

# Mesh Modification



# What is mesh modification?

- There are multiple ways that a mesh can be modified in PRIMER. These are as follows:-
  - Split shells using predefined patterns.
  - Split shells by drawing a line.
  - Find warped quads and split into two trias.
  - Fix transitions between adjacent shells.
  - Detach shells from a mesh.
  - Combine shells together into one shell.
  - Solid split and propagate through the solids.
- All of the above options can be found in the “Mesh Tools” panel.



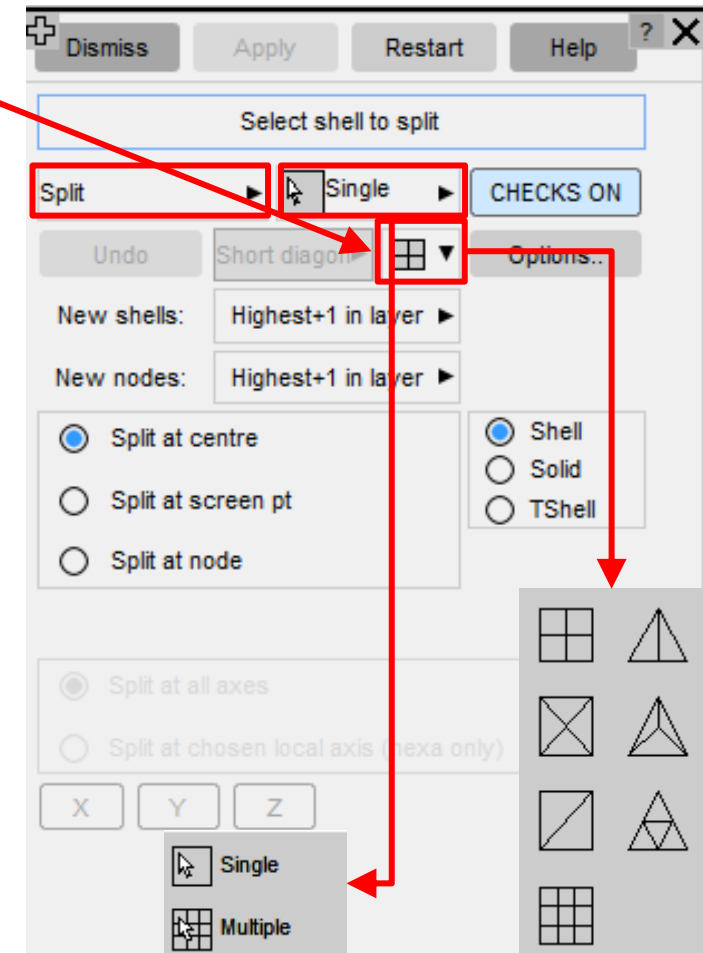
# Information relating to more than one tool.

- Some tools will allow you to work on a single shell or multiple shells. The default is the single shell mode. These modes are ([Split shells using predefined patterns](#) and [Split shells by drawing a line](#)).
- In this mode, 'quick picking' is activated. Alternatively, to operate on many shells at the same time, select Multiple mode. The standard object menu is mapped to allow you to choose the shells you want to modify. Press "Apply" to change them.
- You can choose what labels to use for any new nodes and shells that are created. Use the popup to select which option you require.
- If you choose "Start at label" then give a label number to start from. PRIMER will try to use that number. If a node or beam already exists with that label it will revert to "Highest+1 in model".



# Split shells using predefined patterns.

- There are several predefined split patterns. To change the pattern use the popup as displayed on the right hand side.
- Single Mode:
  - In single mode just click on a shell to split it.
  - You can split the shell at the centre of the shell, at the point you click on the screen (projected onto the shell) or at an existing node location.
- Multiple Mode:
  - Select the shells you want to split using the object menu and press “APPLY”.
- [Information relating to these modes.](#)

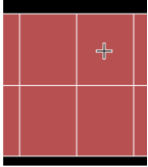


# Split shells by drawing a line.

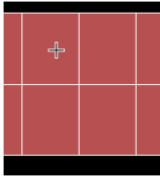
## Process for splitting shells with line:

### Single Mode:

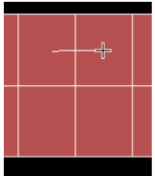
1. Select the shell to split



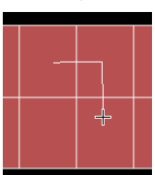
2. Click the first point on the line.



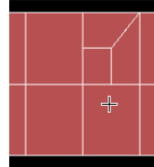
3. Click the second point on the line.



4. Click the third point on the line if required.

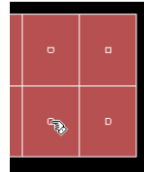


5. The shell will then split.

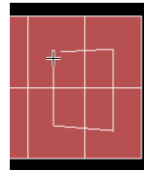


### Multiple Mode:

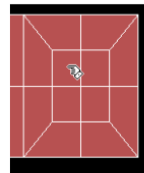
1. Select the shells to split and press "DRAW LINE".



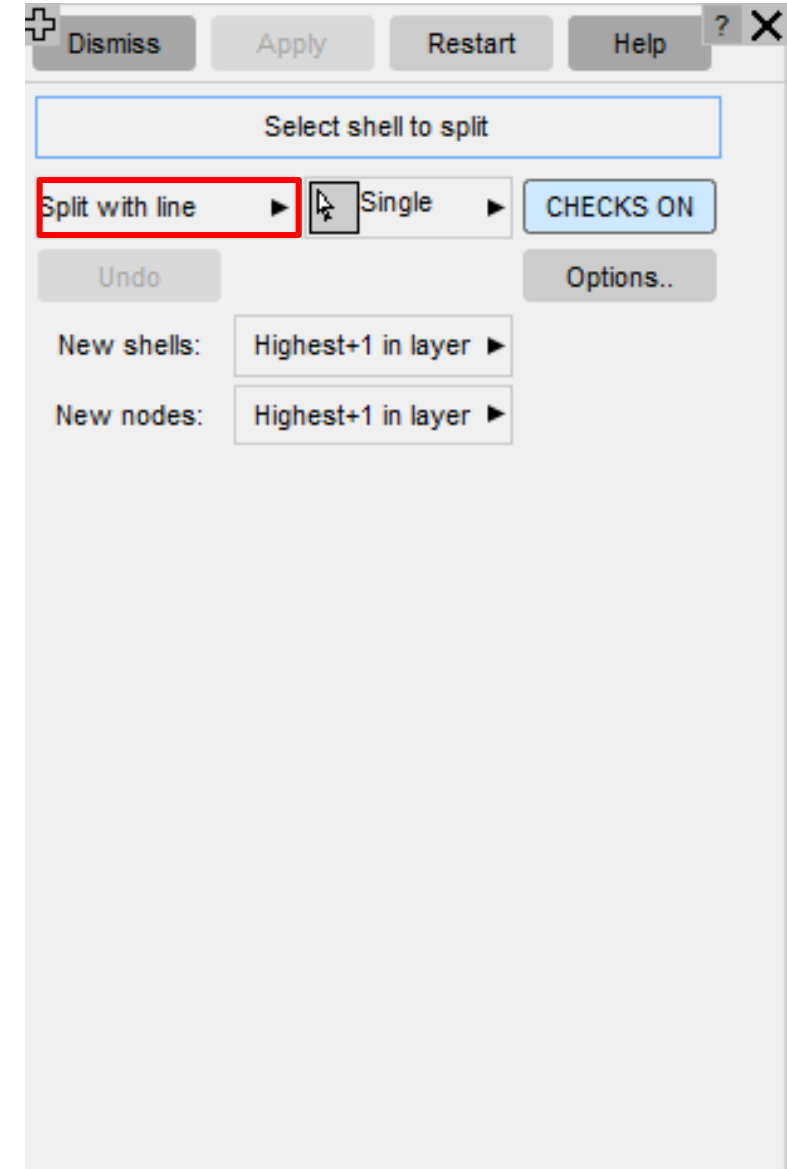
2. Draw the line by clicking with the mouse.



3. Press "Apply" to split the shells.

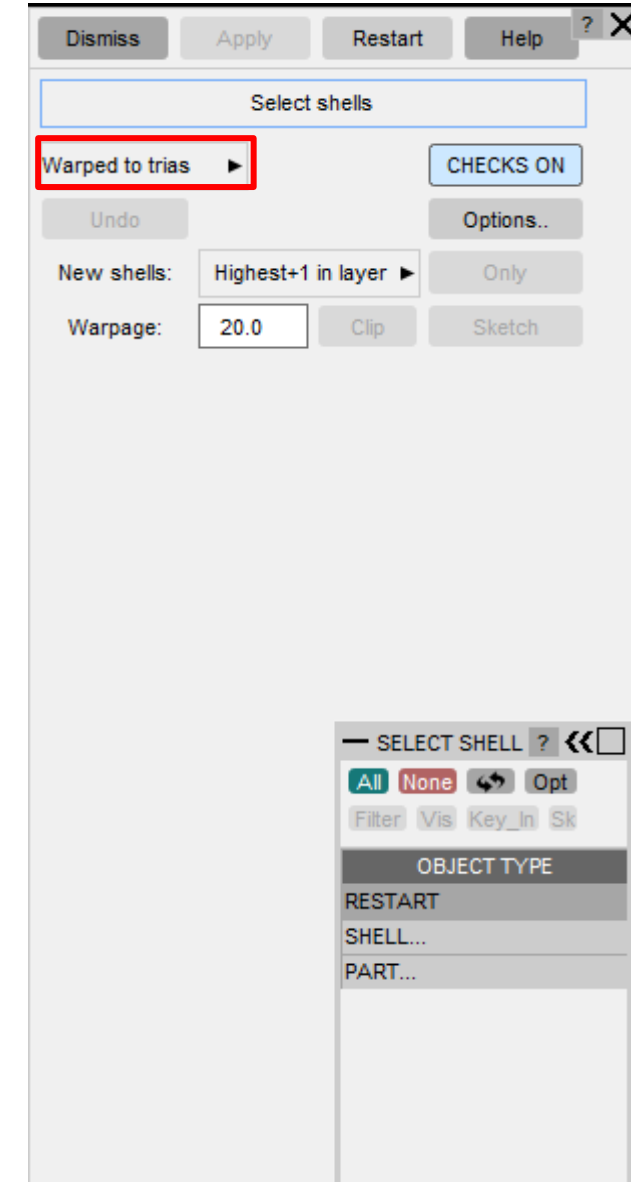


[Information relating to these modes.](#)



# Find warped quads and split into 2 trias.

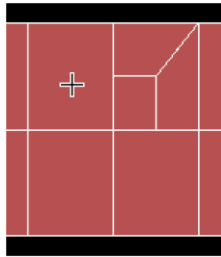
- To split the warped quad shells first these shells will need to be selected using the object selection menu.
- These shells can also be checked to see if they are warped by specifying the warpage number and then selecting an entire part or group of shells that need checking.
- You can sketch the shells that are warped by pressing the “Sketch” button.
- They can also be placed on the clipboard by pressing “Clip”.
- To split the shells into trias press “Apply” once the shells have been selected.



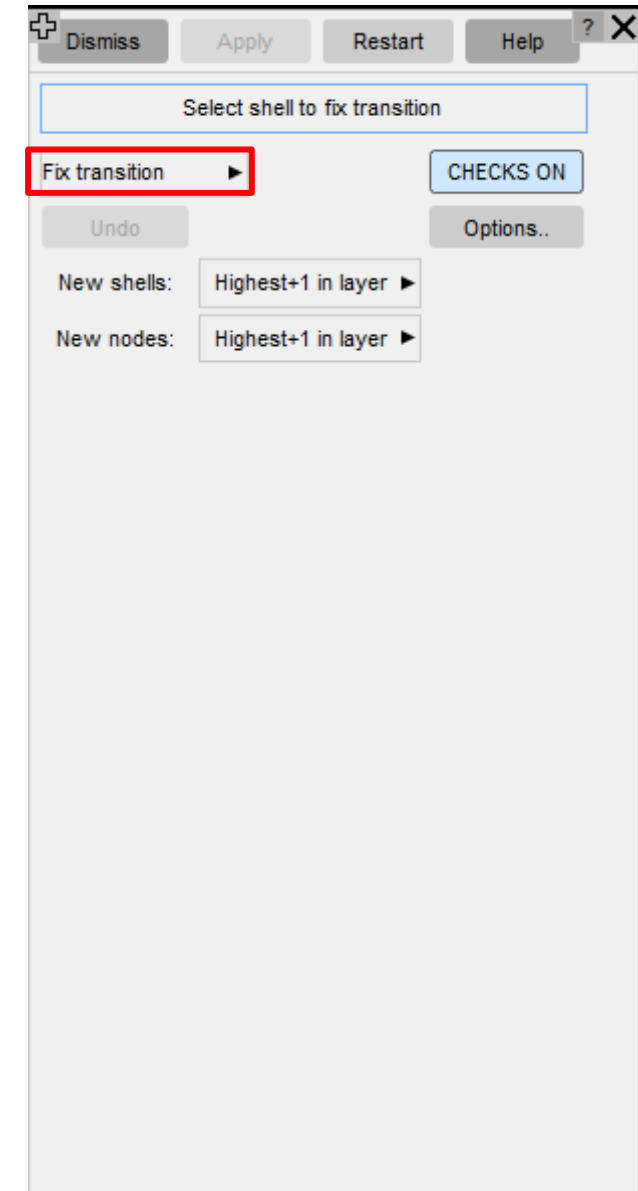
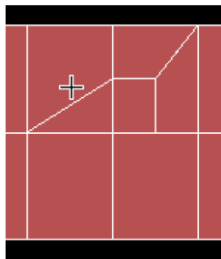
# Fix transitions between adjacent shells.

- “Fix transitions” looks at neighbouring elements to see if the mesh is continuous. If it is not, the element is split to make it continuous.

1. Click on the shell you want to split.

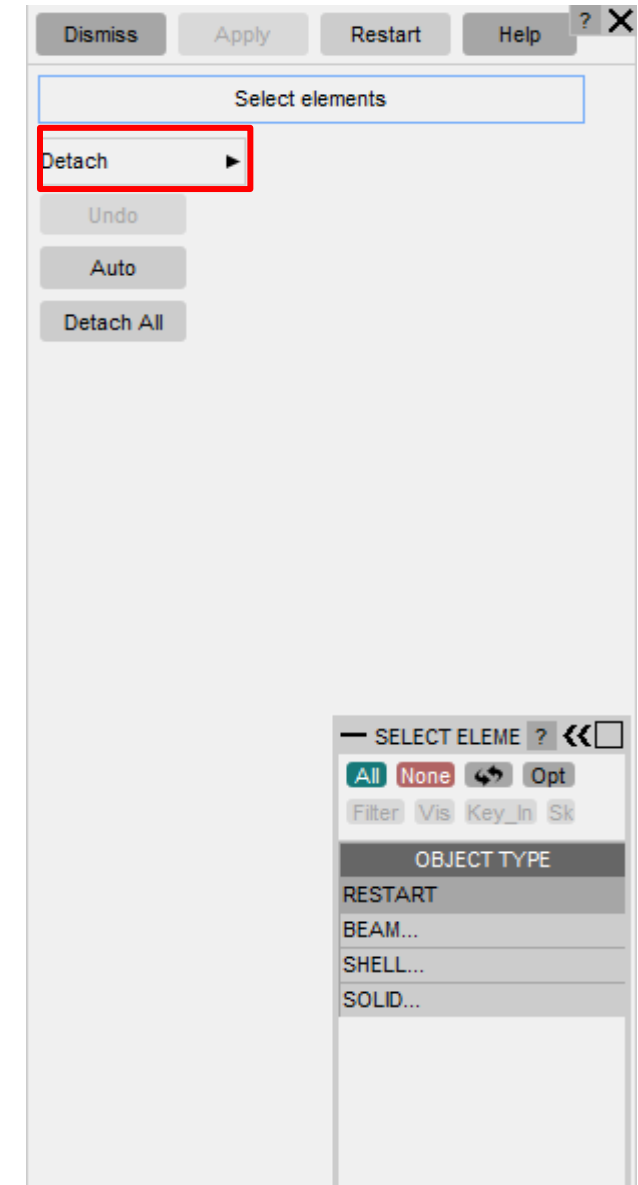


2. The shell is split to make a continuous mesh.



# Detach shells from a mesh.

- To detach one or more shells from a mesh use the Detach function.
- Select the shells you want to detach by either clicking on the screen or using the object menu.
- If “Auto” is enabled, once you have selected a specified number of shells they will be detached, otherwise press “Apply” to detach them.
- To detach all shells from the mesh, select the “Detach All” option.





# Combine shells together into one shell.

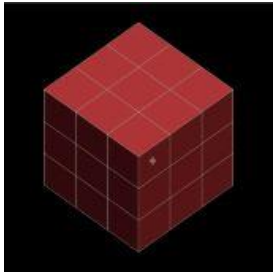
- To combine two or more shells together use the combine function.
- Select the shells you want to combine by either clicking on the screen or using the object menu.
- If “Auto” is enabled, once you have selected the specified number of shells they will be combined otherwise press “Apply” to combine them.
- The “Quad” and “Tria” buttons can be used to toggle what the shells will combine to.



# Solid split and propagate through solids.

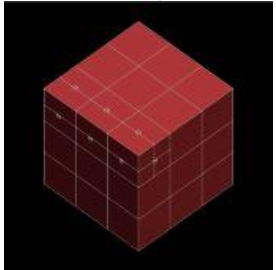
Split and propagate splits the solids from a selected face in a predefined split type.

1. Select face on the solid

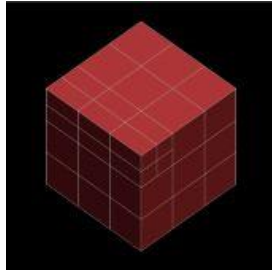


3. Change type of split (if required)

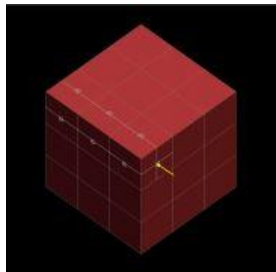
2. Preview the split direction.



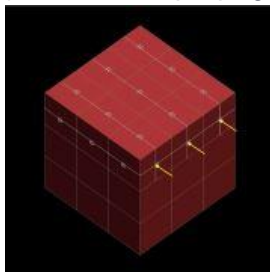
4. Click "Apply" to split the solids.



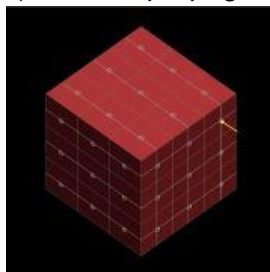
Single mode



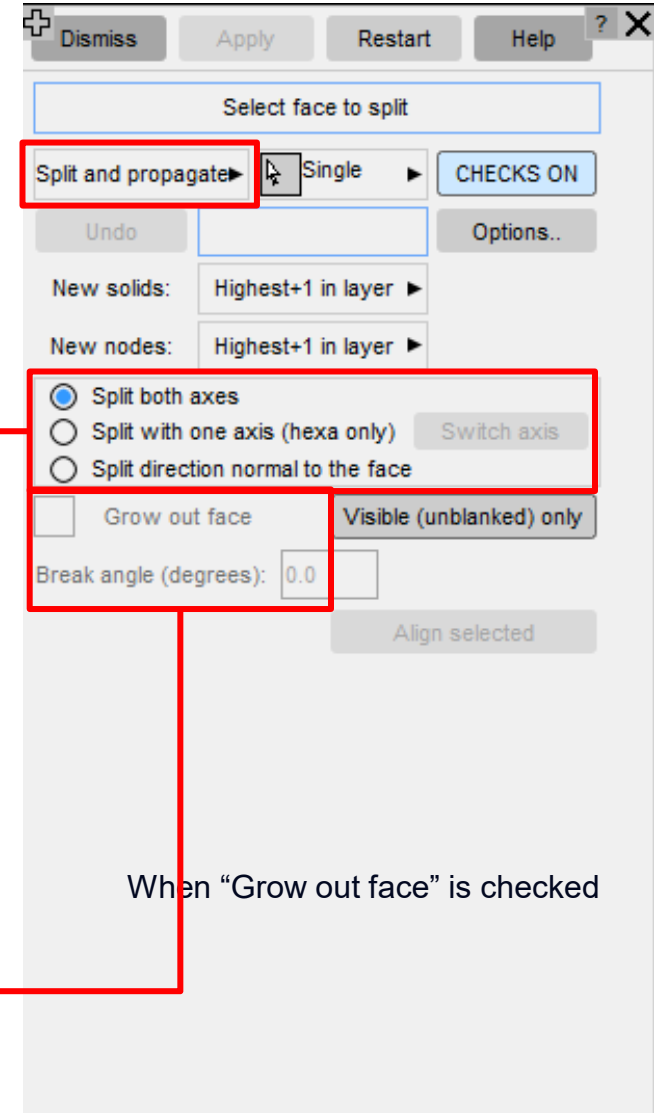
Multiple mode  
(without face propagation)



Multiple mode  
(with face propagation)



Yellow arrow indicates the face clicked on



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