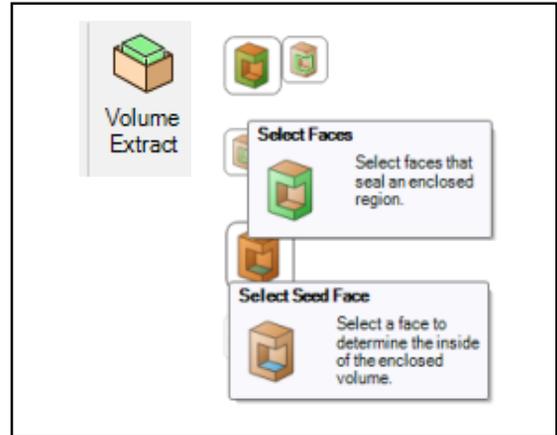


Fluid Volume Extraction for CFD

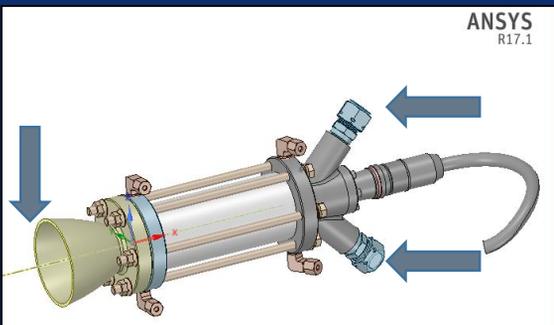
CFD is extremely useful in many applications – from simple pipe flow to combustion to external aerodynamics. Compared to most other analyses however, CFD tends to take a little more effort to set up and solve.

One of the first steps that engineers usually need to take is to extract the fluid volume region from their solid CAD model. This can be quite tedious and frustrating depending on the method.

ANSYS has a novel approach to extracting the fluid volume that is significantly easier than traditional methods.

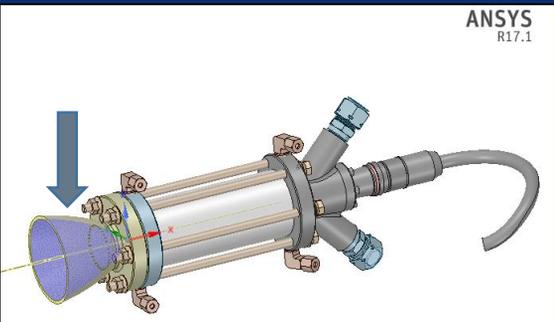


SpaceClaim tool for Fluid Volume Extraction



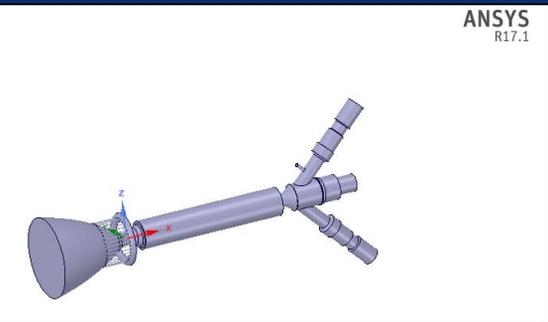
TOP LEFT:

Select surfaces that bound interested fluid path – no capping surfaces needed



BOTTOM LEFT:

Select a single seed face anywhere inside the interested fluid path



RIGHT:

Fluid volume is generated from seed face out to bounding surfaces

Traditional Methods include making capping surfaces for all openings, trying to fill a cavity or even performing a Boolean subtract operation from a random oversized part.

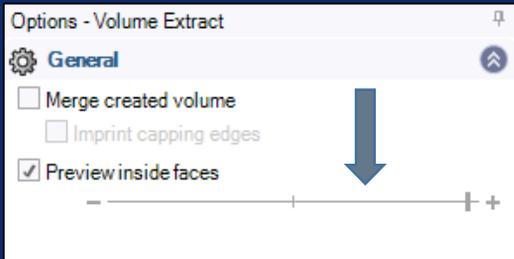
ANSYS SpaceClaim allows users to extract the fluid volume with 2 steps: select the surfaces that bound the interested flow region; then select a seed face inside

This method builds the volume from the seed face out to the boundary surfaces so there is no need for capping surfaces or large tool parts and no “non-manifold body” errors

Fluid Volume Extraction for CFD

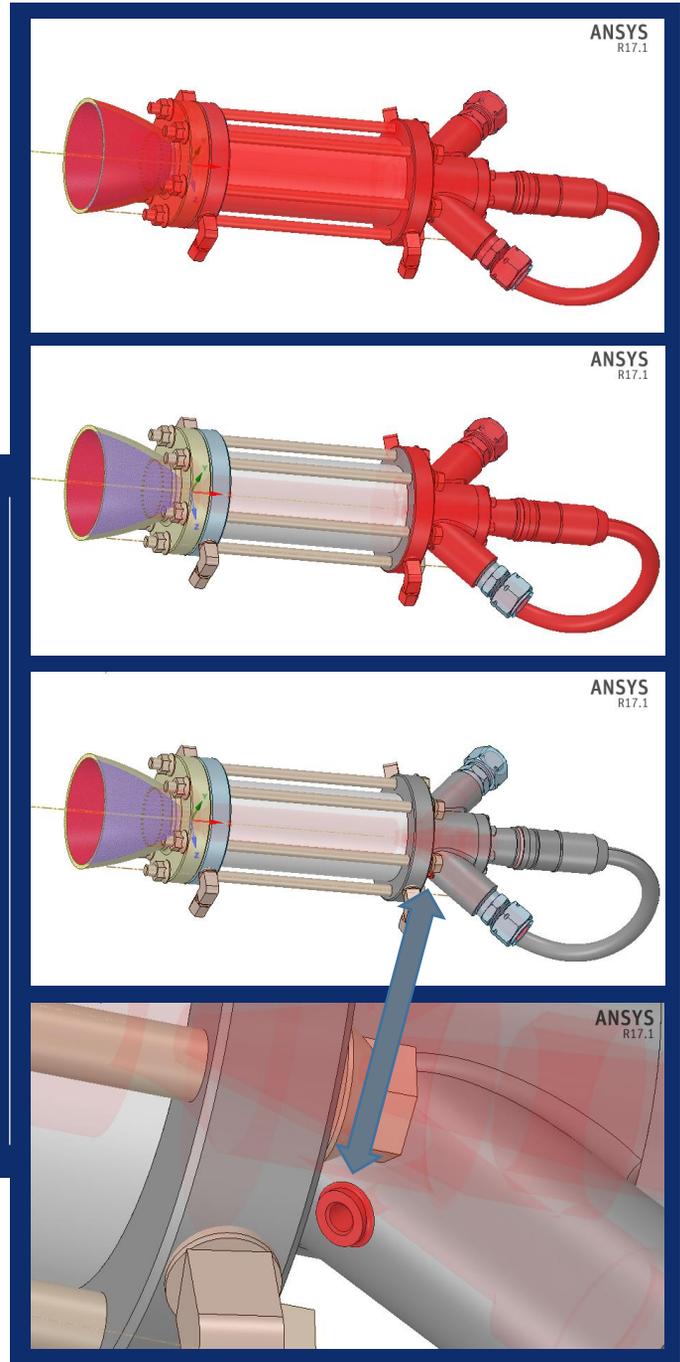
ANSYS SpaceClaim has a slider that helps engineers ensure that the defined surfaces will create an enclosed fluid volume. The slider starts at the seed face and works its way towards the bounding surfaces.

This capability will help to identify any missed bounding surfaces or geometry issues that prevents the creation of a water-tight fluid domain.



ABOVE:
Slider Option in SpaceClaim

RIGHT:
Since only wetted surfaces should be in red, as slider is toggled, the defined wetted surfaces will get rolled back to show the location where the fluid domain leaked to the environment



Tools – ANSYS SpaceClaim

For detailed information or for a demo of this application please contact PADT at info@padtinc.com

