# Altair® HyperWorks®

2022.2

### Renumber Entities

Use the Renumber tool to review and organize the IDs of model entities.

Organizing entity IDs can facilitate easier post-processing and model management. This tool can renumber entities into a different range, offset the IDs of selected entities by a specified amount, and/or renumber entities in a particular order.

1. From the Assembly ribbon, click the **Renumber** tool.



Figure 1.

- 2. Choose either the **Renumber** or the **Offset** method from the drop-down on the guide bar.
- 3. Select the entities to be renumbered.
  - Use the Ordered checkbox to select nodes or elements in the explicit order they are to be renumbered. Use the Alt shortcut key to quickly make selections by path.
  - By default, IDs are shown on selected entities for review. This may be turned off in the options menu (
     ■) for large selections or when ID labels are otherwise undesirable.
- 4. Input the new starting ID and/or offset as appropriate.
  - By default, entities will be renumbered to the next available ID if the starting ID is already in use. The Overwrite existing IDs option will force renumbering into the specified range and automatically renumber any conflicting entities above the highest ID used in the model.
- 5. On the guide bar, click one of the following:
  - Apply and stay in the tool
  - Apply and close the tool
  - X Exit the tool without applying

Use the Maintain selection option to perform iterative renumbering actions on the same selection.

After renumbering, the new IDs are displayed on the renumbered entities for review until another selection is made.

## **Spatial Renumbering**

Renumber elements and nodes based on spatial sorting.

1. From the Assembly ribbon, click the arrow next to the Renumber tool, then select **Spatial Renumber**.

- 2. Select a sorting schema from the drop-down on the guide bar.
- 3. Select a list of nodes or elements to renumber.

4. Use the microdialog to define relevant options.

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Figure 3. After Element Renumber: X increment by 1, Y increment by 100																		
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Before Element Renumber  500 501 502 503 504 505 506 507 508 506 400 401 402 403 404 405 406 407 408 408 300 301 302 303 304 305 306 307 308 308 200 201 202 203 204 205 206 207 208 208  y 100 101 102 103 104 105 106 107 108 108  Figure 3. After Element Renumber: X increment by 1, Y increment by 100  Using the adjacent method, renumbering is based on element/node connectivity							

- 5. On the guide bar, click one of the following:
  - Enter the Start ID.Apply and stay in the tool
  - b. Click **Options** on the guide bar.

    Output

    Output

    Description

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  - c. Select a starting node or element.

    × Exit the tool without applying
    - d. Select an element/node for the primary, secondary, and tertiary directions and define their

#### How the Tolerance Setting-Affects the Renumber Result

These should be connected to the starting element.

The tolerance is used to group the nodes/elements in the correct order for renumbering.

For example, if you have a simple structured mesh with nodes distanced 5 mm on the local X direction and 2 mm on the local Y you want to renumber the nodes so that it starts with 101 for the starting ID. Then increment in local X direction by 1, for example 101, 101+1, 101+2, and in local Y direction by 10, for example 101, 101+10, 101+20.

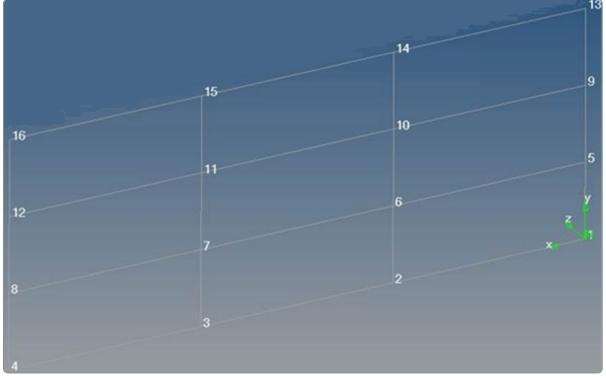


Figure 4.

If you use the correct tolerance of 1 mm (which is <5 mm and < 2 mm nodal distances) here is the result:

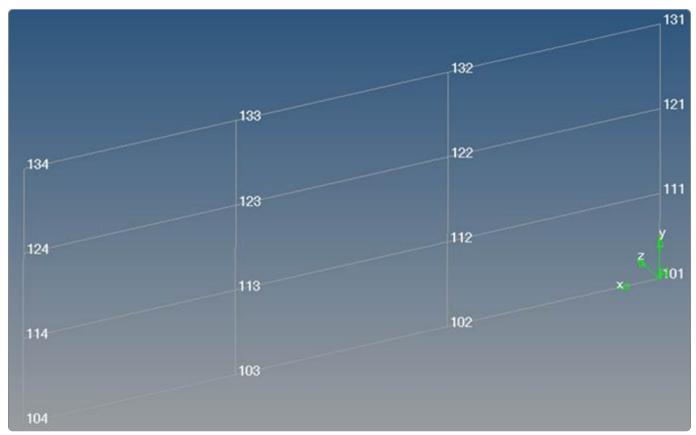


Figure 5.

In a real scenario you rarely get meshes like the example above, so the distances between nodes are variable like the image below. You want to renumber it with the same objective and tolerances (1mm).

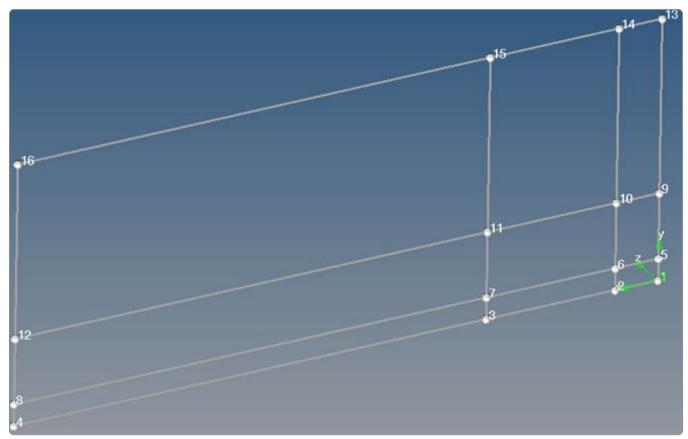


Figure 6.

The result is:

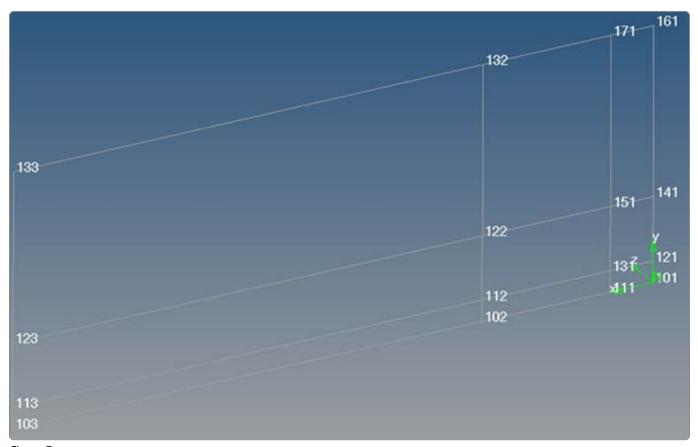


Figure 7.

As you can see in the image above, the renumbering is not done properly. This is because the smallest nodal distance is 0.5 mm which is smaller than 1 mm tolerance. If you reduce the tolerance to 0.1 mm you will get the correct result.

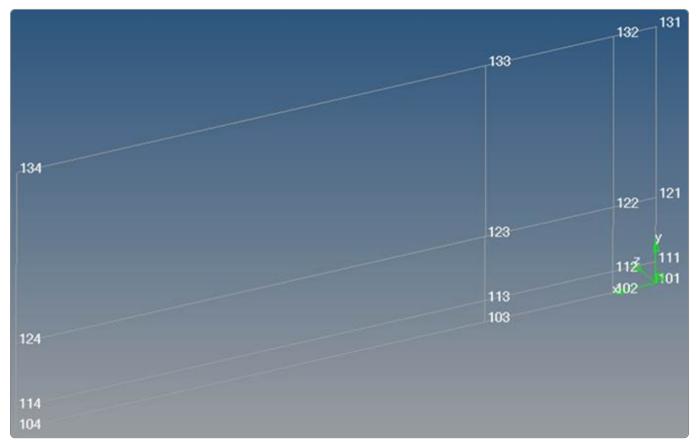


Figure 8.

#### See Also

**ID-Management**