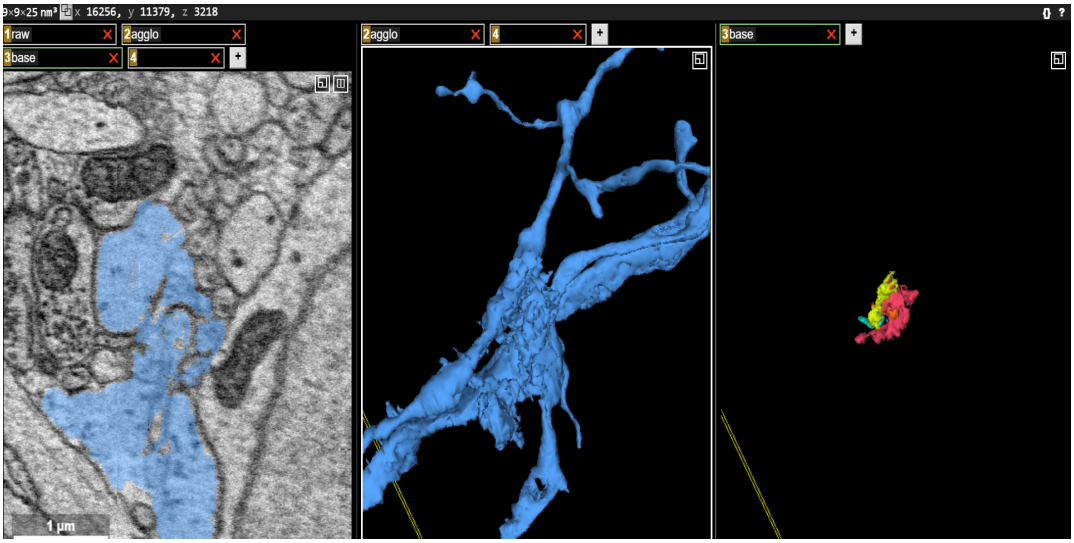
3. Removing Groups of Falsely Merged Segments

Example:

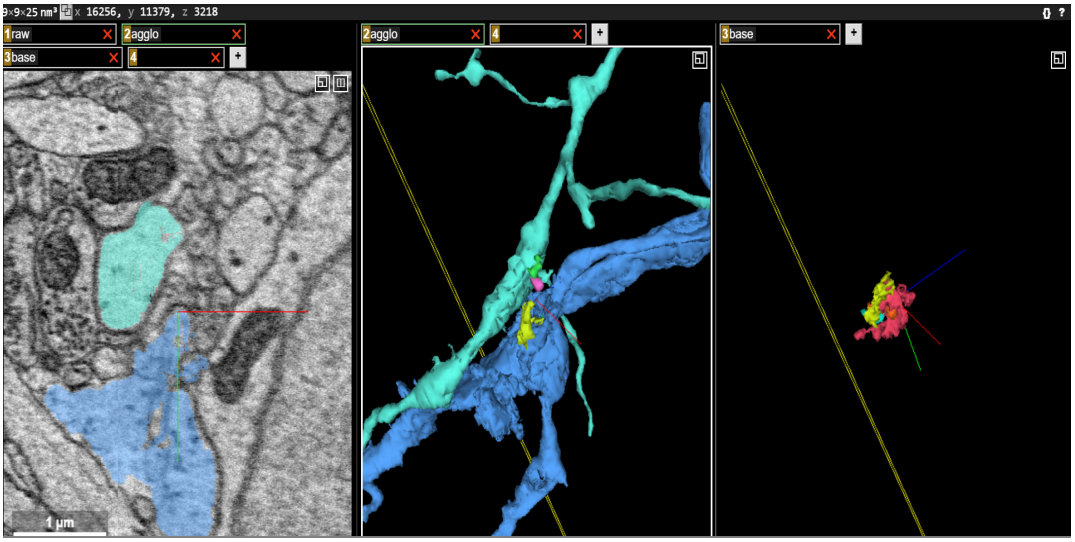


This serves to remove larger groups of segments that should be split from the target branch. It does not preserve the connections of the segments to any other branch! This can be helpful to remove larger groups of segments covering membranes or extracellular space that are merged to the target neuron.
IMPORTANT: before using this, first make sure to empty the base volume viewport (press 'g')

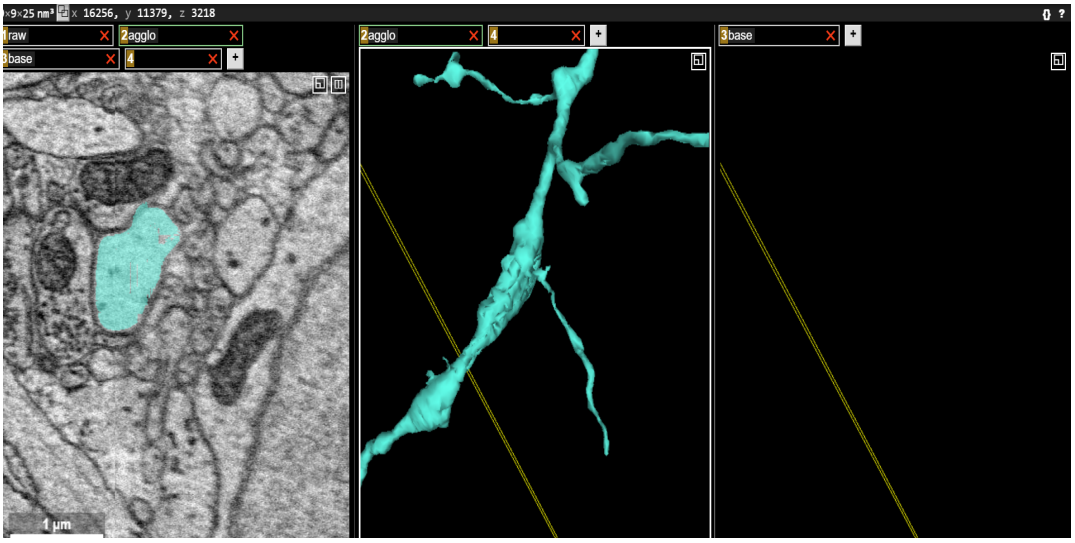
1. Select any segment in the base volume that should be removed by hovering across the target segment and pressing t.



2. Press 'control+]' to split off the merged segments. The viewer updates and shows the segments in the neuron graph.



3. Segments that do not belong to the neuron that is reconstructed can be removed by moving the cursor to the segment and pressing 'shift+f'.



4. Branch Points

- Set a branch point by moving the viewport location to the merge site (e.g. right click) and press 'y'
- Jump to the last unfinished branch location by pressing '7'
- Tag a branch point as visited by pressing 'control+r'. It will be annotated with an ellipsoid and the branch point will not be revisited when pressing '7'.
- Remove a branch point annotation by hovering the cursor over the ellipsoid and press '0'

5. Tagging segmentation merger locations

Move the viewport center to the merge site (e.g. right click) and press 'm'