

# Creating Matching Faces on Touching Parts

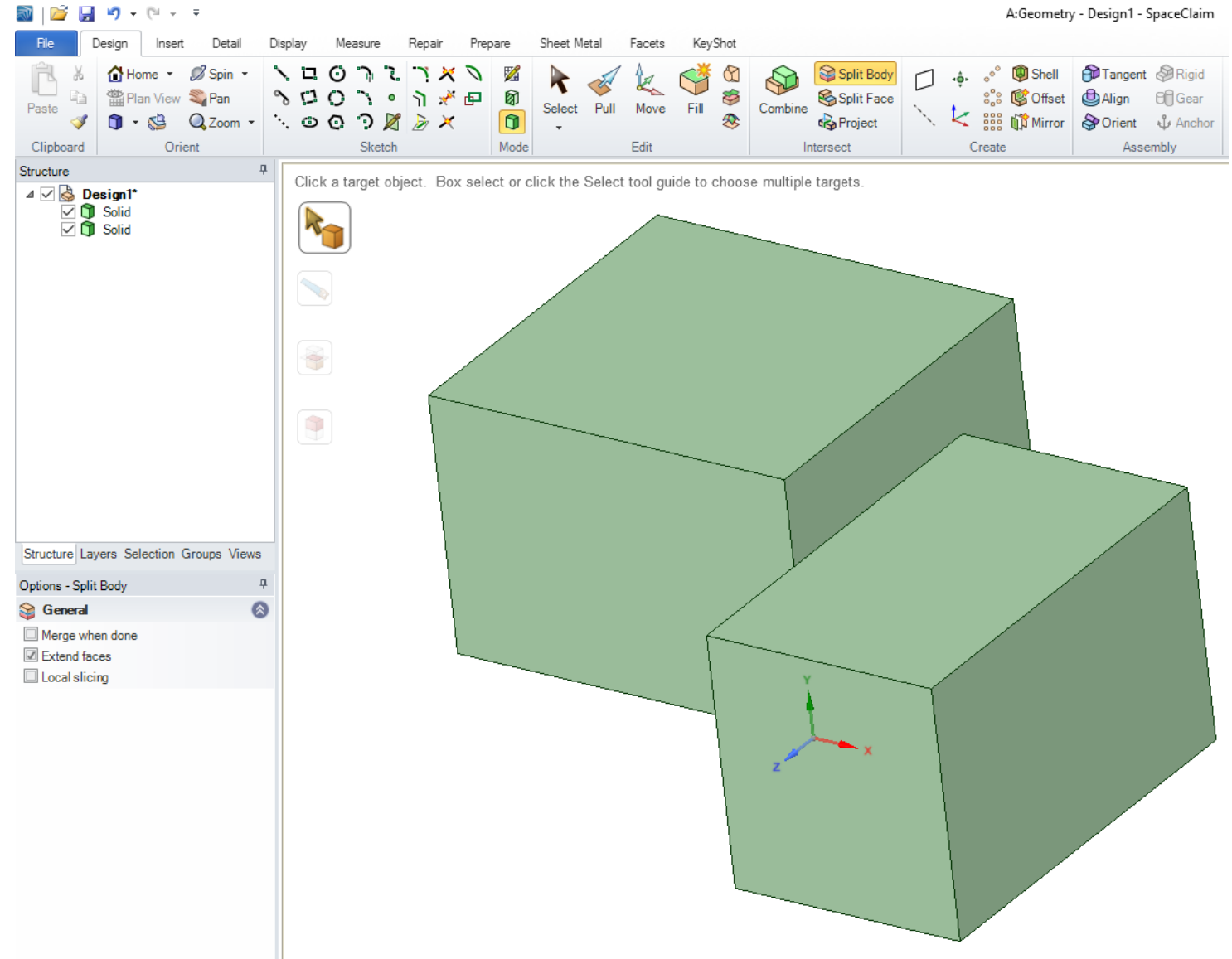
## ANSYS SpaceClaim

Ted Harris, PADT, Inc.

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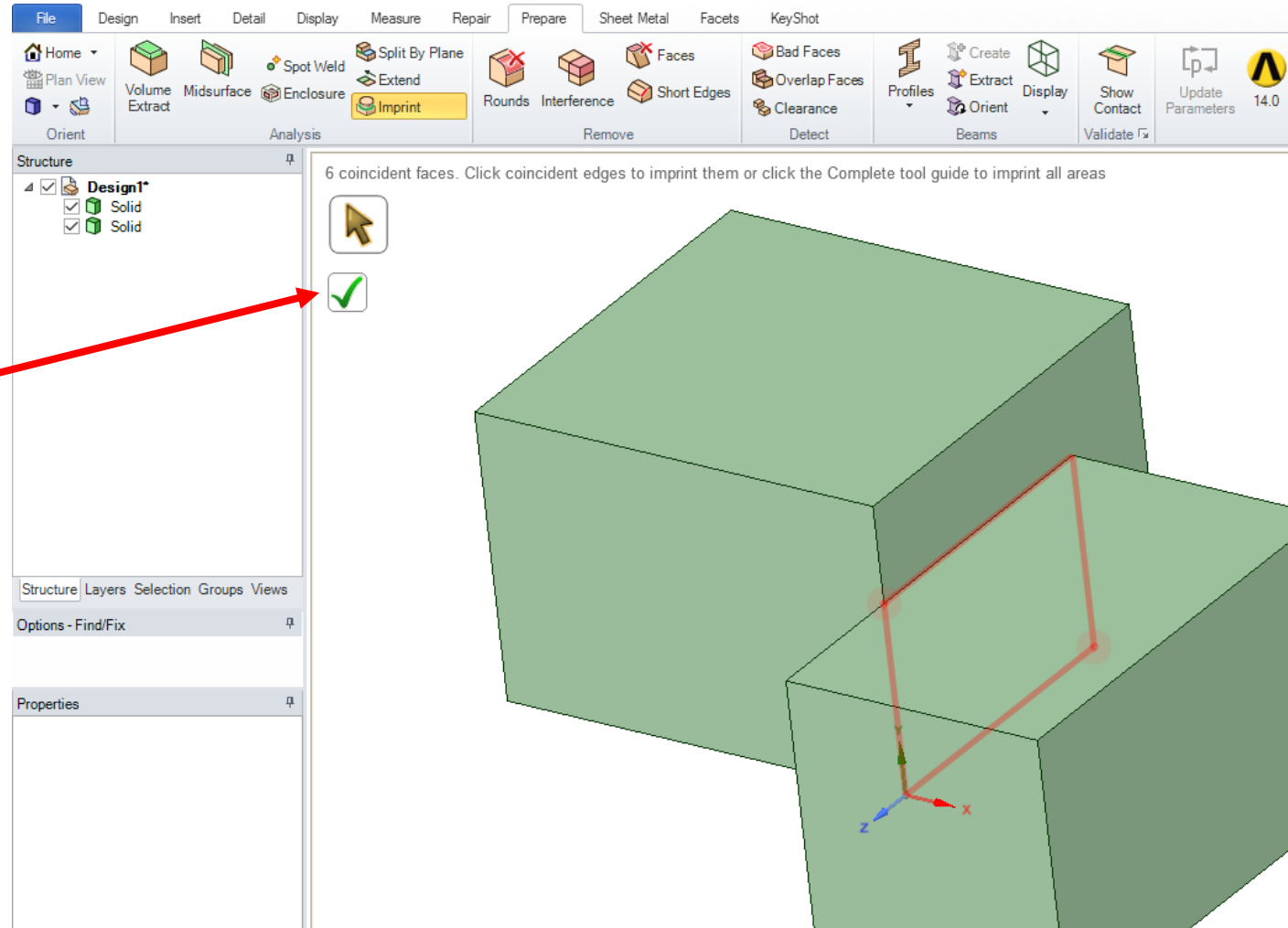
# SpaceClaim Is Your Friend

Here we start with two simple parts that are touching but are separate and distinct. The geometry could have been imported from CAD or created in SpaceClaim.



# SpaceClaim, cont.

- Go to the Prepare tab, click Imprint. This will produce a common face where parts touch.



Click the green checkmark to execute if the red preview looks to be correct.

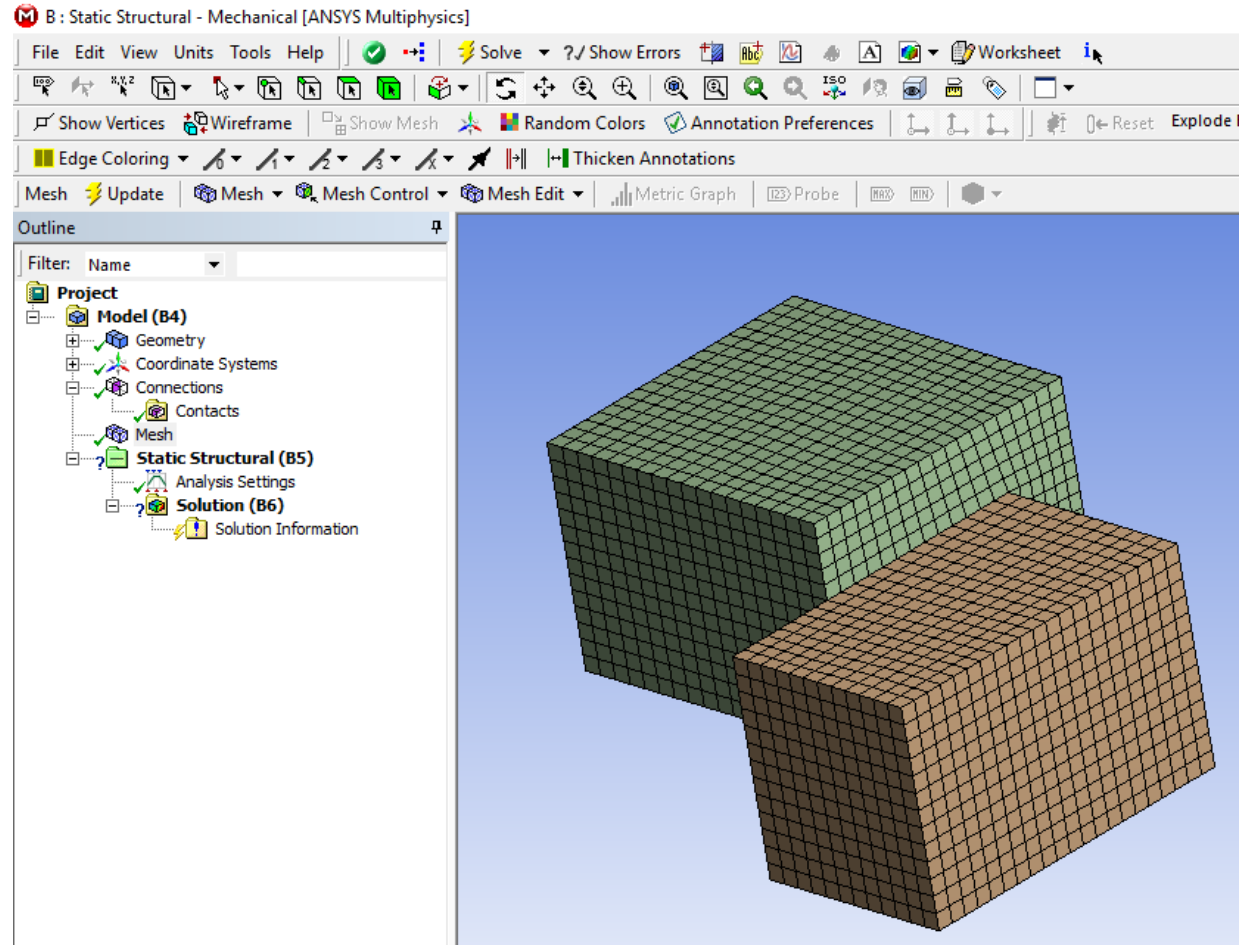
# SpaceClaim, cont.

- Note that if we simply want to have a continuous mesh across these parts, we are done. Bringing the model into Mechanical at this point will result in a continuous mesh, with common nodes at the boundary between the parts.

Here the contact branch is empty since the two parts share topology (have a common surface where they touch).

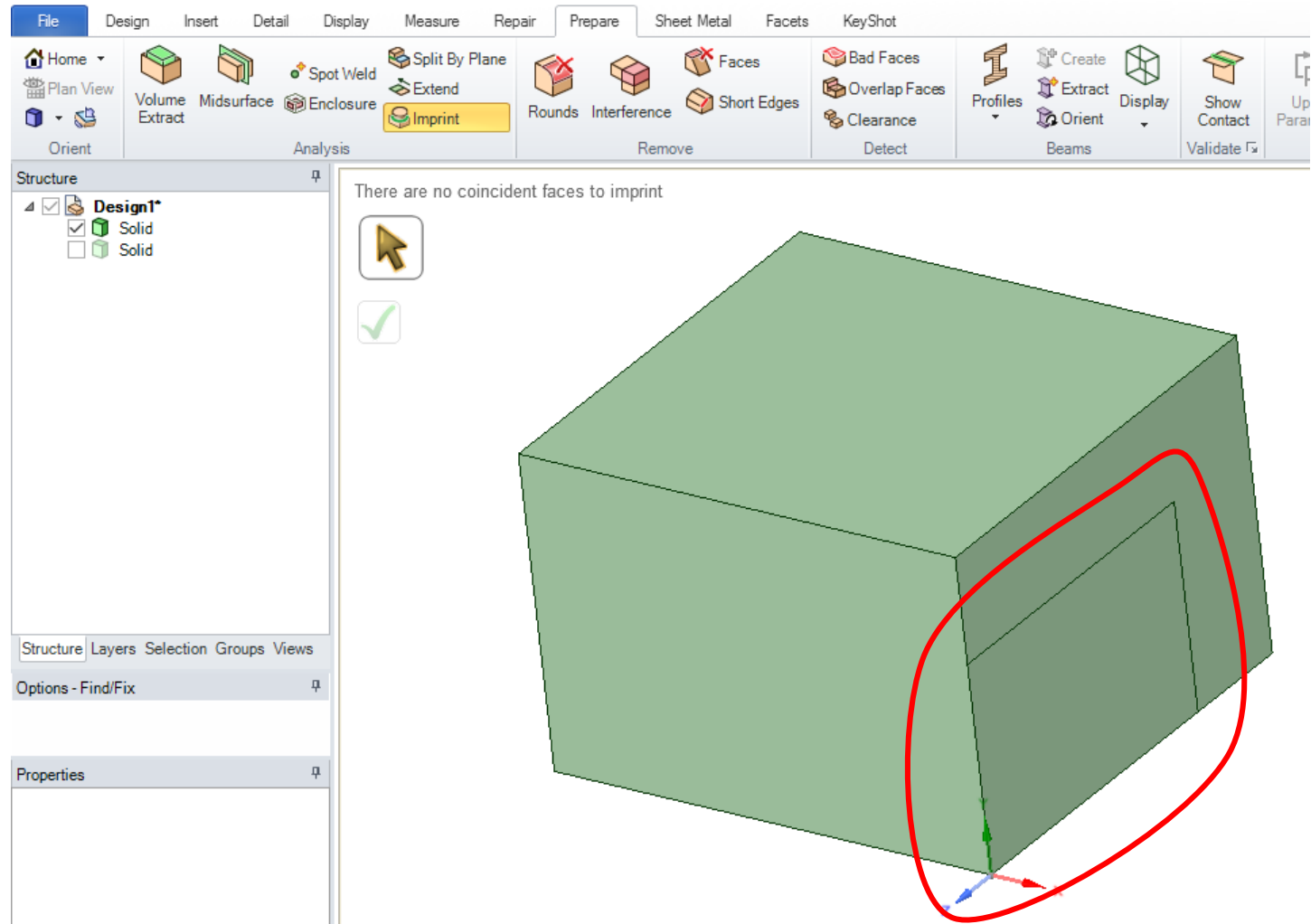
The mesh is continuous across the parts automatically.

Next we'll see about having separate parts.



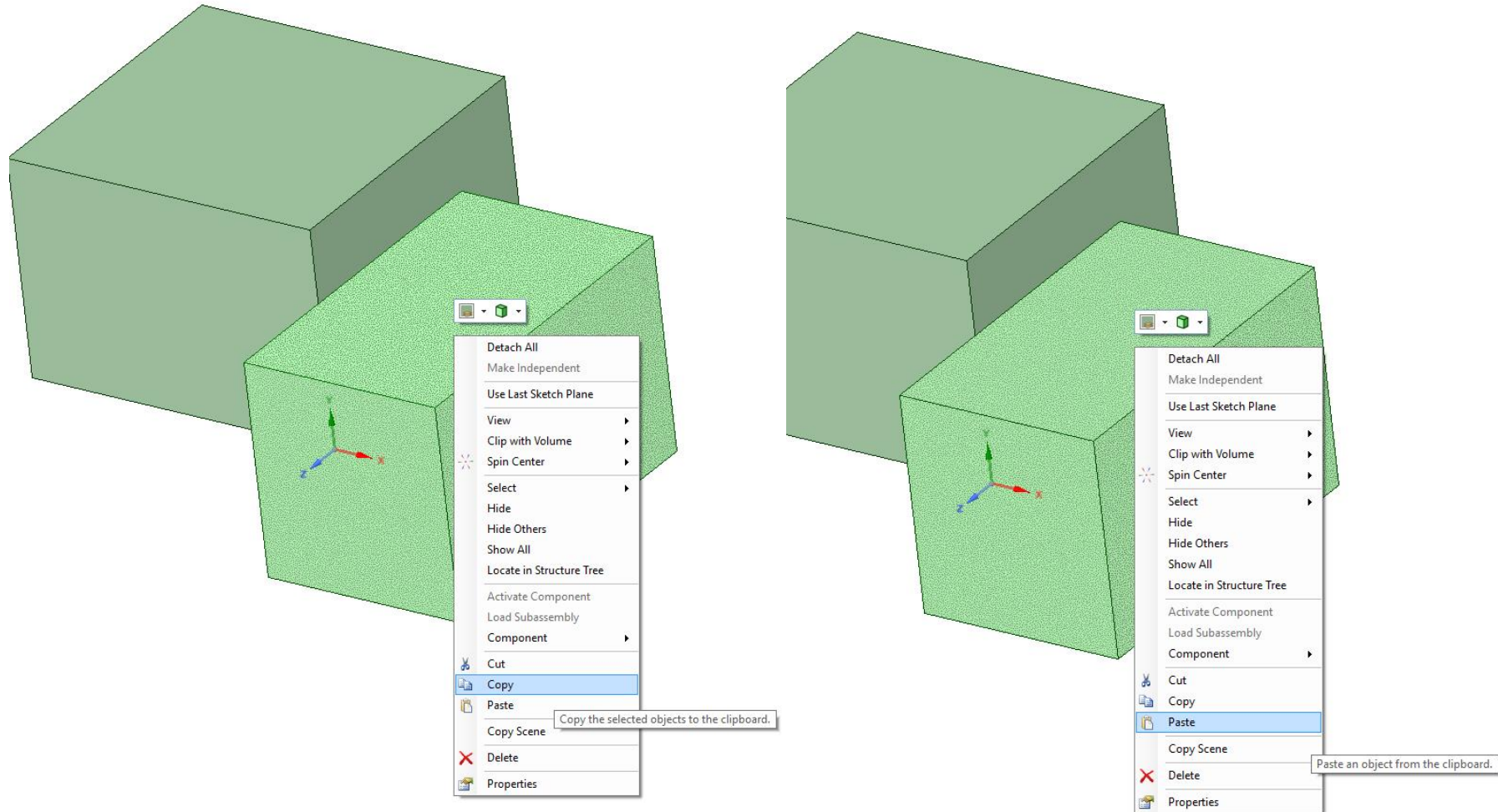
# SpaceClaim, cont.

- Hiding one body (by unchecking it in the tree) shows the newly imprinted face on the other body:



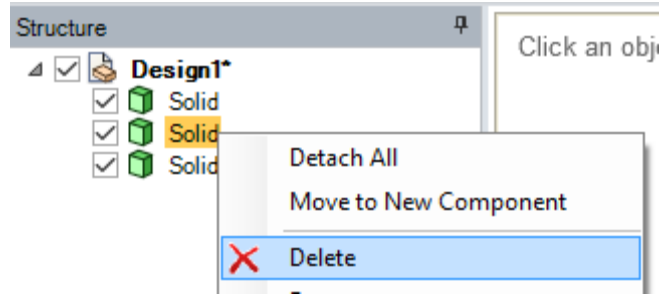
# SpaceClaim, cont.

- Next make a copy of one of the parts by selecting it, then right clicking. Then right click again to Paste.



# SpaceClaim, cont.

- The tree now shows a new part. Delete the original (second part in the tree shown here):

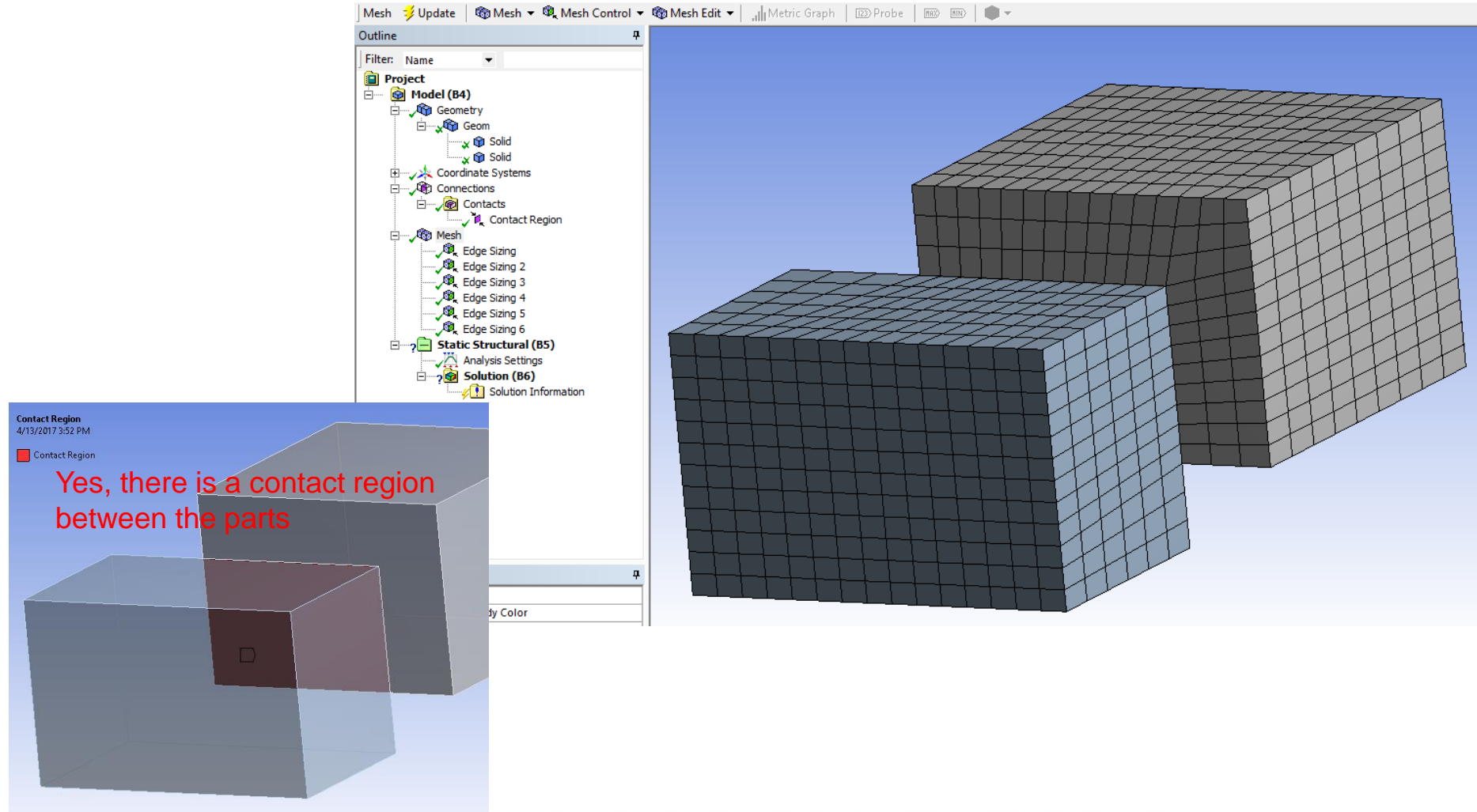


- What's left is a copy that still has the imprint of the other part, but they do not share topology. This is useful if we want to use contact elements to make the parts connect, but have matching meshes on both sides of the connecting interface.



# ANSYS Mechanical

- Here we have brought the geometry into Mechanical, verified that contact is used to connect the parts (there isn't a continuous mesh), then specified mesh controls to get a matching mesh on the touching faces.





# Summary

- ANSYS SpaceClaim is a very useful tool for preparing geometry for simulation.
- We have shown how to create parts with shared topology using the Imprint button in the Prepare tab in SpaceClaim
- We showed getting a continuous mesh in Mechanical for parts that share topology
- We also showed how to create a duplicate of a shared topology part and then delete the original to have separate parts with separate but matching faces where they touch
- We verified the separate parts in Mechanical but used mesh controls to get a matching mesh on the touching region of each part