

Orient



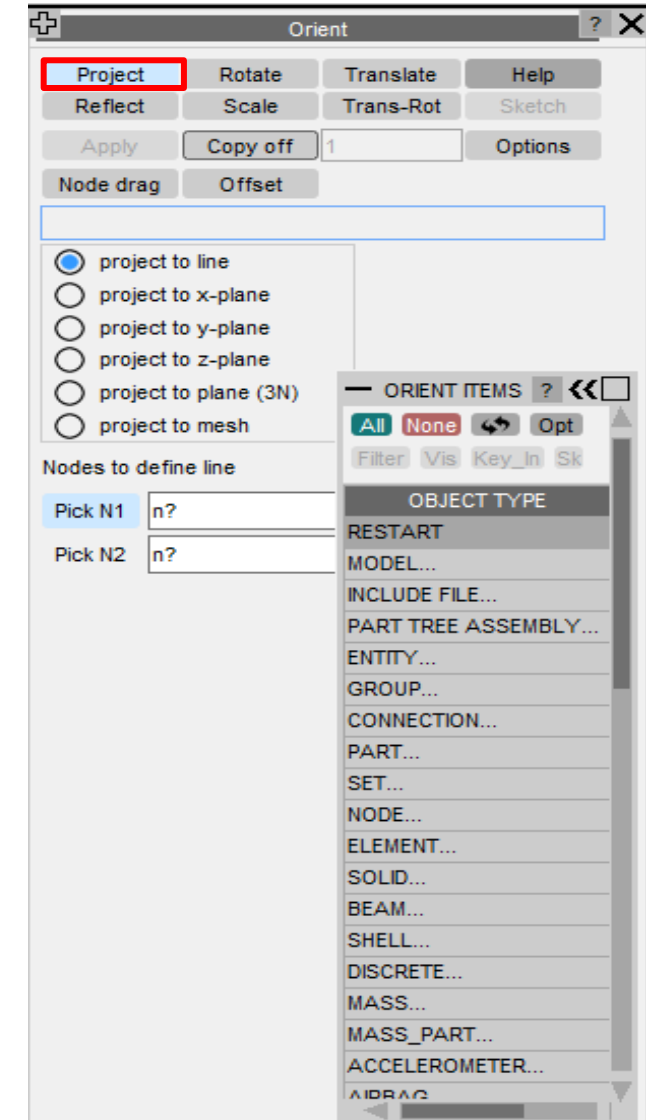
What is Orient?

- Moves any selected entity or entities in a model to a different position.
- Options to make copies of the entity or entities when moving.
- Allows user to project, scale, rotate, reflect or translate any entity.



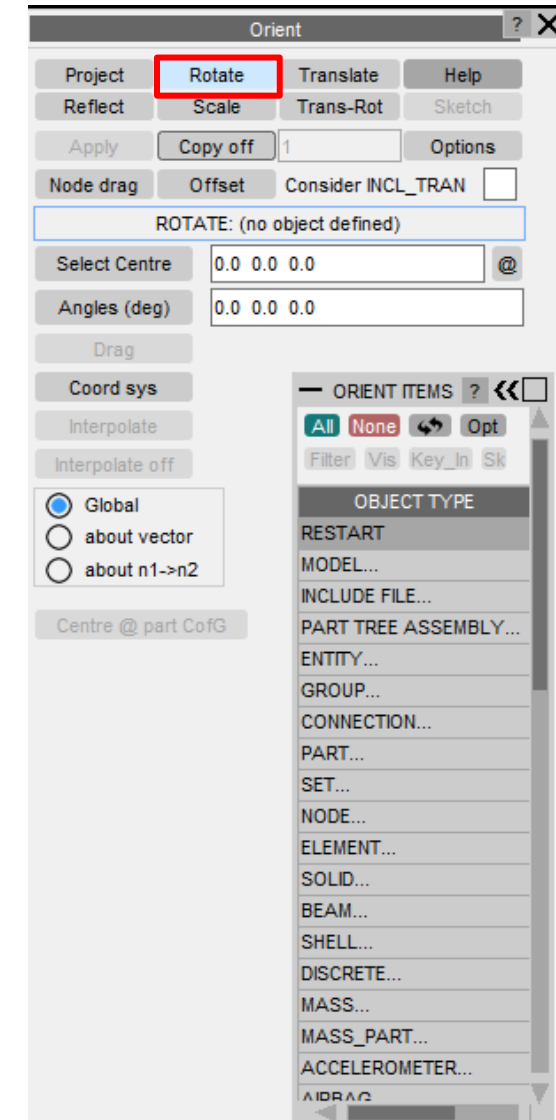
Project

- Project to line – Will project the nodes of the selected entities to a user defined line by specifying 2 nodes.
- Project to x/y/z-plane – Will project the nodes of the selected entities to the x/y/z-plane. The plane is in the global Coordinate System, and a location other than global 0.0 can be specified. There are options to project along a specified vector or normal to the plane.
- Project to plane (3N) – Will allow the user to define a plane in which the nodes of the selected entities will be projected to. The plane is defined by selecting 3 nodes.
- Project to mesh – Will project the nodes of the entities selected to a specified mesh, along a specified vector.



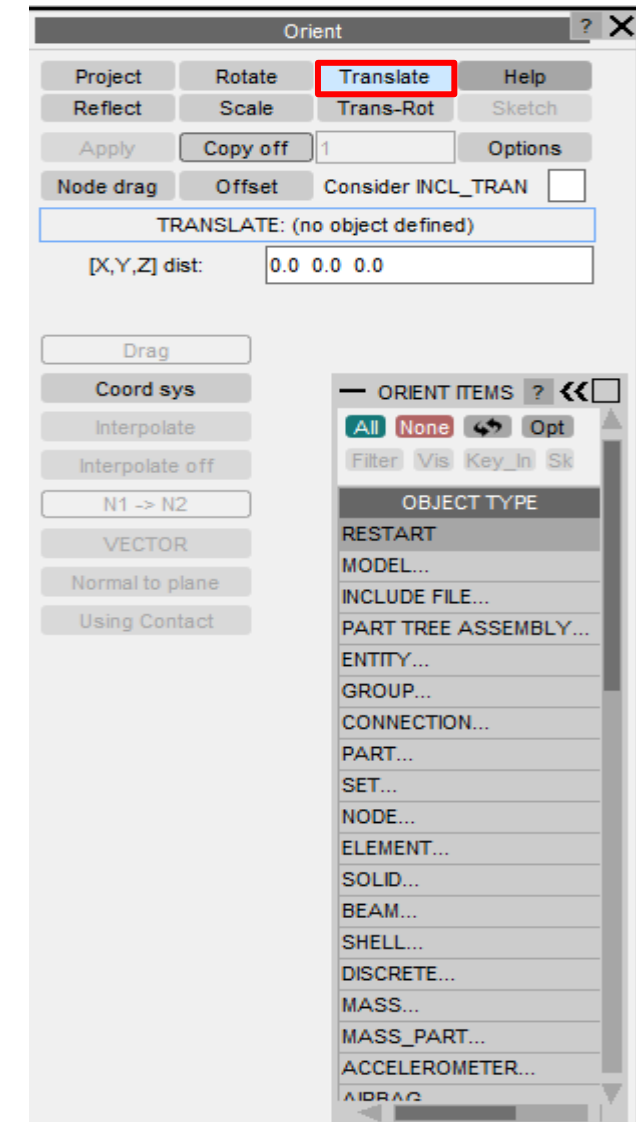
Rotate

- Allows the user to rotate entities about a user defined centre coordinate and vector.
- The centre and vector can be defined manually or through various interactive methods.
- The rotation angle can also be defined manually or through interactive methods. Note it is usually wise to define the rotation about one axis at a time as for combined rotation the order in which the angles are applied is significant.



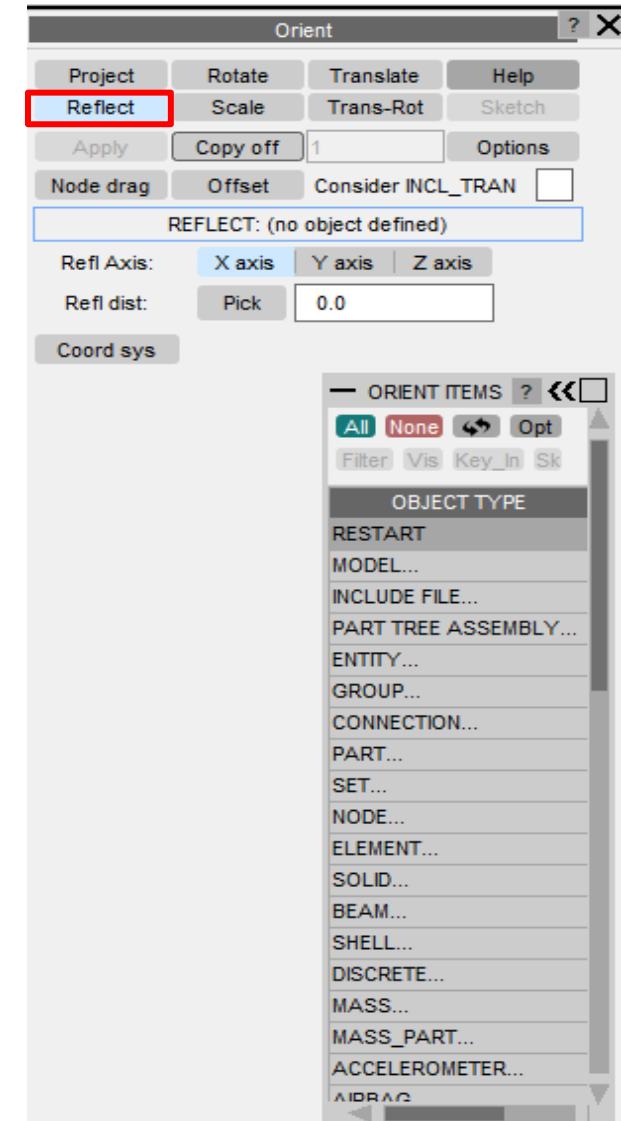
Translate

- Allows the user to move entities by a specified distance in a specified direction.
- To define how far entities will be translated there are multiple methods:
 - User defined vector.
 - Interactive drag.
 - Use $N1 \rightarrow N2$ to move along a vector between two nodes.
 - Normal to a plane.
- Translation using contact moves the selected entities along a defined vector until the entities contact another set of selected entities.



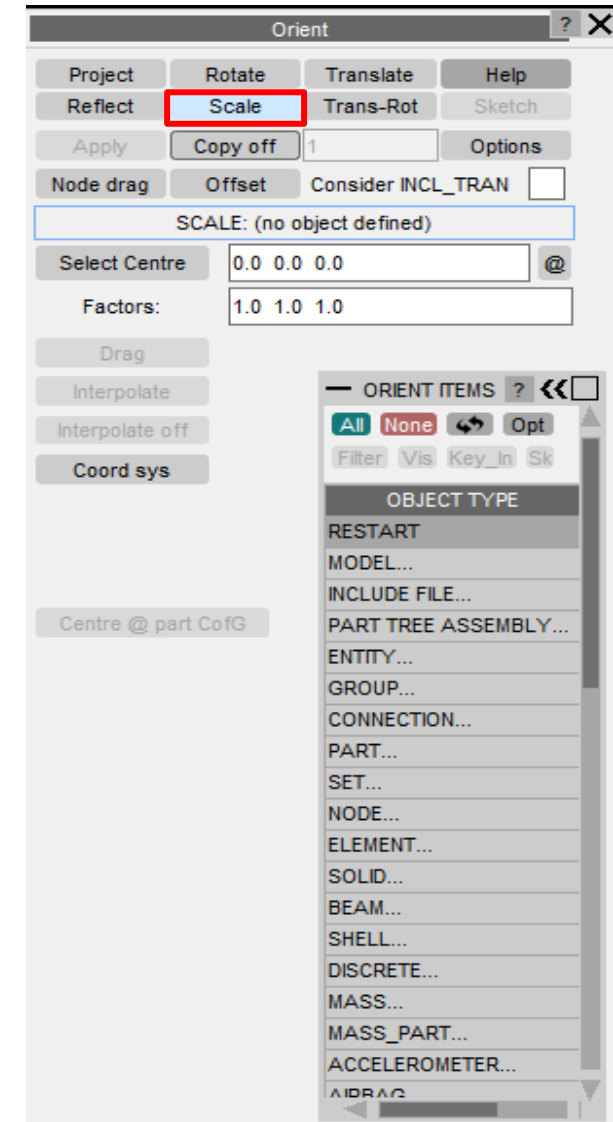
Reflect

- User has the option of which axis to reflect selected entities in:
 - x-axis.
 - y-axis.
 - z-axis.
- User can optionally specify a reflective distance.



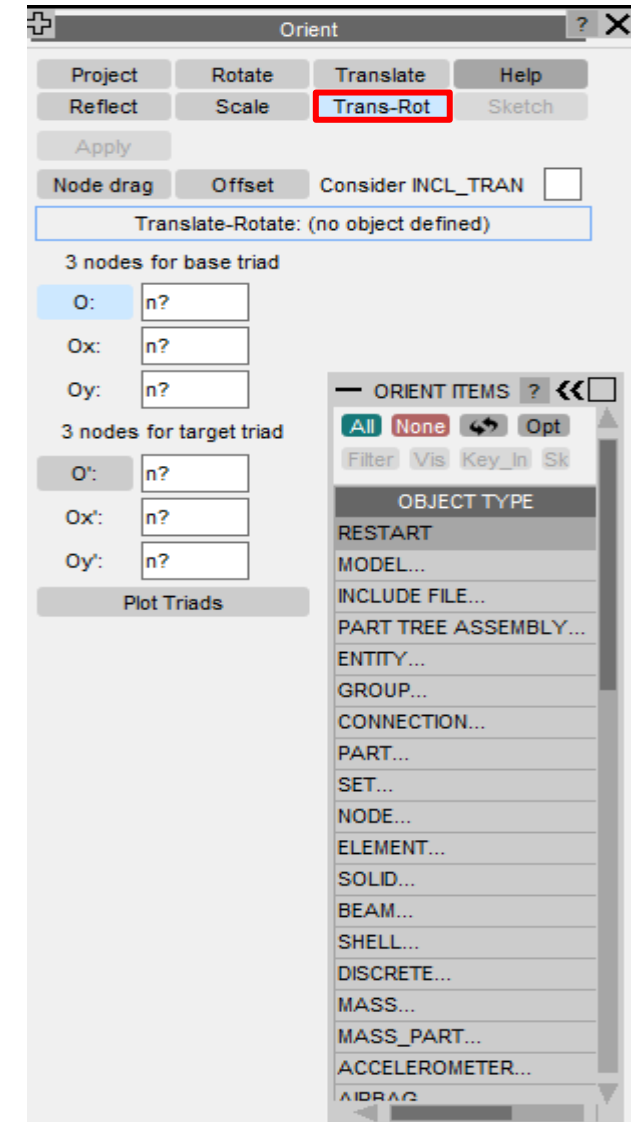
Scale

- “Pick Centre” prompts the user to specify the scale centre, this can be done using the ‘Pick Centre’ button or by manually entering the coordinates in the text box.
- “Factors” allows the user to specify the scale factor in each of the three directions, x, y and z.



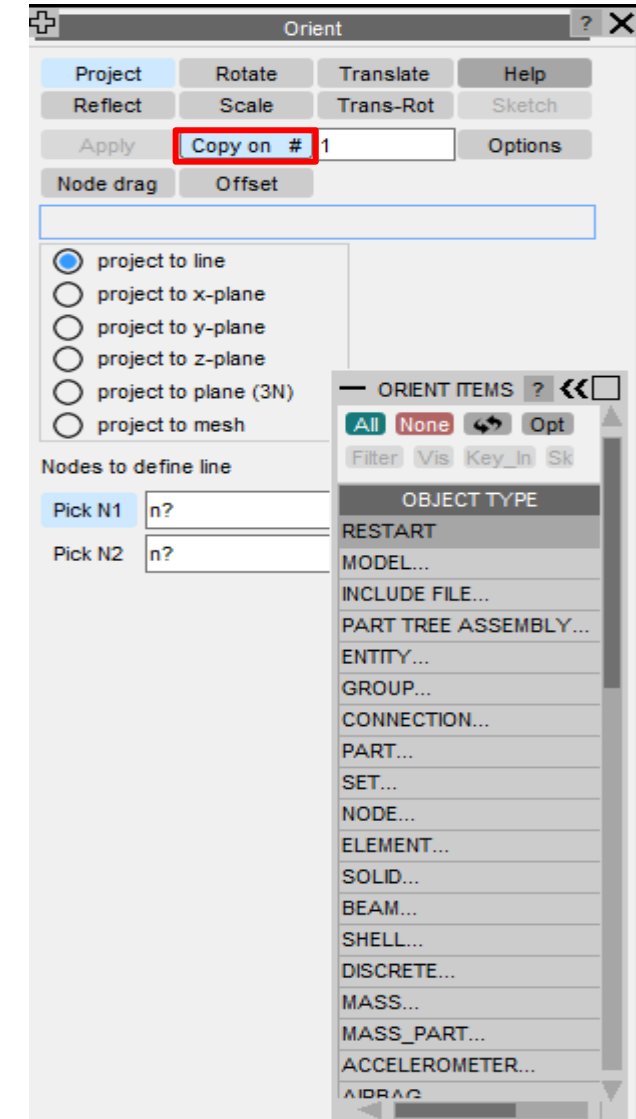
Translate - Rotate

- Allows a user to translate and rotate entities in one operation, by specifying a source and target triad.
- 3 nodes need to be defined for the base triad
- 3 nodes need to be defined for the target triad.
- “Plot Triads” allows the user to view which nodes have been selected.



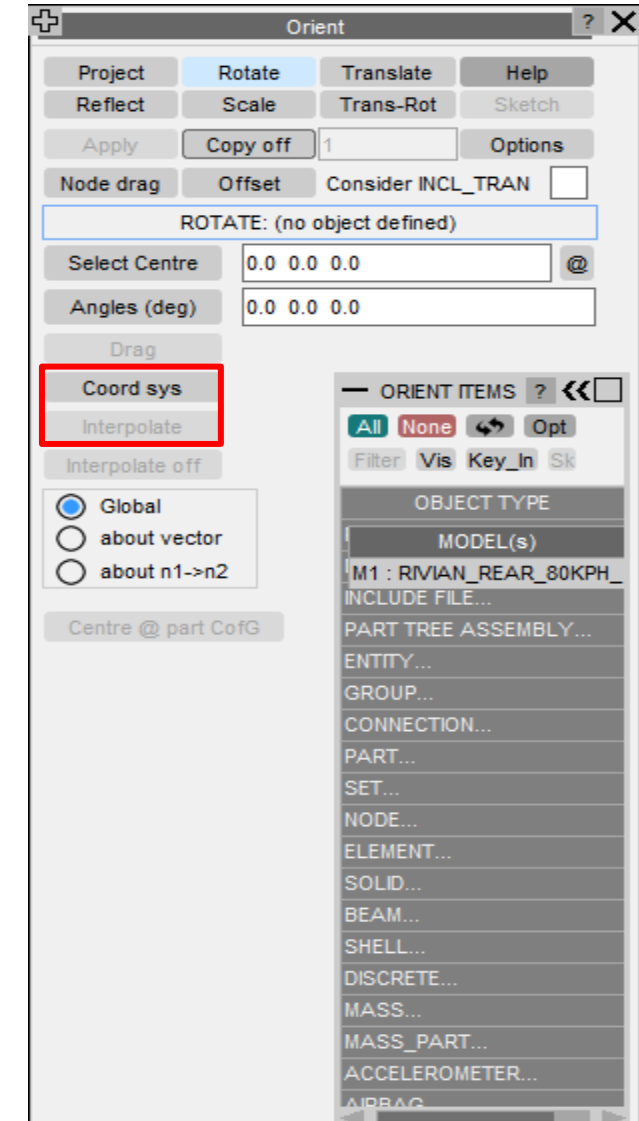
The “Copy on” Option

- The “Copy on” option is available for “Reflect”, “Rotate”, “Translate”, “Scale” and “Project”.
- The copy can be applied once or multiple times, the orient being incremented each time.
- Various options are available when copying under the “options” button.



Interpolate/Coordinate System

- The functions “interpolate” and “Coord Sys” are used in multiple orientation types.
- “Coord Sys” allows the user to specify a local coordinate system to apply the orientation operation in, rather than the default of the global coordinate system.
- “Interpolate” allows the user to spread the orientation results over a wider area than just the selected entities by applying “interpolated” values to adjacent entities.
 - This is done by assigning a “distance of influence” value.
 - Once this is done the coordinates of unselected nodes within the radius of this distance of any explicitly selected nodes will have their coordinates updated.



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