3DXpert™

3DPRINTING EXERCISE

Modify Regions

Tutorial_V4 - Updated: 3DXperrt 16 Beta release

3D SYSTEMS

In this exercise we will see several ways to modify regions.

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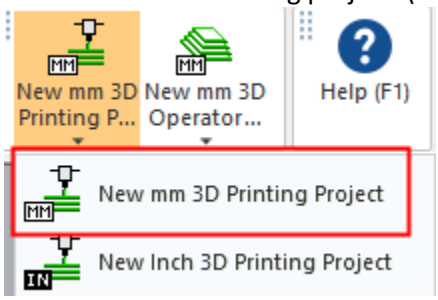
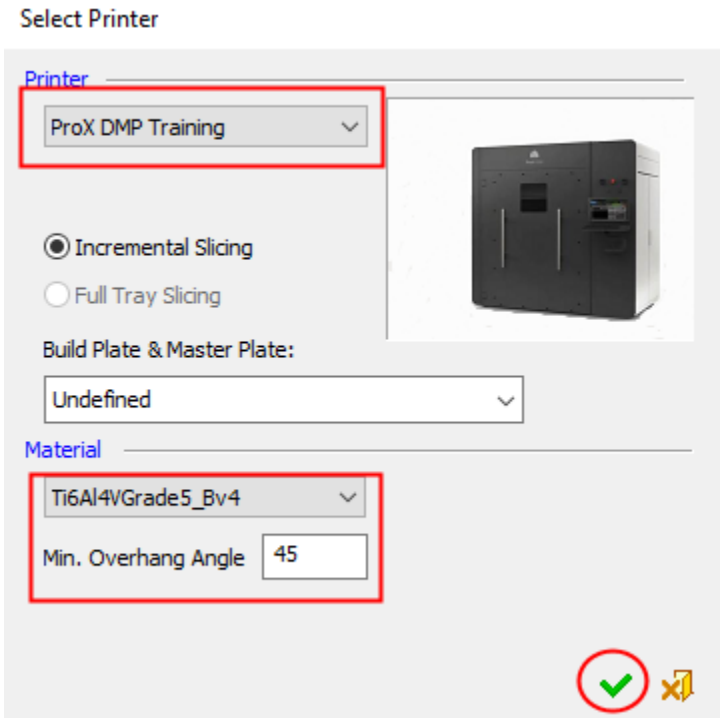
Import file to a new part

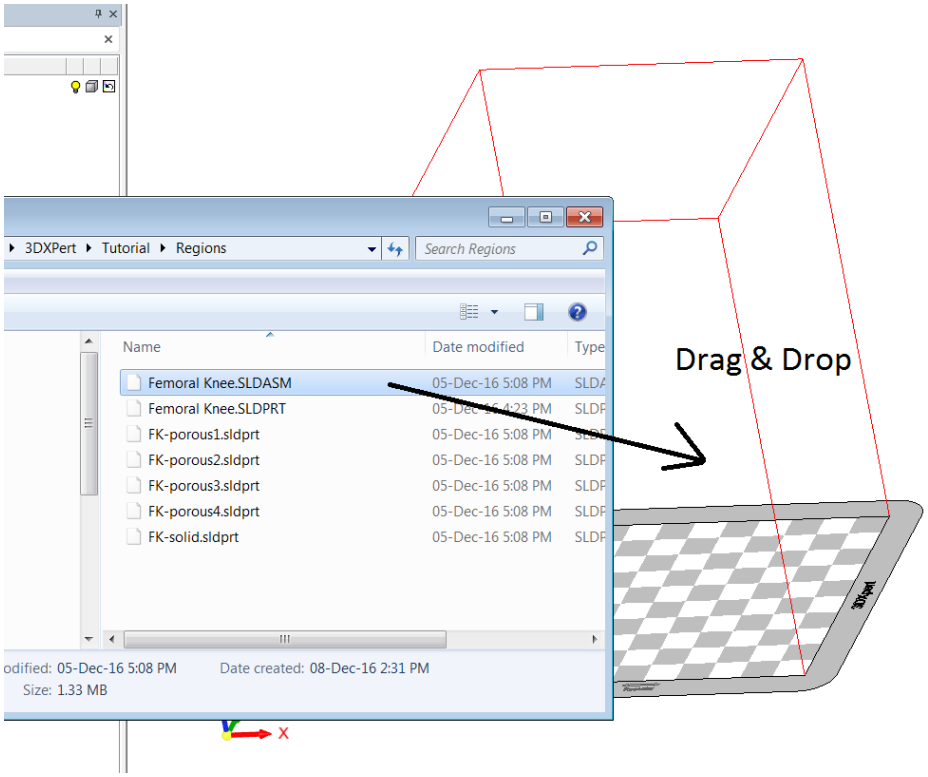
1. Create a new 3D Printing project. (Select the option from the menu).



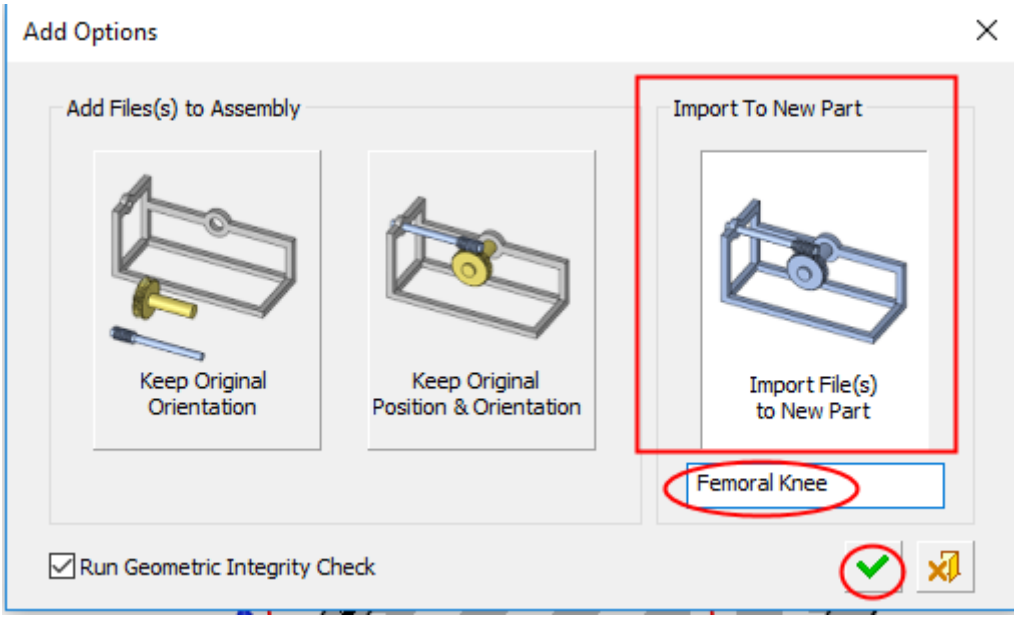
2. Use the **Prox DMP Training** and **Ti6Al4VGrade_5Bv4** as Material.
Set the angle to **45** degrees. Press **OK**.



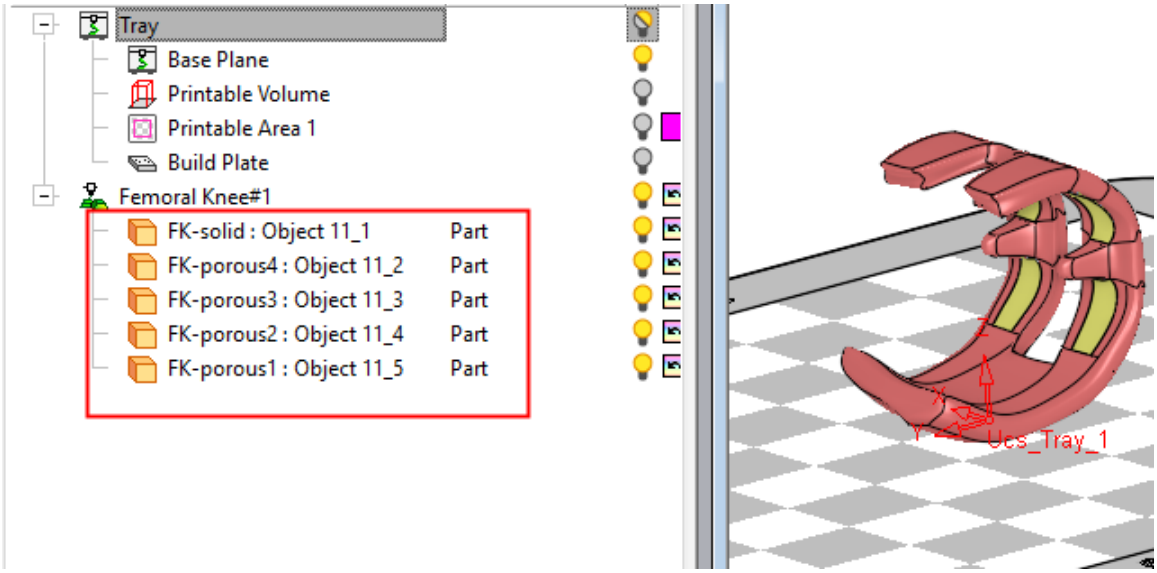
3. From the Windows browser (**Start\input** folder) drag the file: **Femoral Knee.SLDASM** into the tray area.



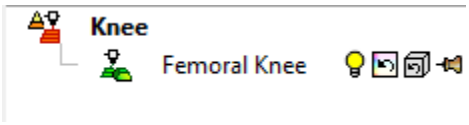
4. Set the option '**Import File(s) to New Part'** and call it '**Femoral Knee**'. Press **OK**.



5. See the result through the 3DP Objects tree. Note the different objects.



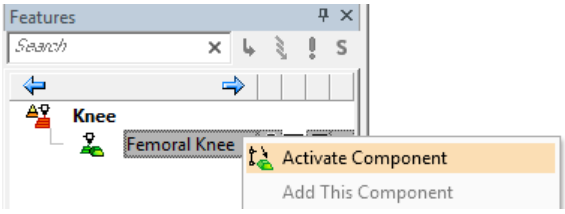
6. Switch to the **Assembly** tab.



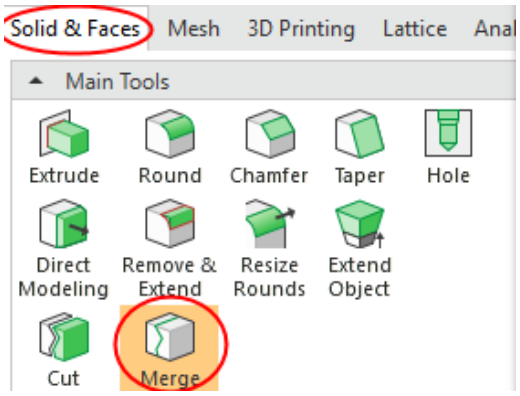
Note that although we have imported an assembly, the objects are now located in a single part file.

7. **Right mouse click** the part and select **Activate Component**

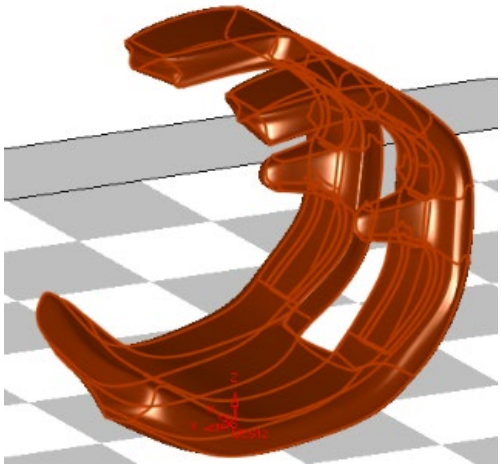
   (You can also double-click the part on the tree):



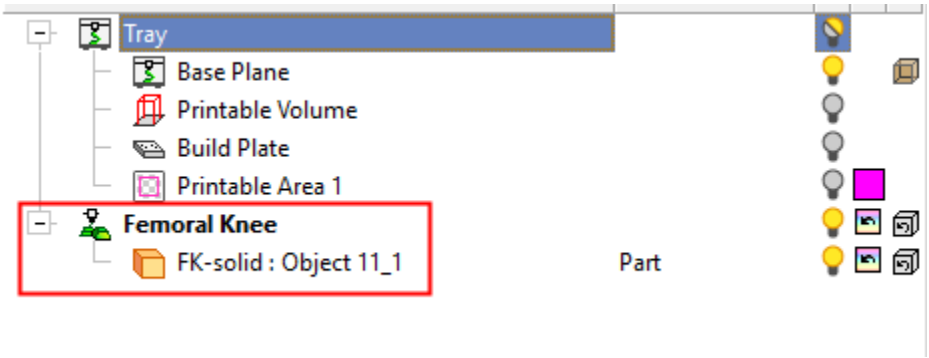
8. From the Solid & Faces Menu select **Merge**.



9. Pick all objects by box, right mouse click and press the **OK** button.

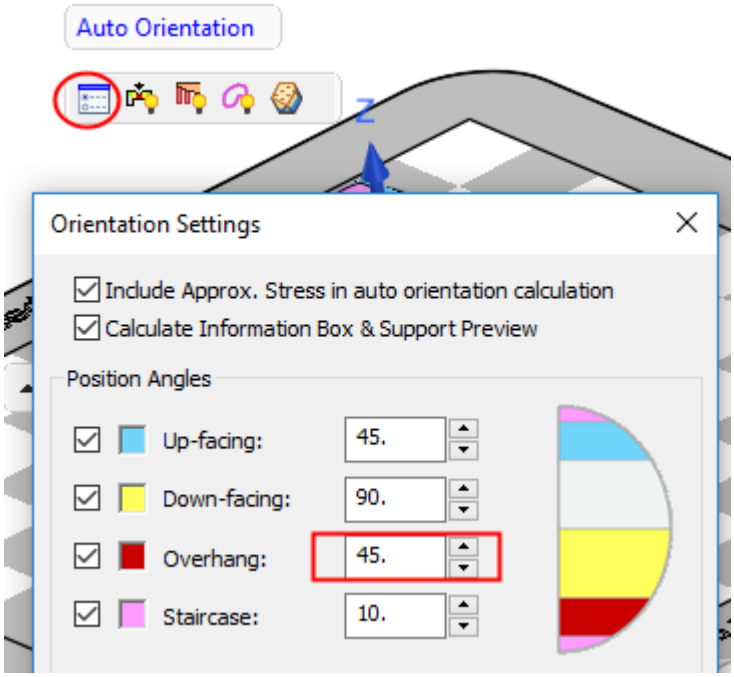


10. Check the Objects tree again – the result is a single object.

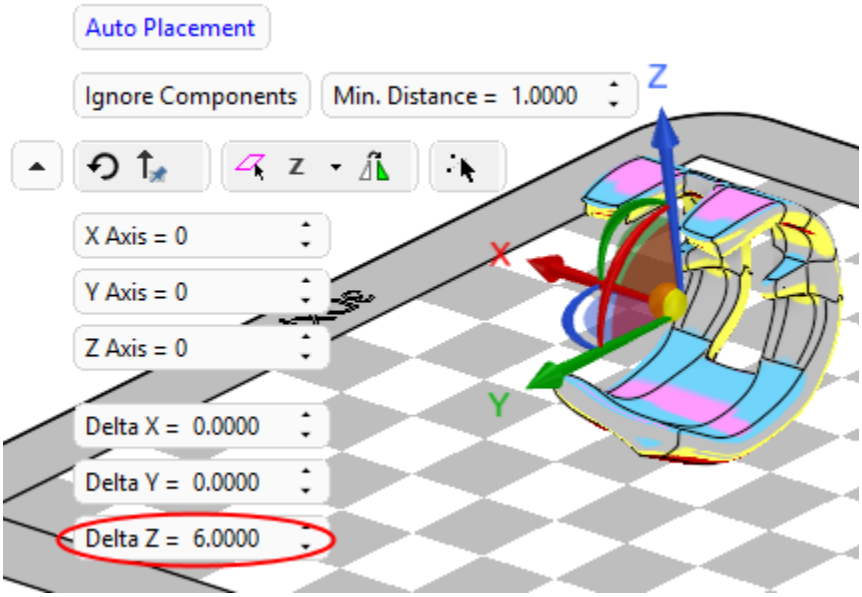


Positon the body

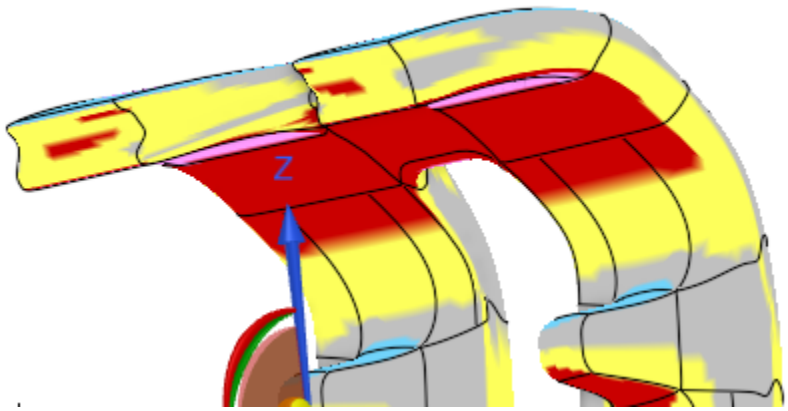
11. Enter **Position Body** (from the **3D Printing** menu.) Make sure that the angle is set to **45** degrees. Exit the dialog.



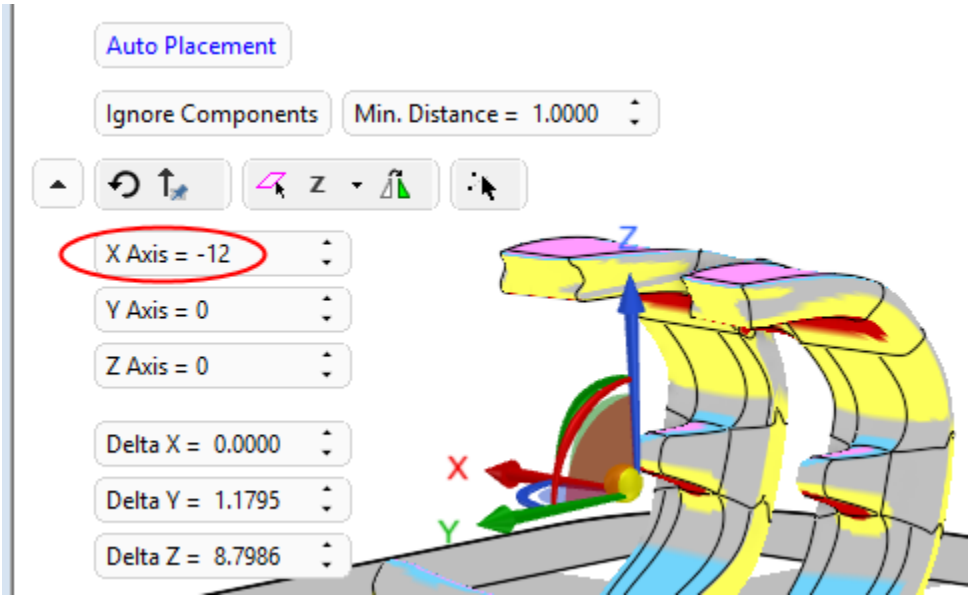
12. Set '**Above Tray' (Delta Z) as 6**.



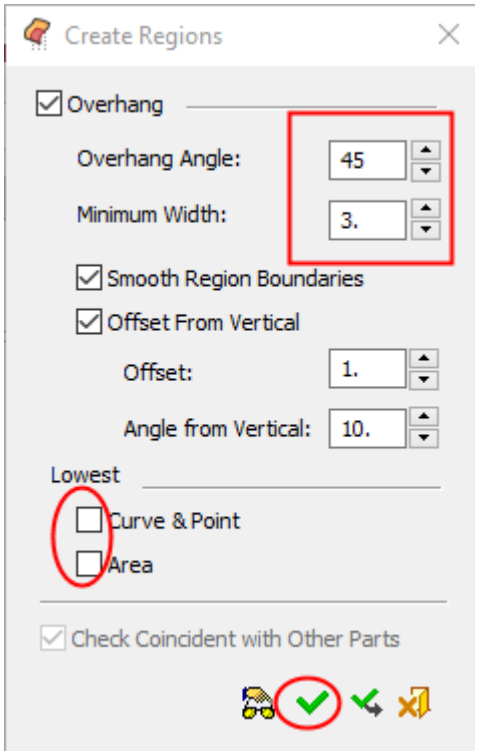
Notice the need for supports on the upper areas.



13. Rotate the **X Axis to -12** degrees.
14. Select **OK**.

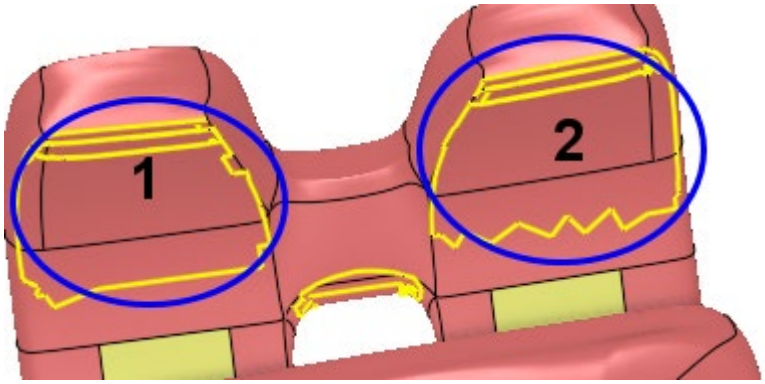


15. Enter the Support Manager, (see that the angle is set to **45** degrees) set the **Minimum Width** value to **3mm**; uncheck the lowest options and press **OK**.

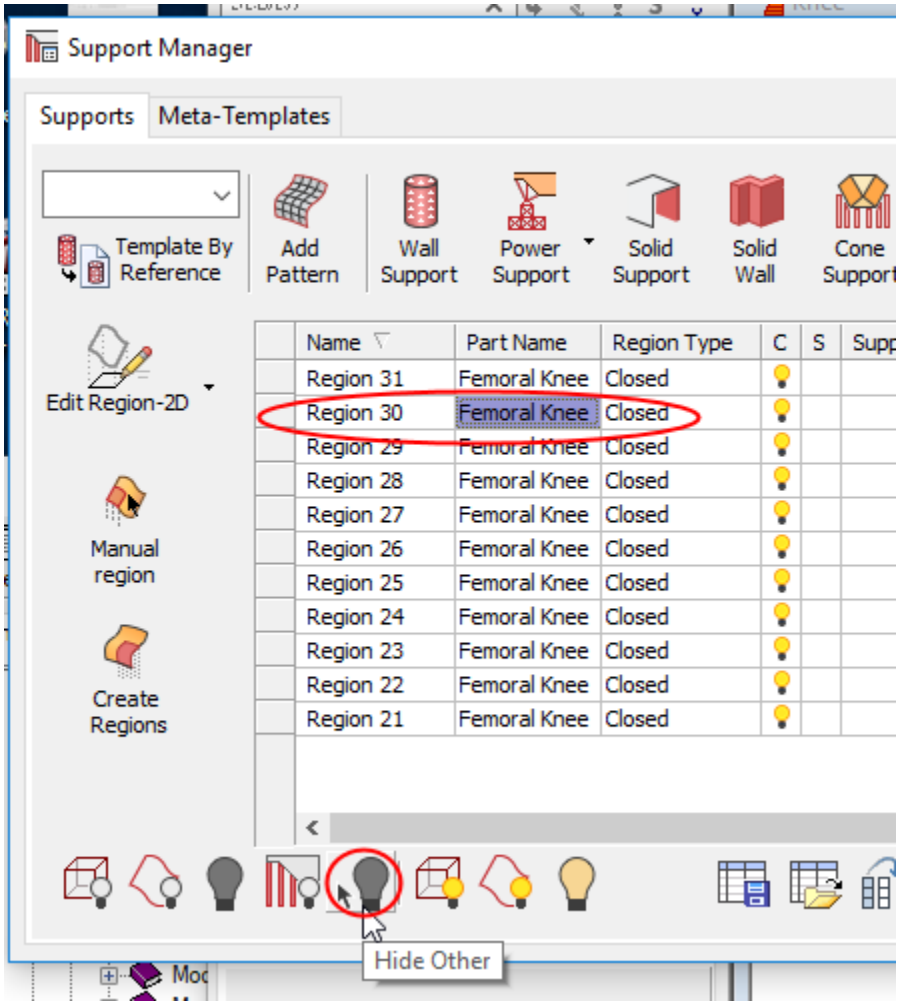


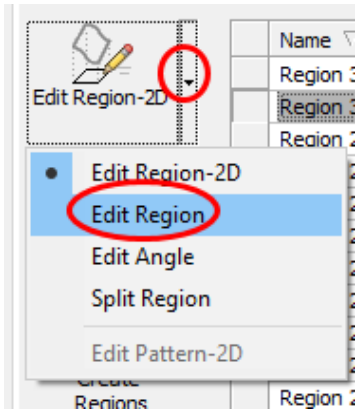
Edit Region

16. Notice the two regions marked in this image:

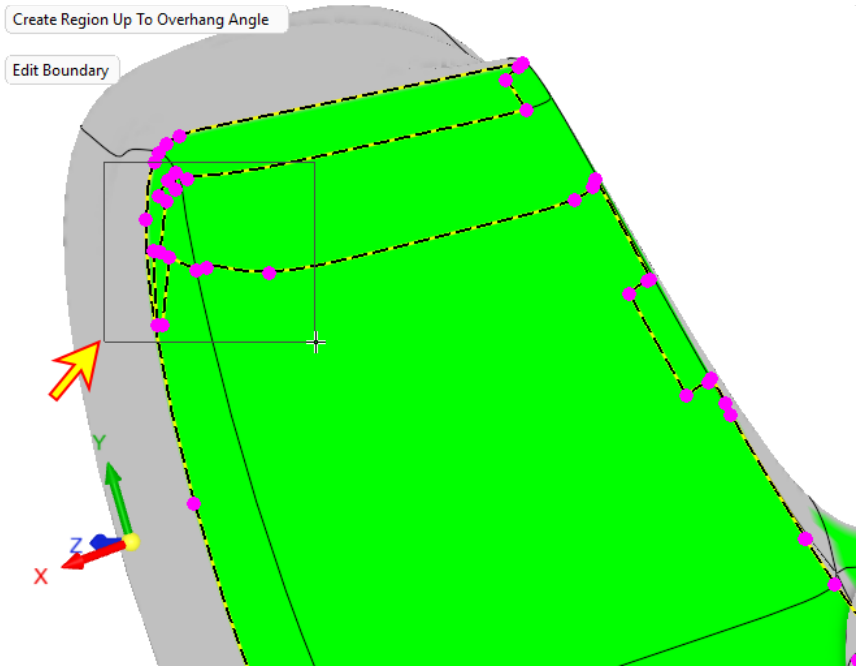


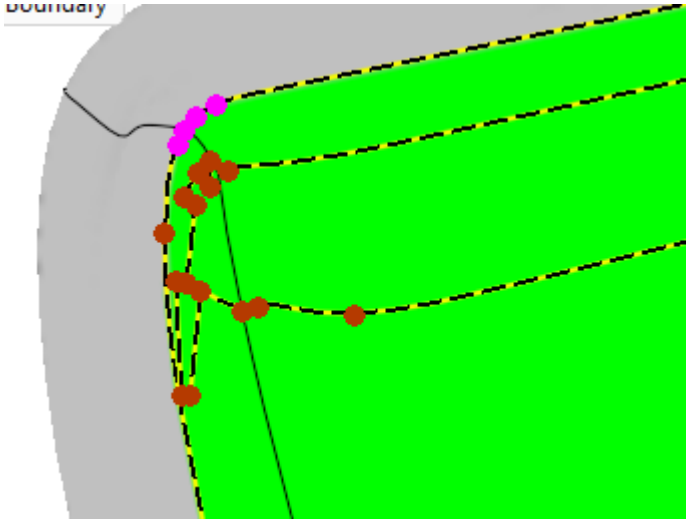
17. Pick Region “1”, select “Hide Other” for a clearer display. Select the **Edit Region** function:

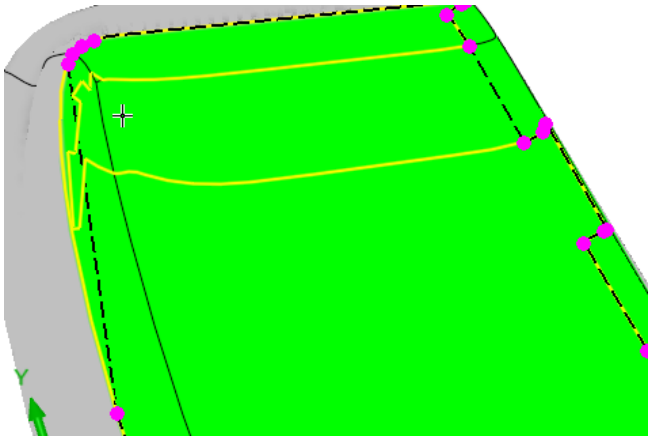




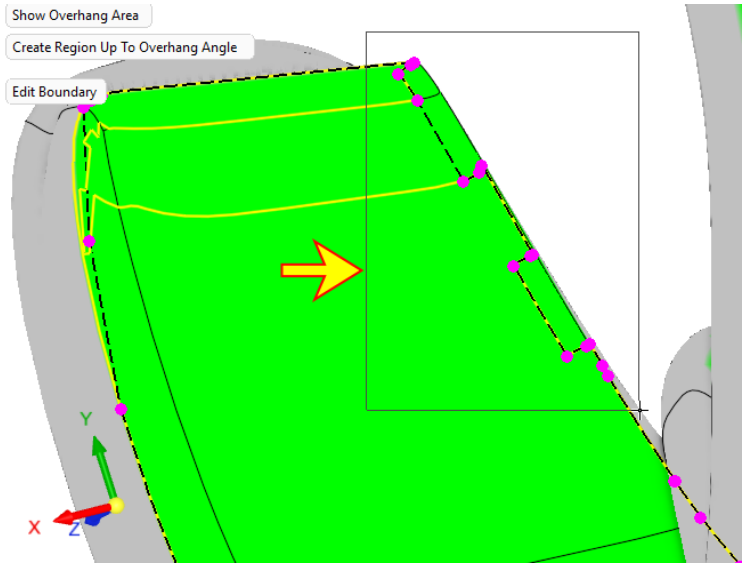
18. Pick the self-intersecting area, by box. Press Delete.



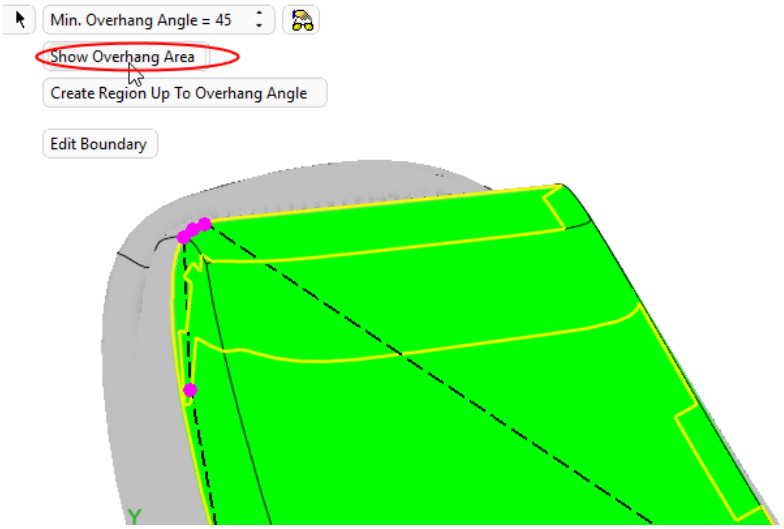




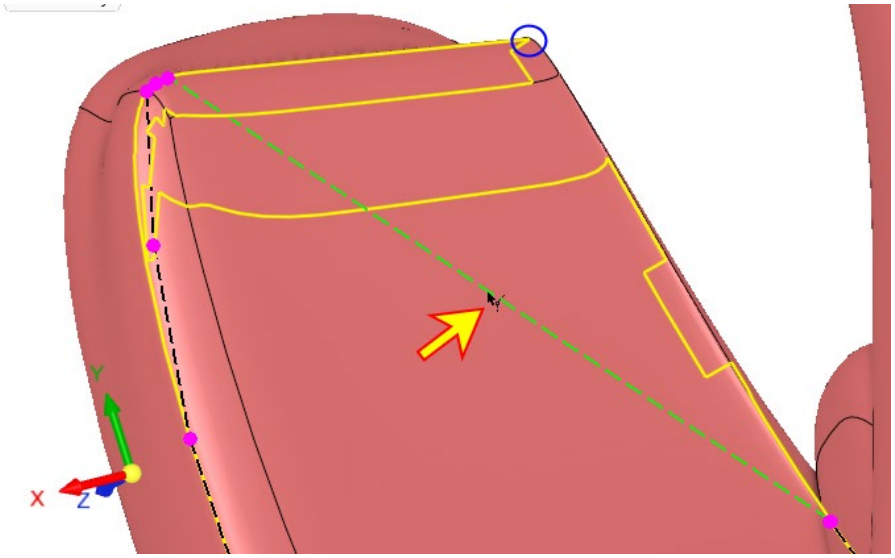
19. Pick the self-intersecting area, by box (include also the corner as shown here):

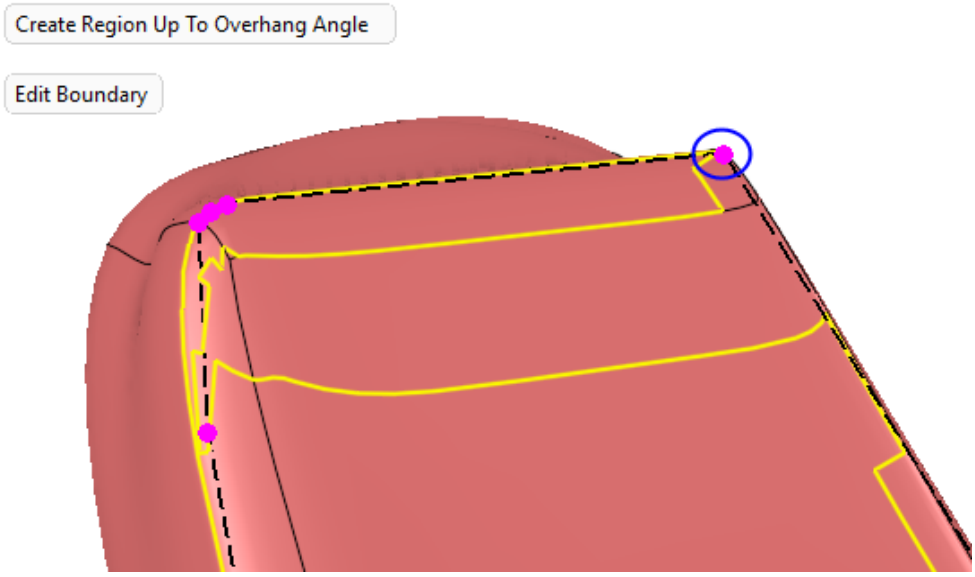


20. Press the **Delete** button. See that the system closed the contour. Press the Show Overhang Area button to hide the highlighted overhang areas.

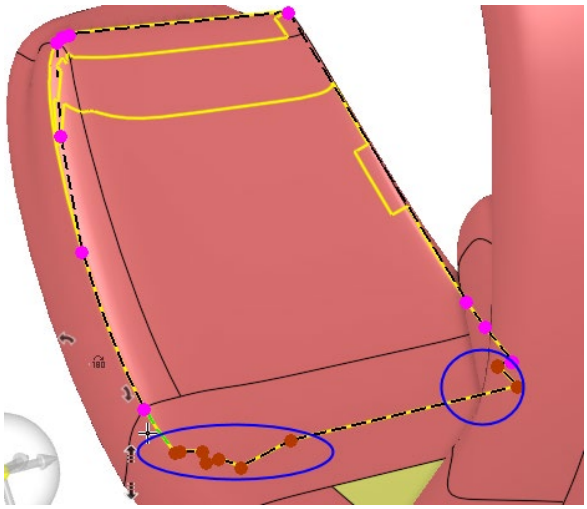


21. Pick the middle of the line and drag it to the corner of the face (marked by a blue circle). See that an additional breakpoint was added:

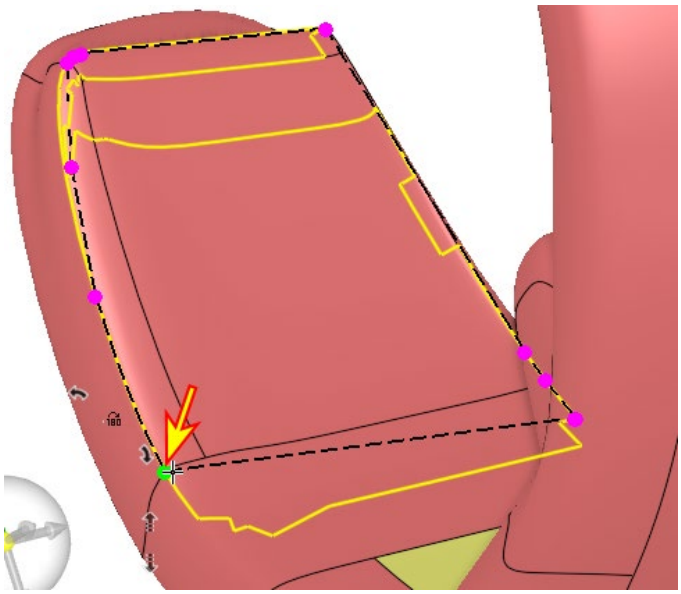




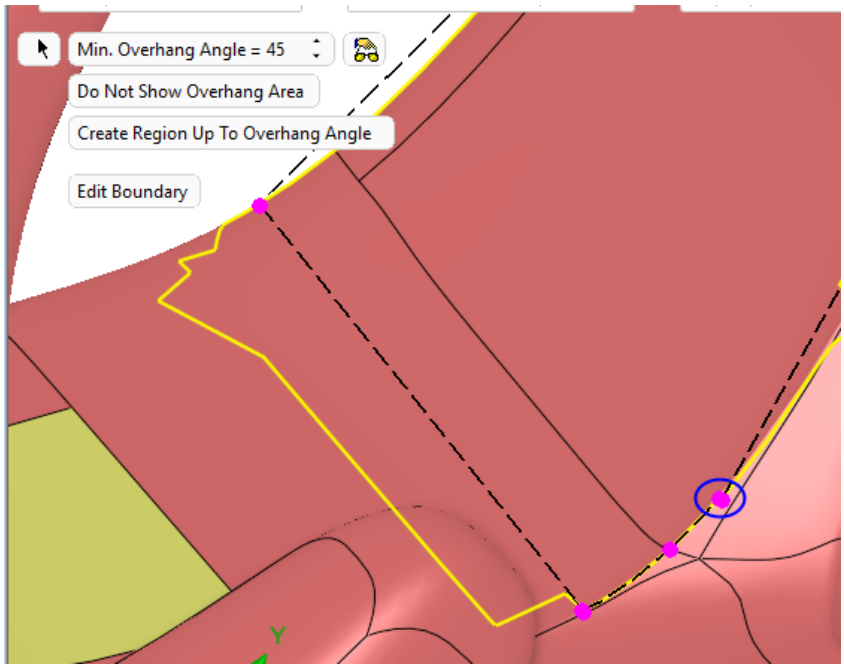
22. Delete the points marked by blue circles.

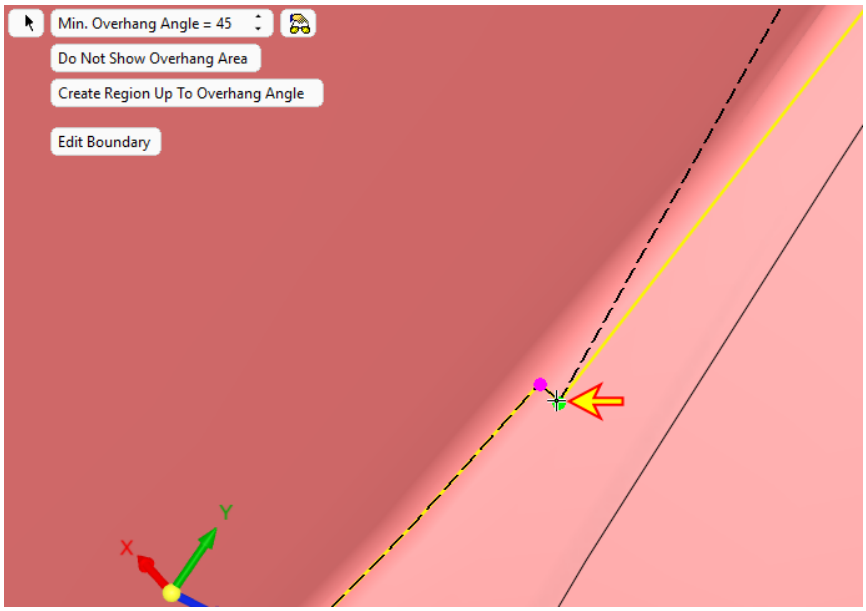


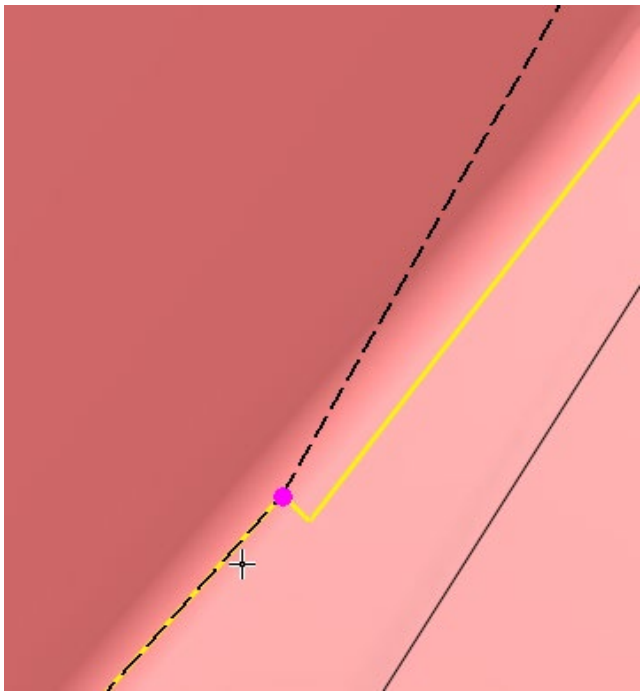
23. Drag the lower points as necessary.



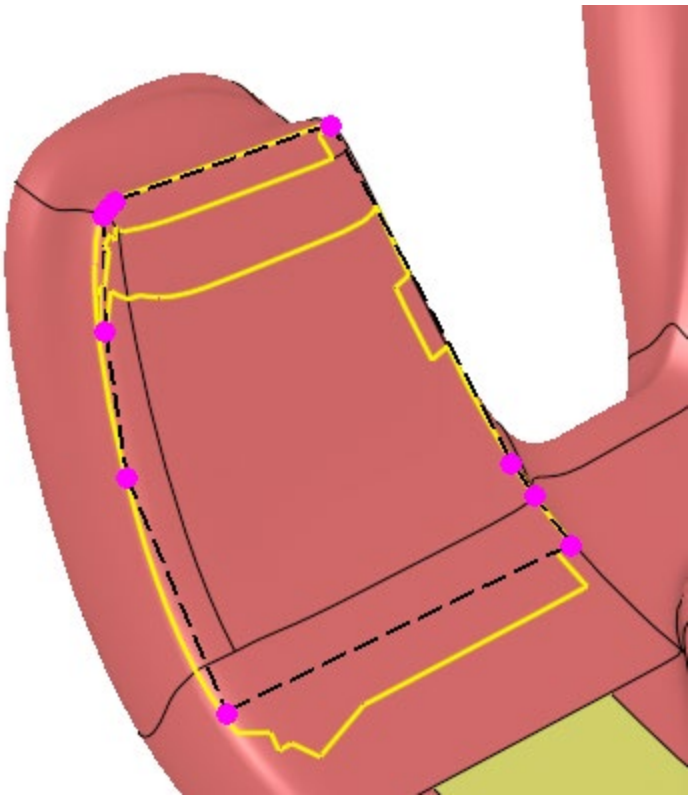
Zoom in the area marked by a blue circle. Notice the extra problematic point. Delete this point.

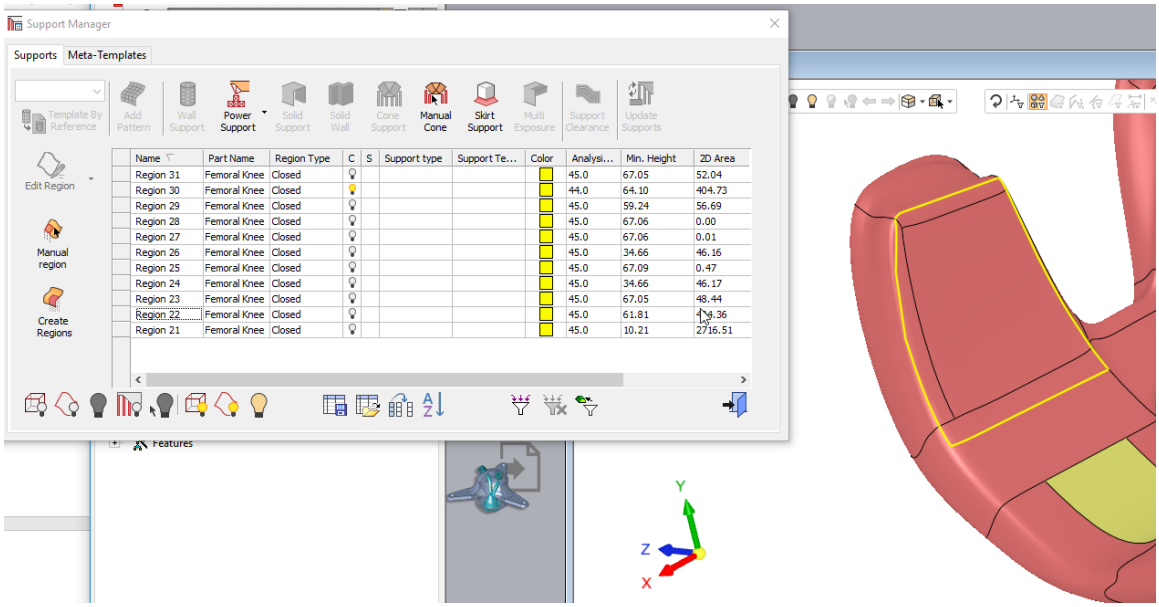


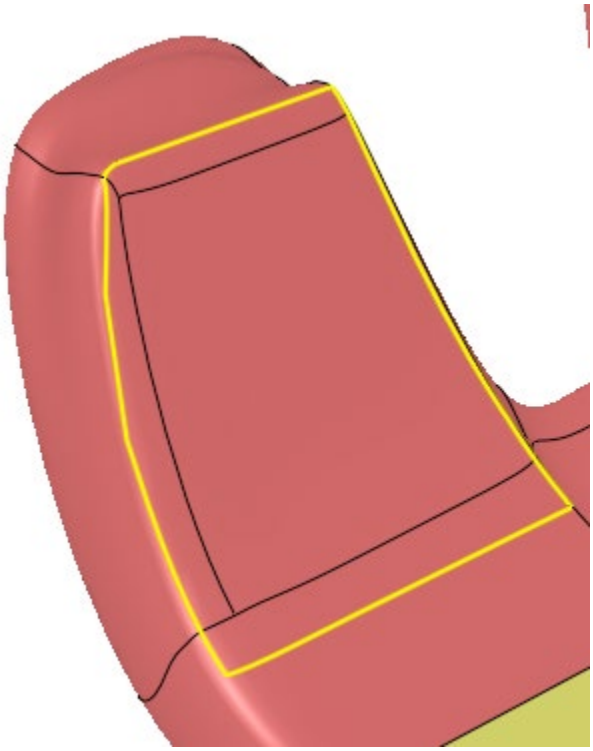




24. Press the **OK** button.

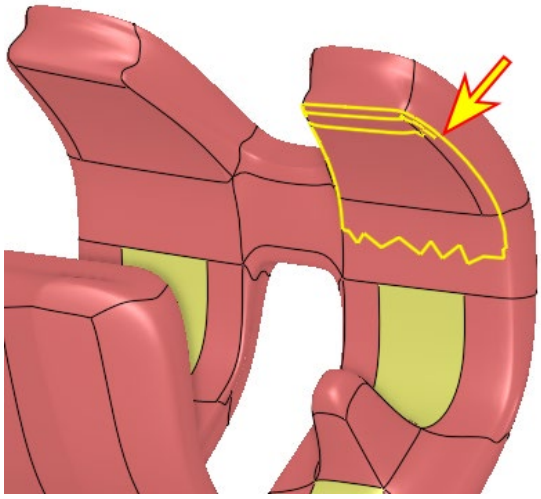



Support Manager
Supports
Meta-Templates
Add Pattern
Wall Support
Power Support
Solid Support
Solid Wall
Cone Support
Manual Cone
Skirt Support
Multi Exposure
Support Clearance
Update Supports
Edit Region
Manual region
Create Regions
Name
Part Name
Region Type
C
S
Support type
Support Te...
Color
Analysi...
Min. Height
2D Area
Region 31 Femoral Knee Closed 45.0 67.05 52.04
Region 30 Femoral Knee Closed 44.0 64.10 404.73
Region 29 Femoral Knee Closed 45.0 59.24 56.69
Region 28 Femoral Knee Closed 45.0 67.06 0.00
Region 27 Femoral Knee Closed 45.0 67.06 0.01
Region 26 Femoral Knee Closed 45.0 34.66 46.16
Region 25 Femoral Knee Closed 45.0 67.09 0.47
Region 24 Femoral Knee Closed 45.0 34.66 46.17
Region 23 Femoral Knee Closed 45.0 67.05 48.44
Region 22 Femoral Knee Closed 45.0 61.81 [illegible]9.36
Region 21 Femoral Knee Closed 45.0 10.21 2716.51
Features
Y
Z
X



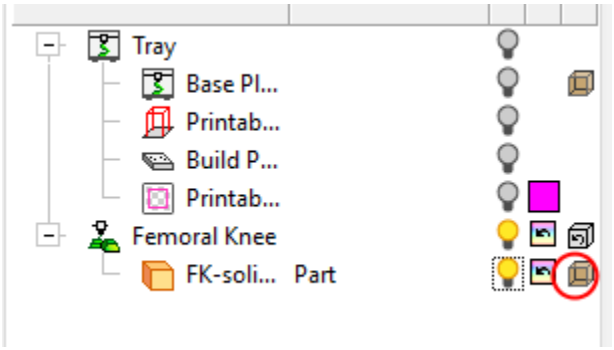
The twin region (number “2”) can be modified the same way.

25. Pick the region and press the Edit Region option from the Support Manager.



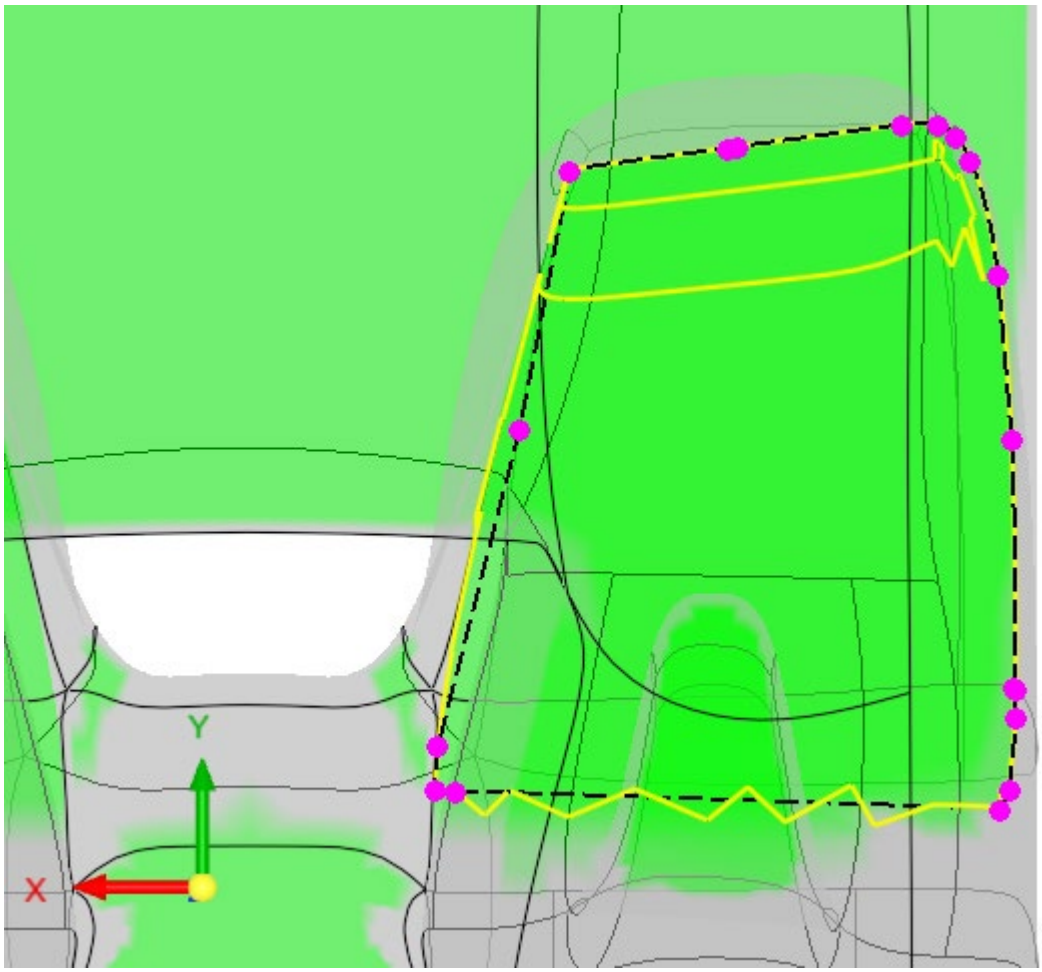
26. Zoom in to the projected sketch.

27. Change the display of the part to transparent mode.

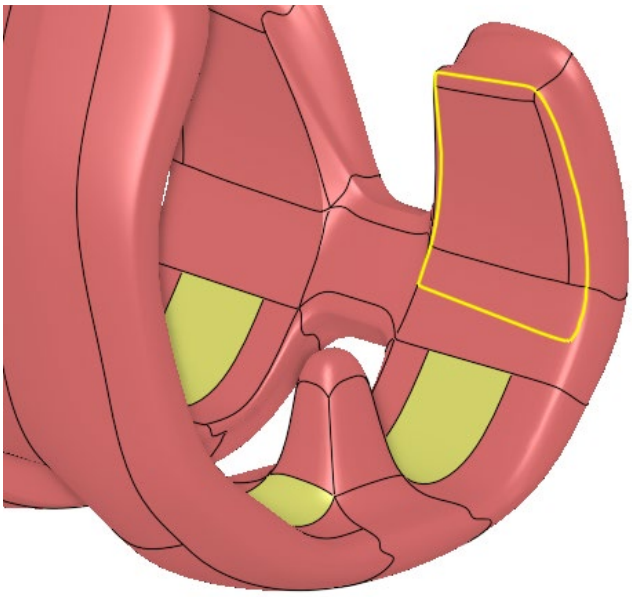


28. Click the **Z axis** to look at the projected sketch from above.

29. Delete and drag points as required :

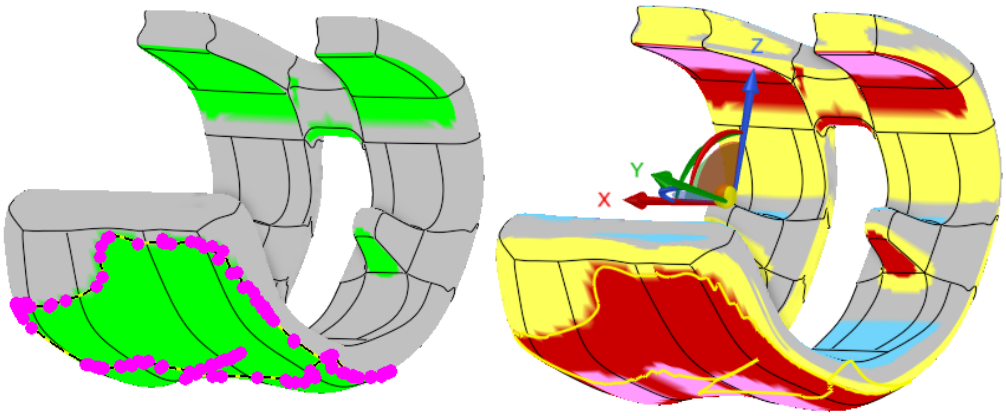


30. Right Mouse click and press **OK**.



The lower down facing area of the part is currently marked by one region.

The shape of the region is dictated by the down facing analysis (as seen through Position Body).



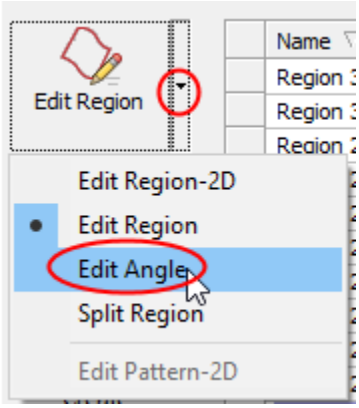
If we want, we can edit the shape so that it will reach the outer edges of the part.

Notice however that this is a gray area where supports are not required.

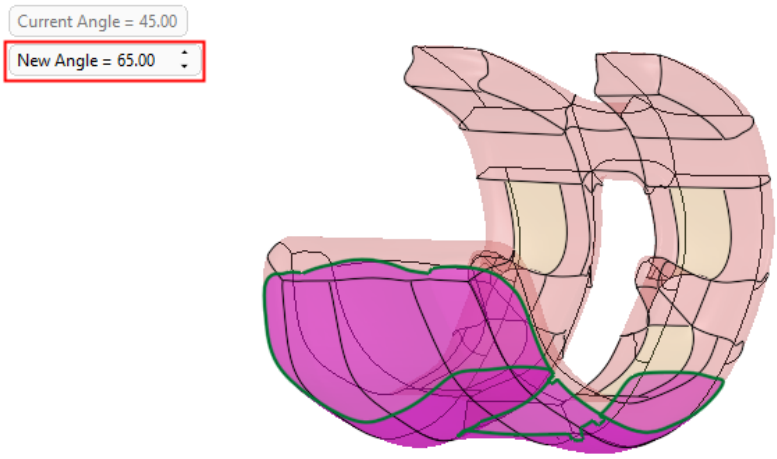
Still, if we locally changed the overhang angle (for this region), the region's boundary will change accordingly.

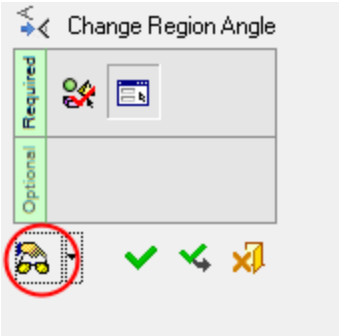
Edit Angle

31. Pick the region (lower one) and in the Support Manager enter **Edit Angle**.



32. Set the New Angle for this region as **65** degrees.
33. Press the Preview button.



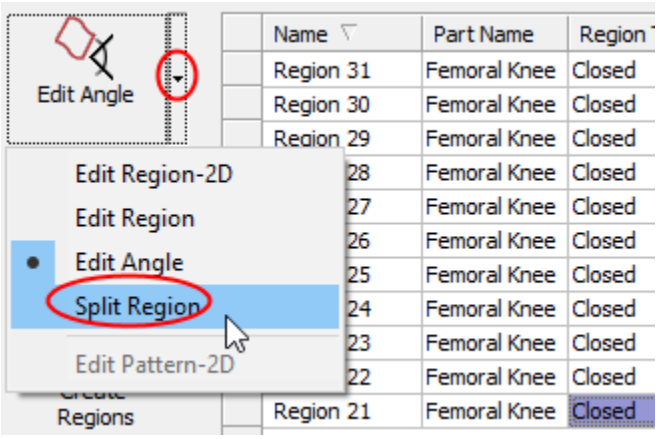


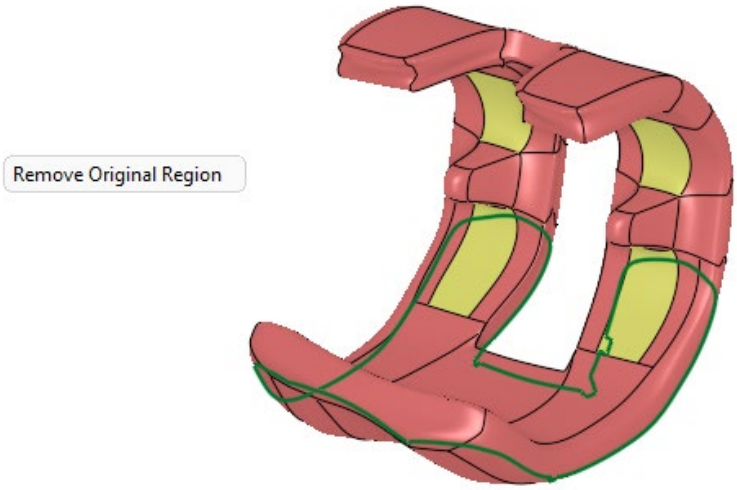
34. Note the difference. Press **OK**.

Split the region into separate regions

The Region is now larger. Let's suppose that we wish to divide this region into separate regions (in order to later put a different type of support on each region).

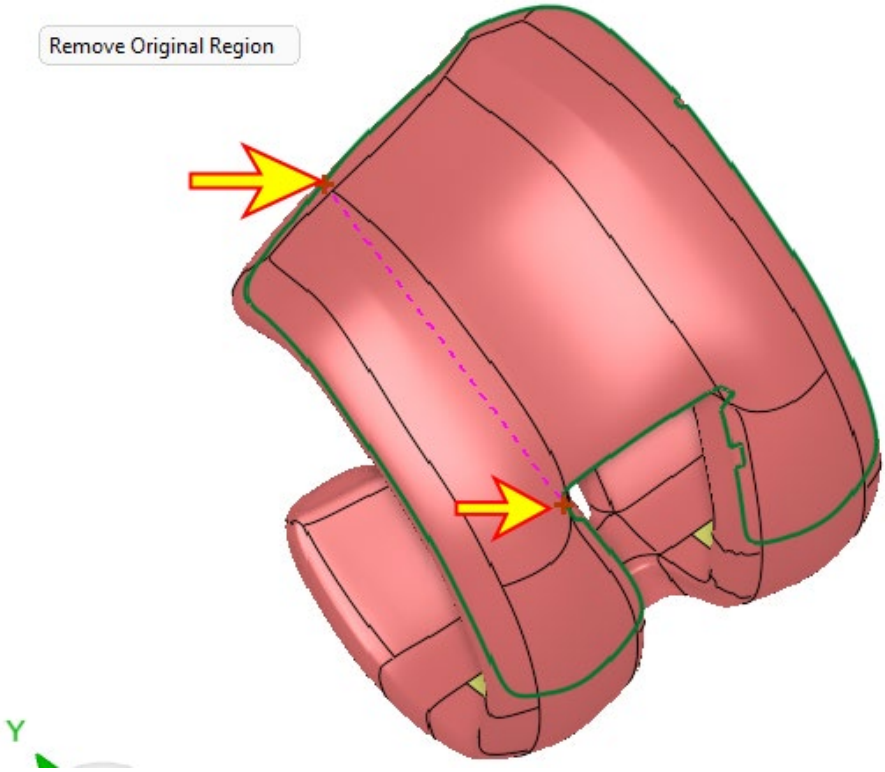
35. Pick the lower region. Select **Split Region.**



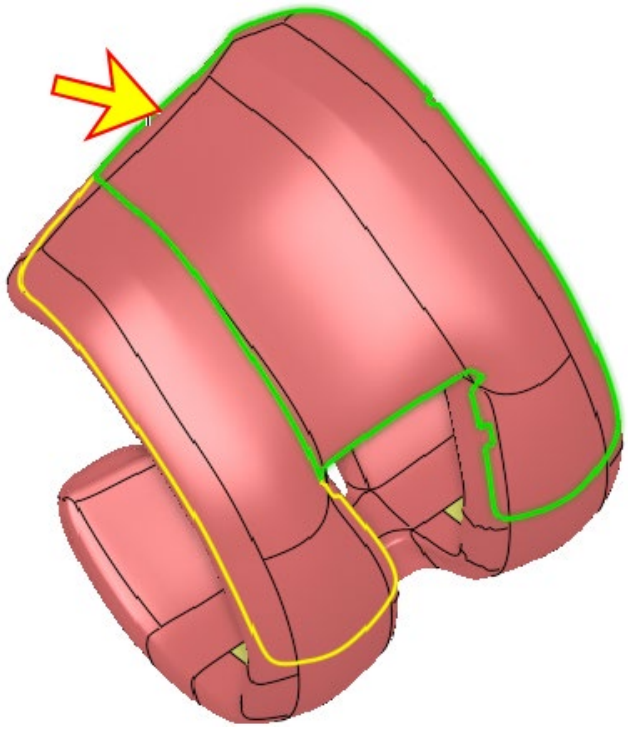


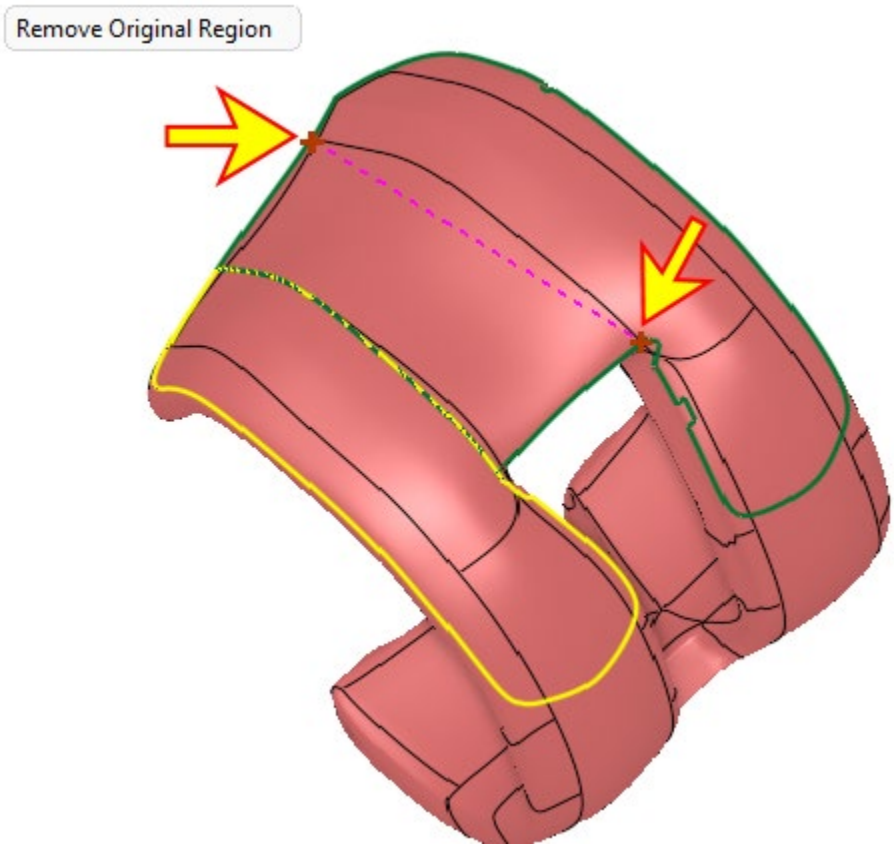
We will now split the large region into two regions:

Pick two points as shown in the picture below:



36. Right-mouse click and press **Apply**.
37. Do the same on the other side. Select the split region and pick two points as shown in the picture below:





38. Right-mouse click and press **OK**.

    The result are three lower regions.

    End of Exercise