Altair® HyperWorks®

2022.2

Manage Configurations

Group common and unique parts/part assemblies together in part sets, and organize parts and part sets that are unique to a configuration.

In the traditional model build and assembly workflow, subsystems that contain multiple variants are stored in multiple HyperMesh binary files. This complicates the model build and update process as part updates and revisions will need to be performed on each binary file.

An example of a subsystem that may contain multiple configurations is a vehicle body-in-white (BIW). A typical sedan BIW may have the following configurations:

- Left-hand drive (LHD)
- Right-hand drive (RHD)
- Fixed roof (Fixed)
- Panoramic roof (Pano)

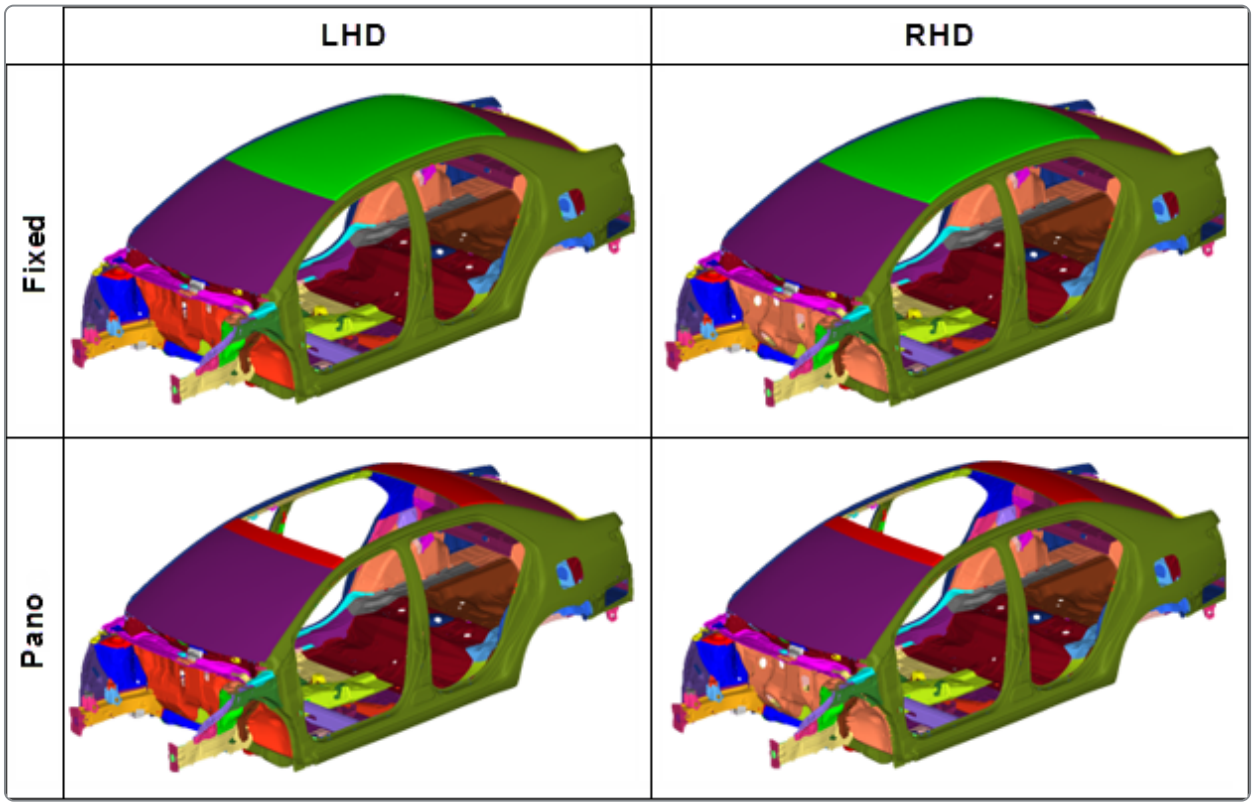

Figure 1.

All common and unique parts that appear in all configurations for a given subsystem are stored in a single HyperMesh binary file, known as a Layered Model. In a Layered Model, common parts are active in all configurations. Unique parts are active only in a specific configuration. You must deactivate unique parts not appearing in a

configuration.

Part sets and configurations are written to the solver deck as XML comments. The XML block is added at the bottom of the solver deck so that when importing a deck the info can be rebuilt. In this case, the HyperMesh binary is not used.

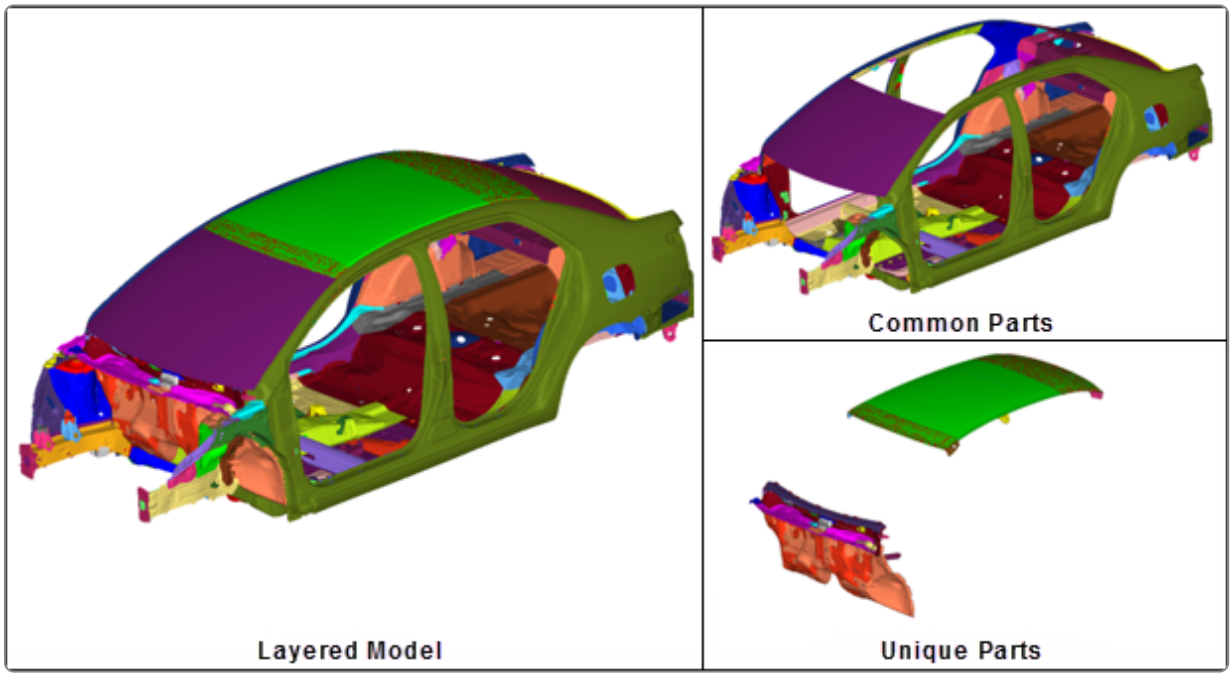

Figure 2.

About Part Sets and Configurations

Part sets group common or unique parts, and configurations organize parts and part sets that are mutually exclusive to a configuration.

Example: Configuration Management Workflow

Configuration management workflow for a Dash and Cowl subsystem.

The configuration management workflow for a Dash and Cowl subsystem is shown in Figure 3, along with the Left-hand drive (LHD) and Right-hand drive (RHD) configurations contained in the Layered HyperMesh binary file.

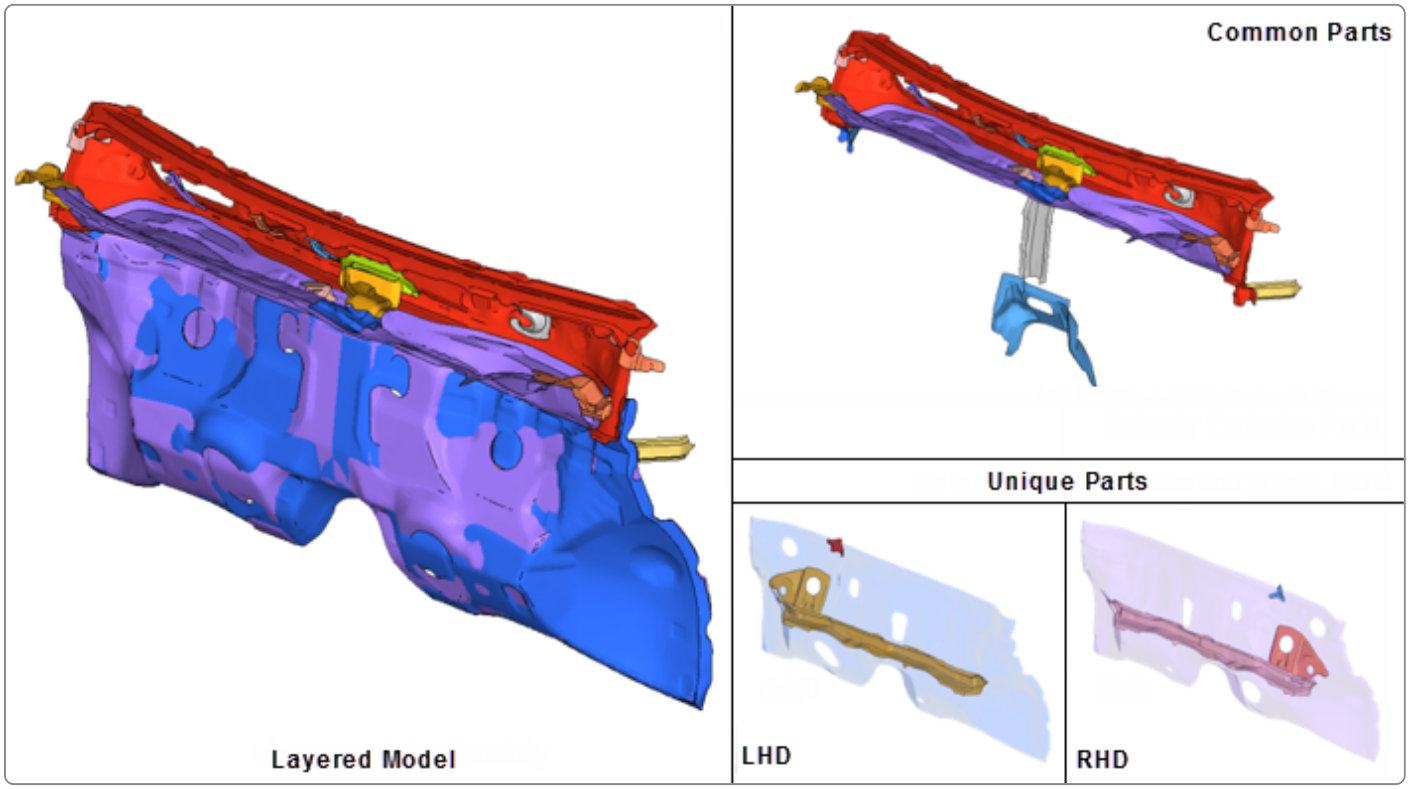

Figure 3.

Common parts are active in all configurations and unique parts are active only in a specific configuration. The model hierarchy is shown in Figure 4.

Part Assemblies/Parts	UID	Representation	Active
Model			
Dash and Cowl Assembly			☑
Dash RHD Assembly			☑
Dash Panel RHD		Common	☑
Dash Inner Bracket RHD		Common	☑
Dash Cross Member RHD		Common	☑
Dash Bracket Large RHD		Common	☑
Dash LHD Assembly			☑
Dash Panel LHD		Common	☑
Dash Inner Bracket LHD		Common	☑
Dash Cross Member LHD		Common	☑
Dash Bracket Large LHD		Common	☑
Dash and Cowl Common			☑

Figure 4.

To activate the LHD configuration of the Dash and Cowl assembly, perform one of the following:

- Clear the Active column for the following individual, unique parts that belong to the RHD configuration.
  - Dash Panel RHD
  - Dash Bracket Large RHD
  - Dash Inner Bracket RHD
  - Dash Cross Member RHD
- If all unique parts are nested in a single part assembly, clear the Active column for Dash RHD Assembly.
- If all parts and part sets that are unique are organized in a configuration, enable the LHD configuration's associated checkbox in the Active column of the Configuration view.

All RHD unique parts are removed from the modeling window and are automatically set to do not export. Export the solver deck for the LHD configuration using the Export Solver Deck Browser.

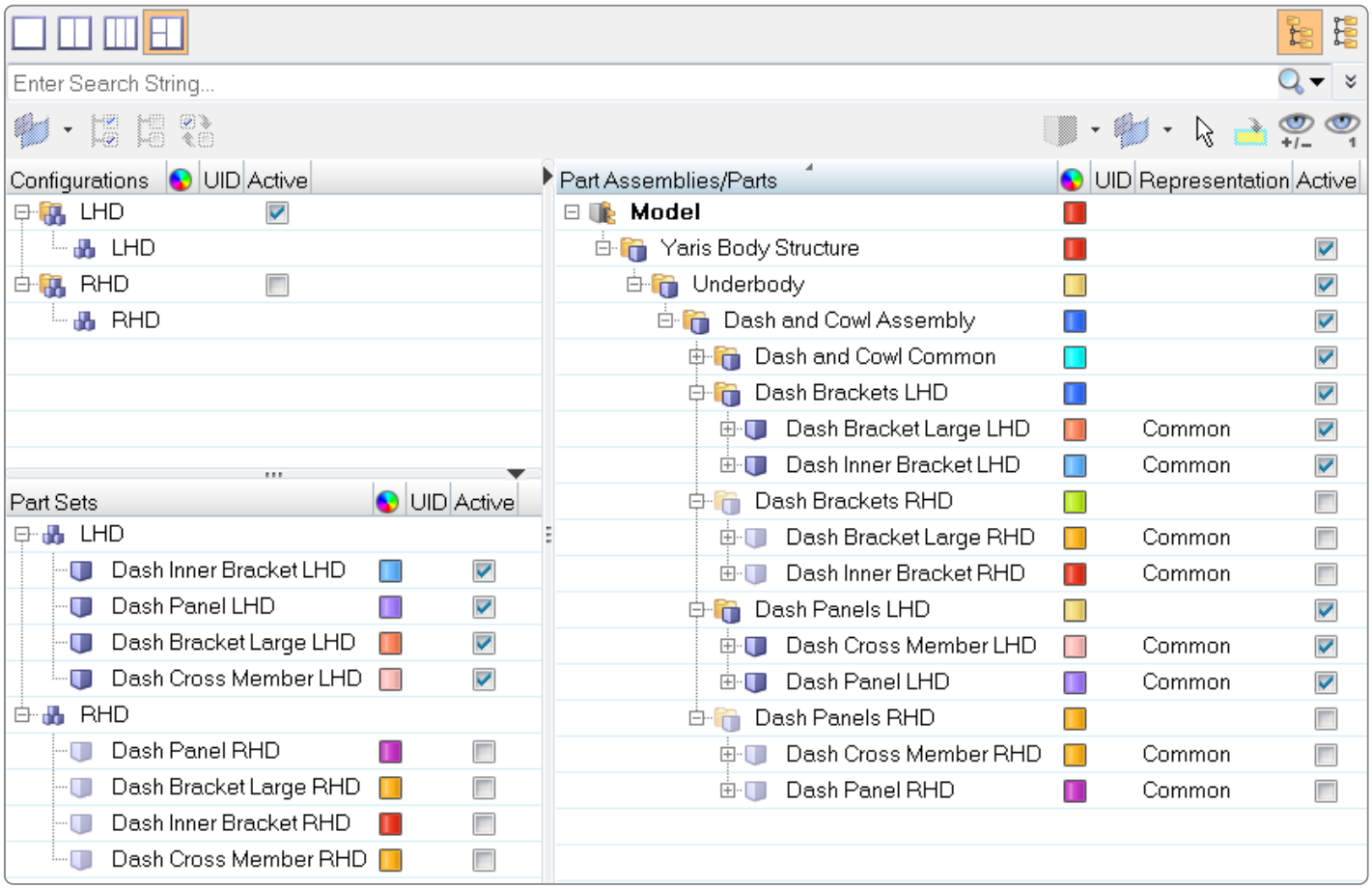

Figure 5.

Create Part Sets

1. Open the Part Browser.
2. In the Part Set view, right-click and select **Create** > (and then) **Part Set** from the context menu.
   A new part set is created.

3. From the Part view, click-and-drag parts and part assemblies that are common and/or unique onto the part set.

Tip: Dragging-and-dropping selected parts/part assemblies into the white space of the Part Set view automatically creates a new part set for the selected.

Create Configurations

1. Open the Part Browser.
2. In the Configuration view, right-click and select **Create** > (and then) **Configuration** from the context menu.
3. From the Part and/or Part Set views, click-and-drag parts, part assemblies, and part sets that are unique to a configuration onto the configuration.

Tip: Dragging-and-dropping selected parts, part assemblies, and part sets into the white space of the Configuration view automatically creates a new Configuration for the selected.

Remove Contents of Part Sets and Configurations

In the Part Browser, remove the contents of part sets and configurations in the following:

- Right-click on the entity and select **Remove** from the context menu.
- Drag the entity into the white space of the respective browser view.

Activate/Deactivate Configurations

Control the display and export state of parts and part assemblies by changing the active/inactive state of configurations.

Entities set to inactive are still visible in the Part Browser. Deactivated components will not be visible in the Model Browser, Display panel, and panel entity collectors.

- Set configuration to active.
    1. Go to the Part Browser, Configuration view.
    2. In the Active column, select the configuration's checkbox.

    Note: Only one configuration can be activated.

    Tip: For simple models you can activate a configuration in the Part view by setting all unique parts not appearing in the configuration to inactive.

    - All of the parts, part assemblies, components, and part sets organized in the active configuration are isolated in the modeling window.
    - All of the parts, part assemblies, components, and part sets not associated with the active configuration become inactive and their display is turned off in the modeling window.
    - Inactive components are set to do not export.

- Set part assembly to inactive.
    - Removes all nested parts and owned components from the modeling window.
    - Sets all owned components to do not export.

- Set part to inactive.
    - Removes the part and its owned components from the modeling window.
    - Sets all owned components to do not export.

Create and Organize Part Sets from PDM Variants

1. In the Part Browser, Part Set view, right-click on a part set entity (if available) or in the white space and select **Create Variants** from the context menu.
2. In the **Confirm Create Variants** dialog, click **Yes**.

The created part sets are nested under a Variants Part Set.

Note: Part sets are recreated on each invoke of the Create Variants operation.

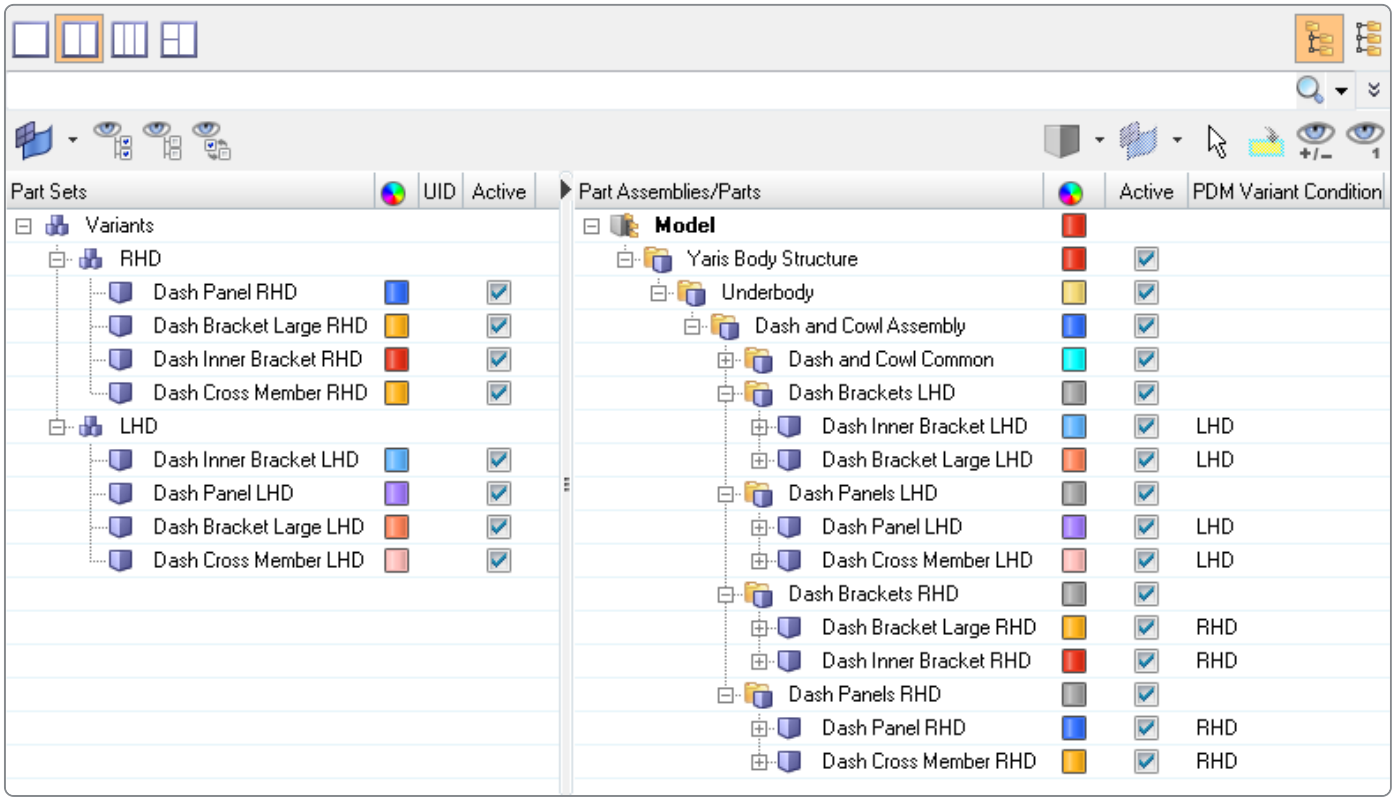

Figure 6.

PDM Variant Conditions

PDM Variant Conditions are utilized in PDM systems, such as Teamcenter, to mark similar parts in BOMs that may contain multiple variants, such as an automotive BIW.

Attributes supported in the Part Browser via BOM Import and user editing via the Entity Editor include:

PDM Variant Condition	If non-empty, the part is used as a variant in one or more part configurations.
PDM Variant Scope	Along with the Variant Condition attribute, it describes which part configurations the part belongs to as a variant.

Part sets are created per PDM Variant Condition attribute found in the global part assembly/part hierarchy. The operation can be invoked at model, part assembly, or part level.

You can organize part sets from PDM Variants in any view of the Part Browser.