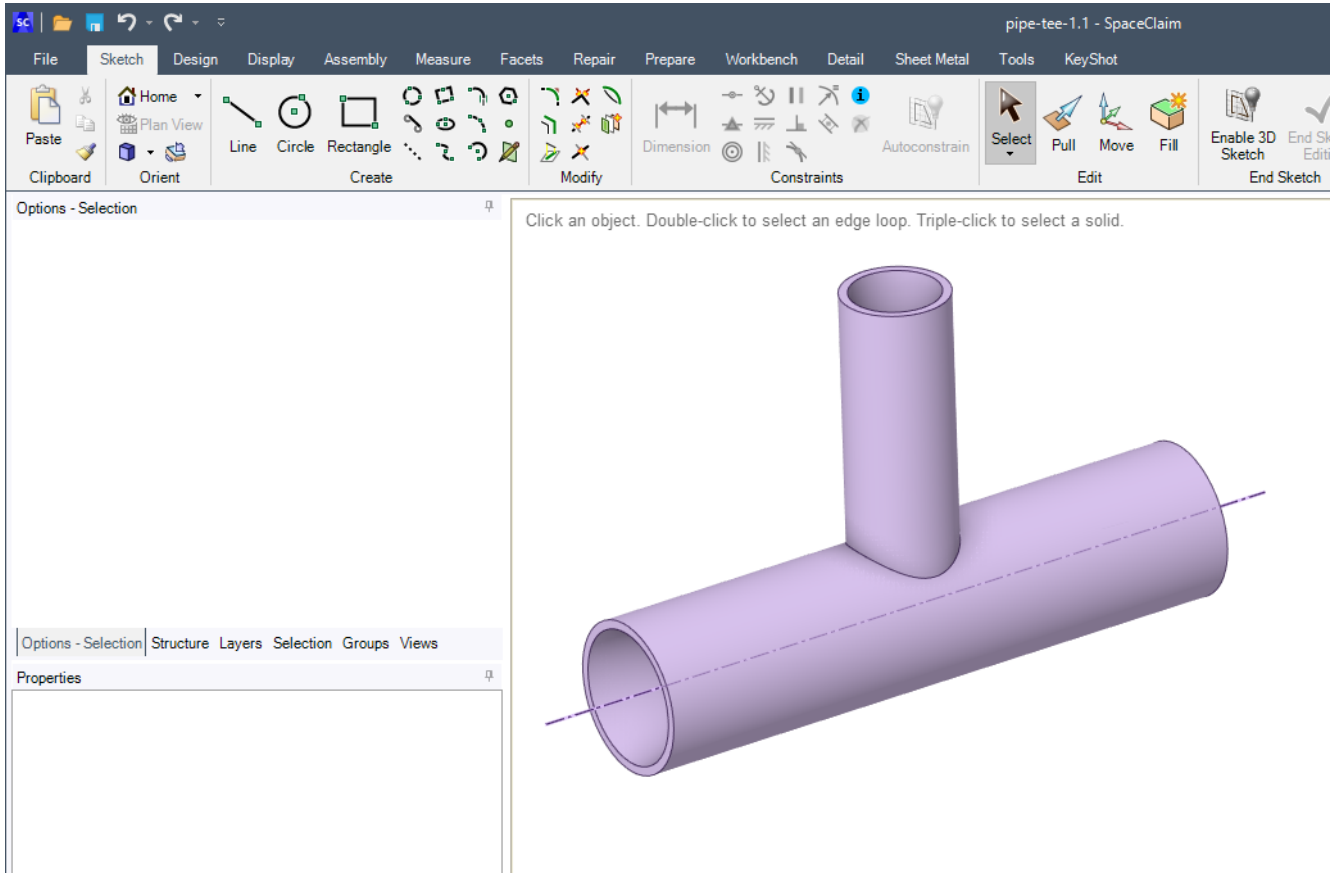
Ansys Fluent Getting Started
(New Fluent Experience)

Workshop: Extracting a Fluid Volume in SpaceClaim

Release 2021 R1

Launch SpaceClaim and Import File

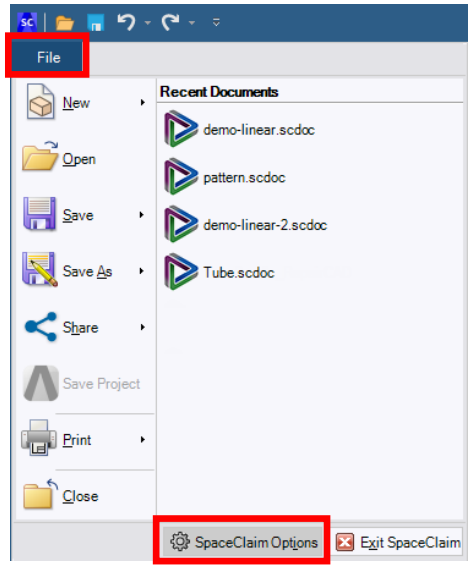
- Start SpaceClaim, go to File > Open and select "pipe-tee-1.1.scdoc"

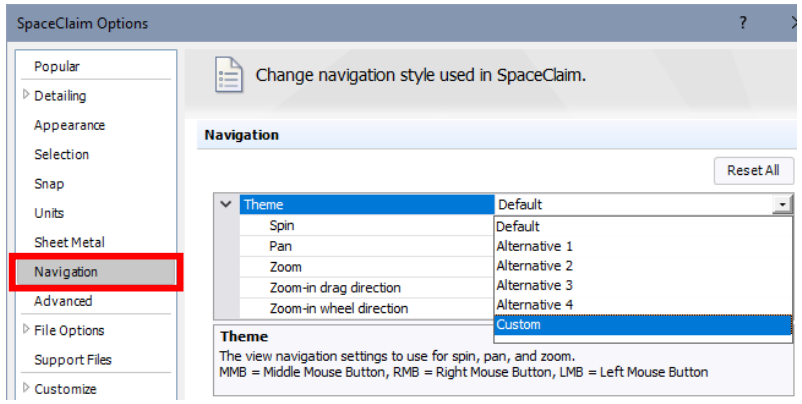


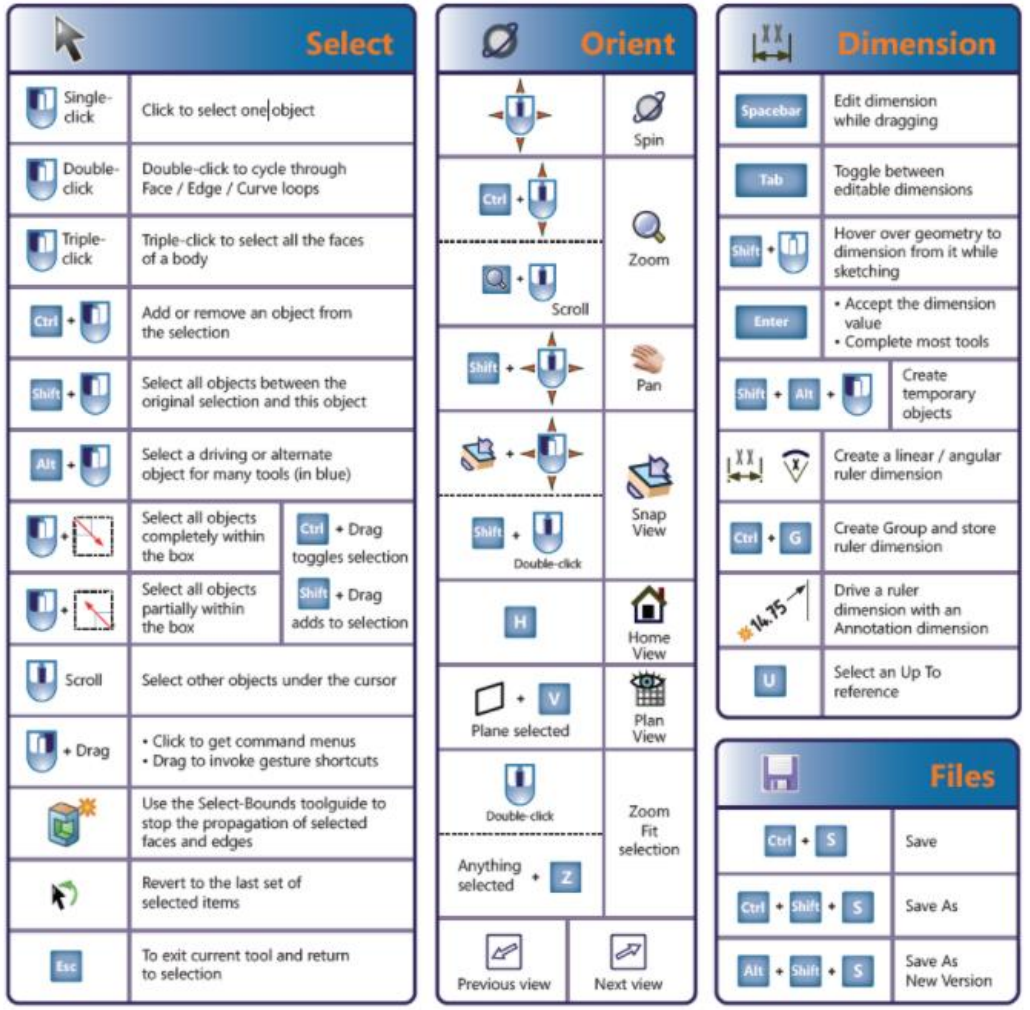
Alternatively, after starting SpaceClaim, you can drag and drop the CAD file into the SpaceClaim window

Graphics Manipulation

- By default, the middle mouse button (MMB) is used to spin the model, Shift+MMB is used to pan the model and Ctrl+MMB is used to zoom
  - Often more convenient just to use the scroll wheel to zoom in and out
- Mouse Functionality can be customized in SpaceClaim Options



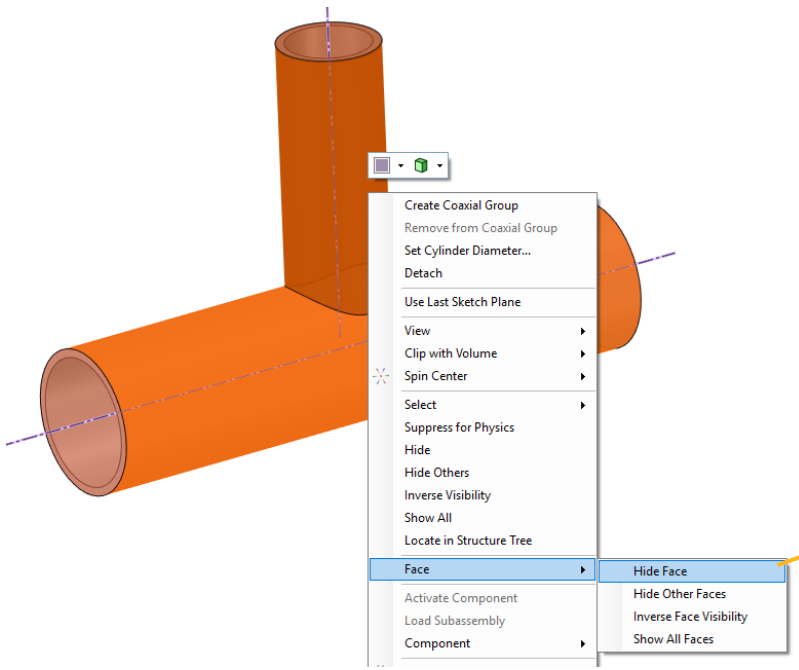


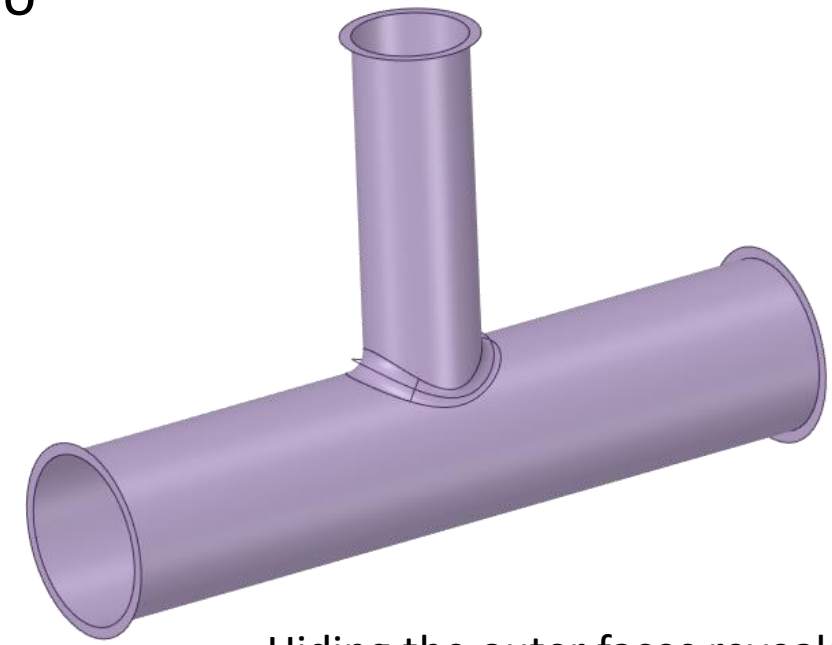


Default Select and Orient guide from ANSYS SpaceClaim Documentation

Hide Face

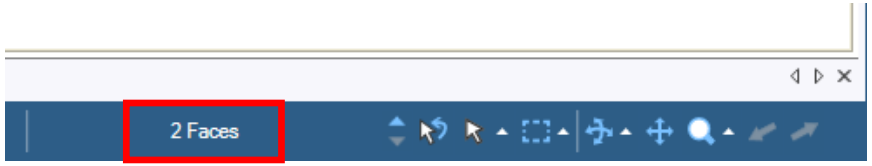
- Use the left mouse button and Ctrl key to select the two large outer faces of the model, then right click and choose Face > Hide Faces from the context menu





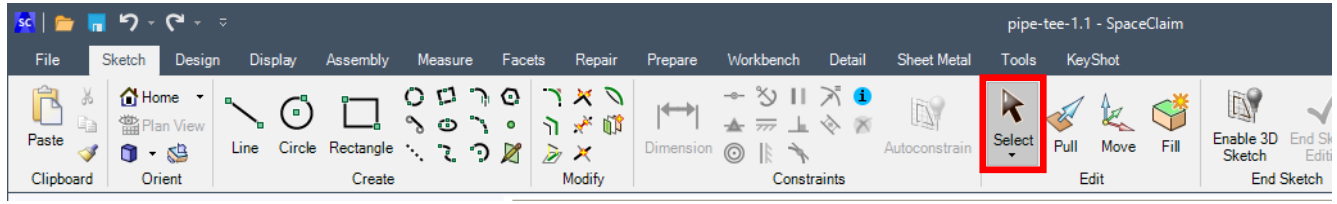
Hiding the outer faces reveals the presence of a round at the intersection of the pipes.

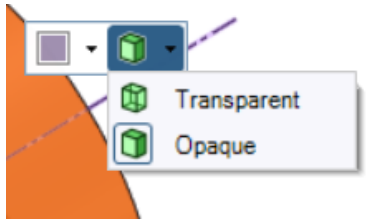
Current selection set is reported in the lower right corner of the SpaceClaim window

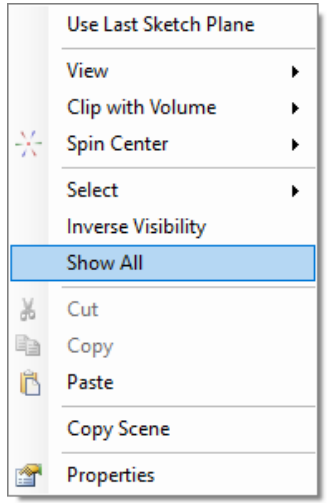


Transparency and Color Settings

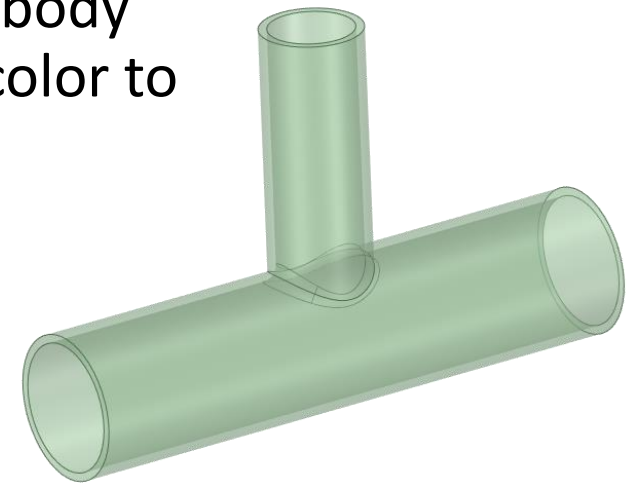
- Ensure SpaceClaim is in Select mode
- Right click anywhere in the window and select Show All
- Left click anywhere on the body and note the Style Override menus





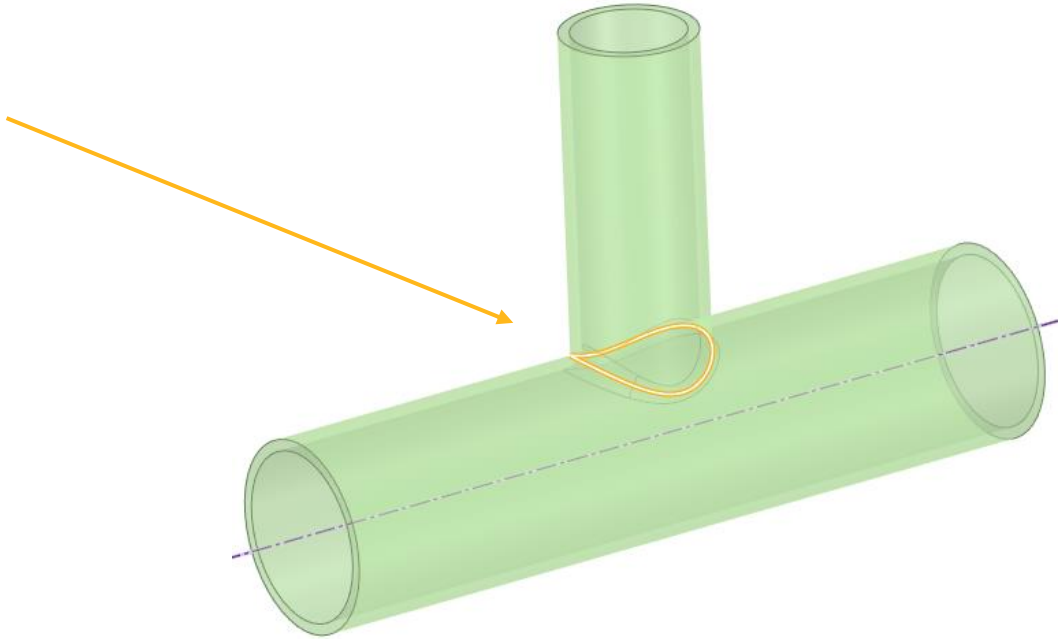


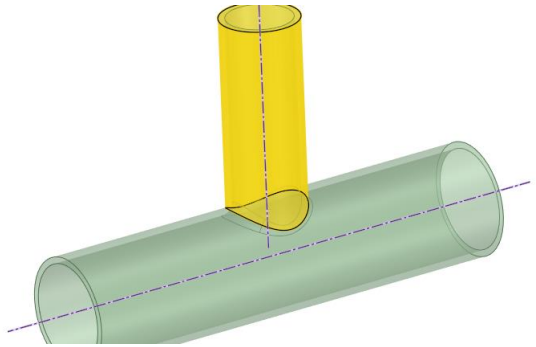
- Use the menus to make the body transparent and change its color to green

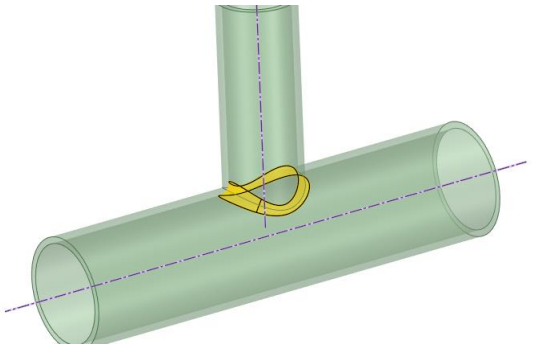


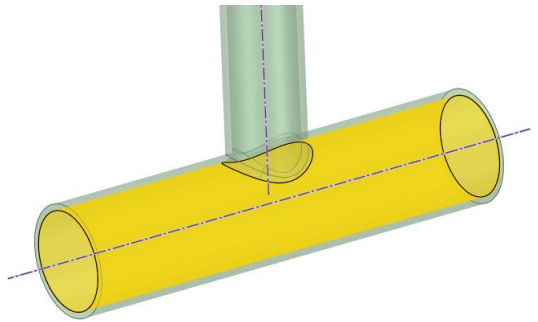
Selection

- Place the mouse pointer near the location shown below, but do not click anything
- Hold down the Ctrl key and move the scroll wheel
  - Note how nearby objects are cycled
  - Left clicking will select the currently highlighted object
  - This can be a convenient way to select faces and edges that are not on the outermost surface



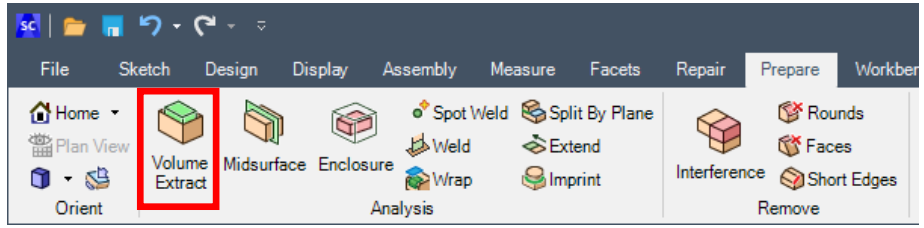


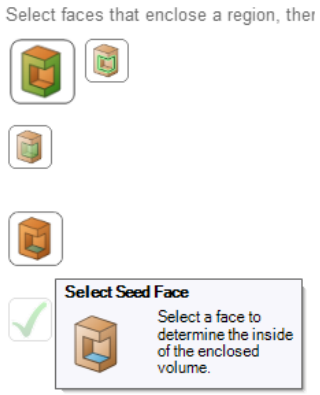


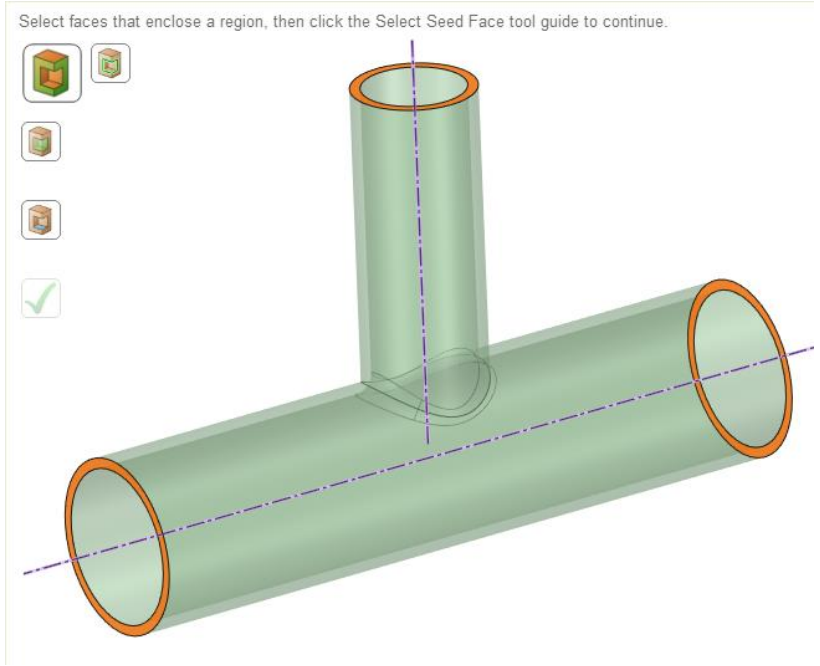


Volume Extract

- Click on the Prepare tab in the ribbon and select Volume Extract
- Select the faces shown in the figure
  - Remember Ctrl+scroll wheel can be used to select faces that are not in the foreground
- Click on the Select Seed Face tool guide
  - (continued on next slide)

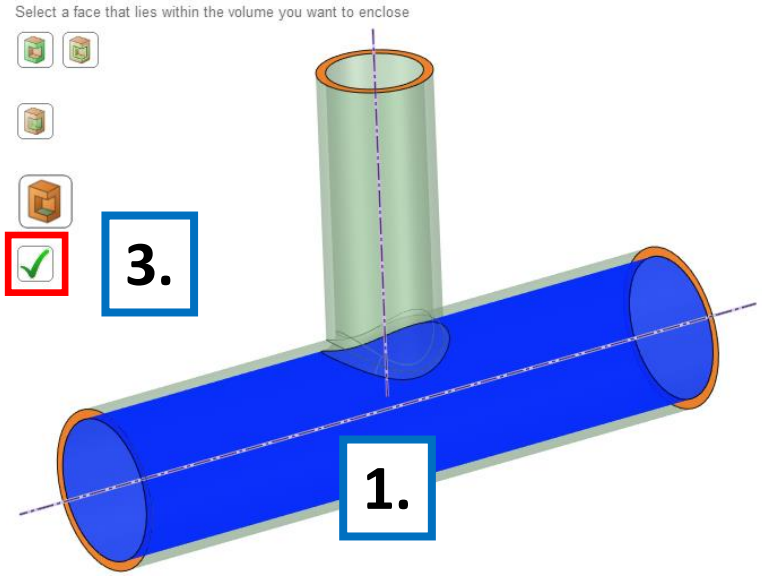


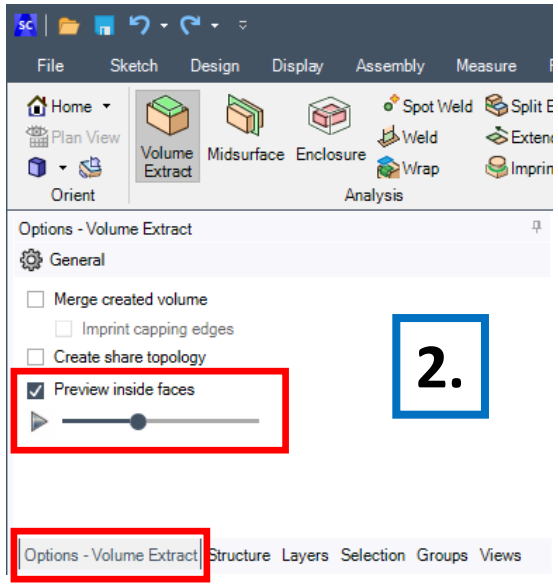


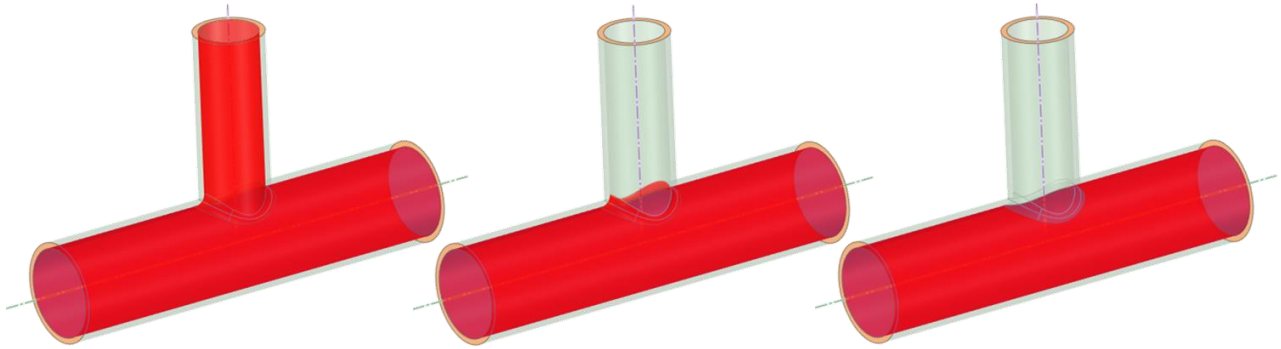


Volume Extract

- Select the blue face as shown in the picture
- Go to the Options tab and tick Preview Inside Faces
  - Faces of the volume that will be extracted are highlighted in red
  - Drag the slider bar to view the progression of faces from the initial seed face
- Click the green check mark to complete the volume extraction



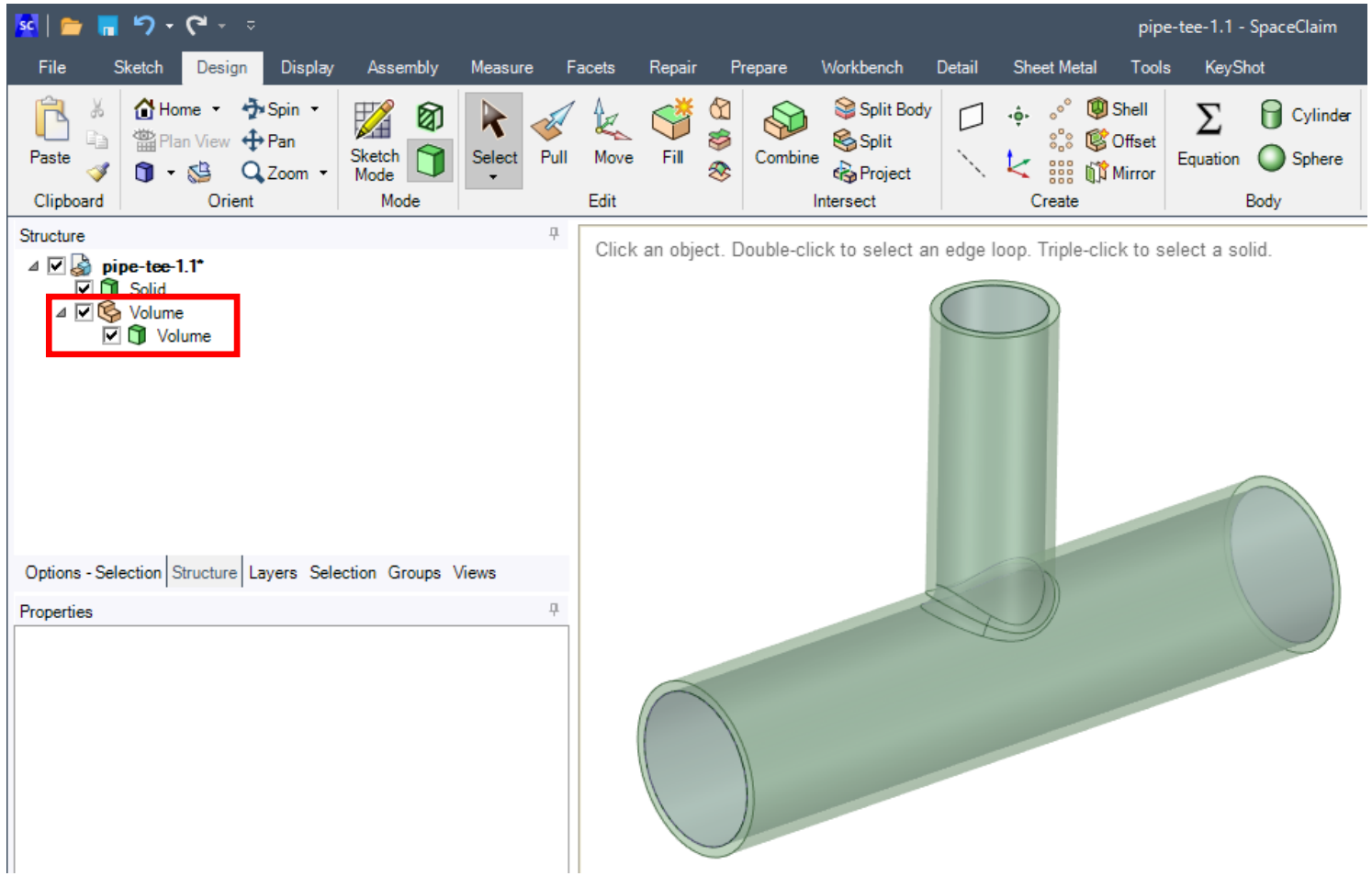




Hint: After completing the volume extraction, the Esc key can be used to clear the tool guides from graphics

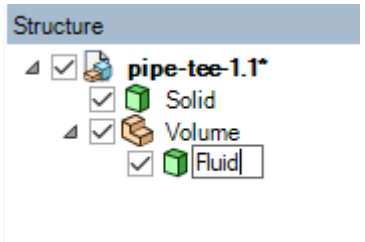
Structure Tree

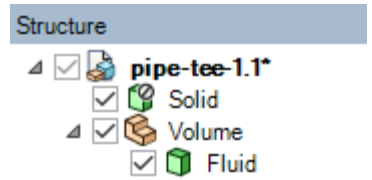
- The newly created volume appears in the structure tree



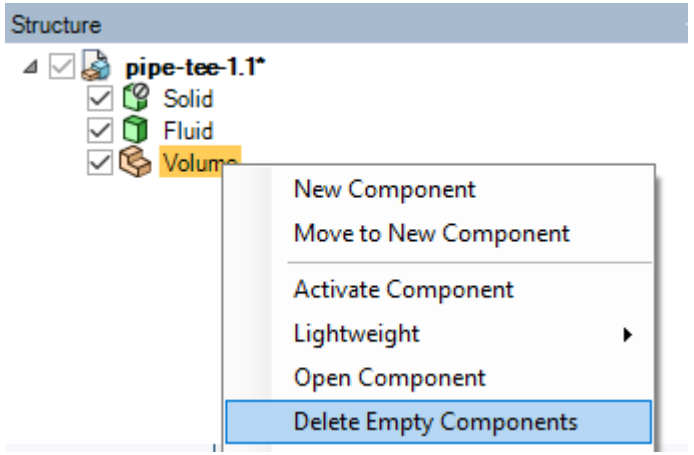
Rename Fluid and Suppress Solid for Physics

- Left click Volume once, then left click again (2 single clicks) and change its name to Fluid
- Right click the solid body in the tree and select Suppress for Physics
  - If desired to include the solid in the simulation model, for instance to calculate heat transfer in the solid, this step would be omitted
- There is no particular reason for the fluid body to be in its own component … if desired, select in the structure tree and drag it into the upper level assembly with the solid
  - If desired, the empty component can be deleted using the right click context menu



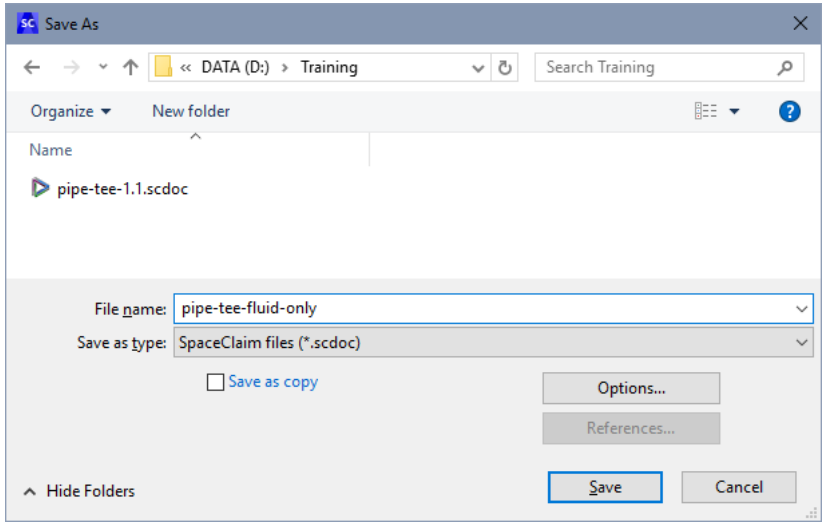


The symbol across the part icon indicates suppressed bodies.

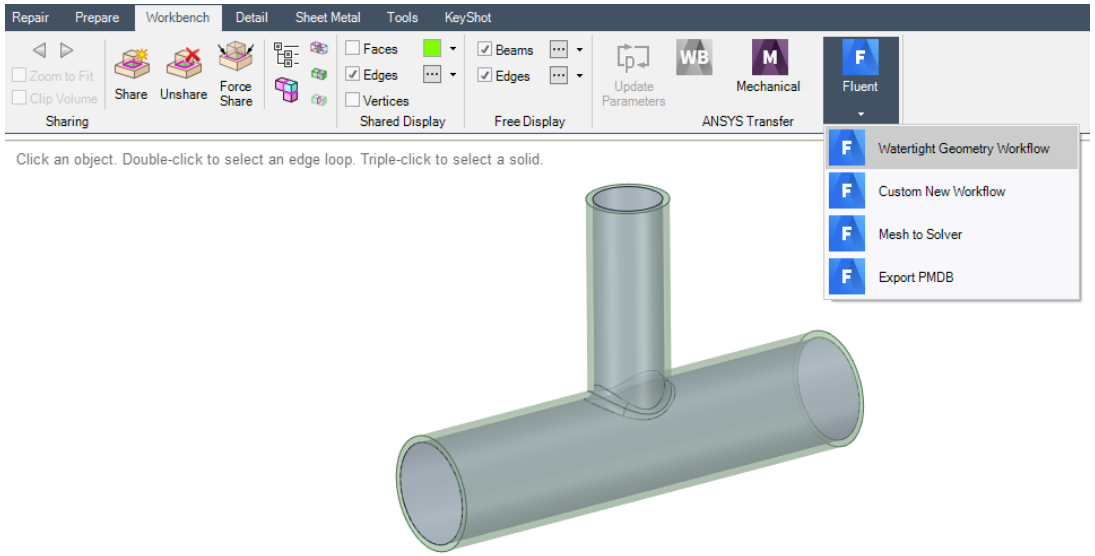


Save Model With New Name and Exit

- Under File > Save As, save the model with a new name



- Note at any point, the model could be sent directly to Fluent from the Workbench tab



- Exit SpaceClaim after saving

End of presentation