Defining feature model

What is a Feature Model?

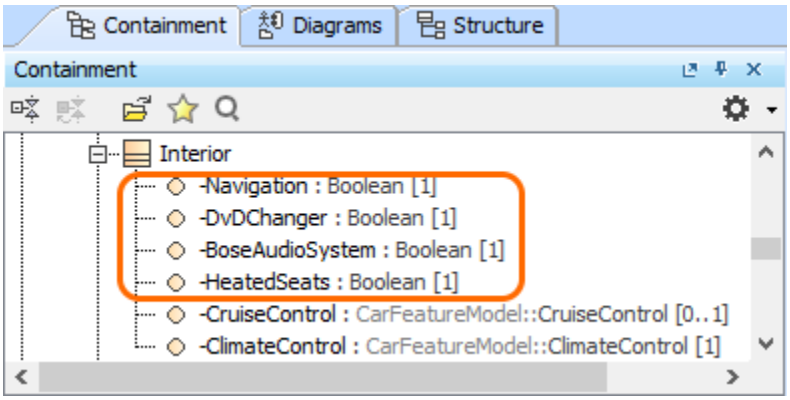
The Feature Model is a simple UML Class model. The root of the Feature Model is a Class with the «RootFeatureGroup» stereotype applied.

You can use multiple independent feature models in one project. An example of a common use case would be using one feature model for expressing PLE variability and another for Data Markings. Another example would be using one feature model for expressing global enterprise-wide PLE variability and a smaller, local one that is project-specific.

When there are multiple independent feature models in a single project, defined variation points can refer to features in any of those feature models. This also means that a combination of the configurations defines the 100% model of the system. This combination needs to be selected during variant highlight and/or realization.

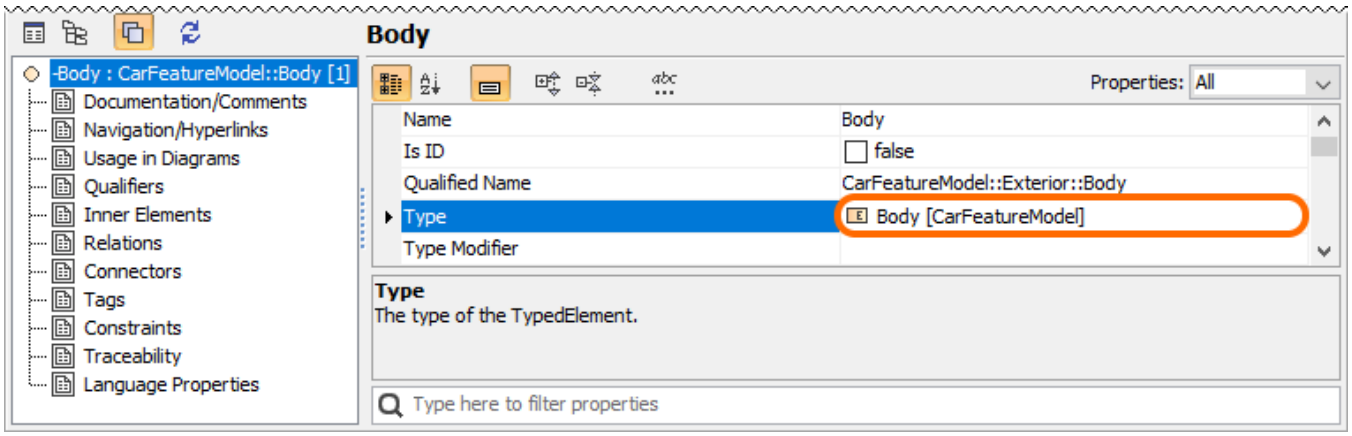
Guidelines for defining a Feature Model

Each Yes/No feature (a feature that can be chosen or not) is modeled as a UML property with *Boolean* assigned as a type.

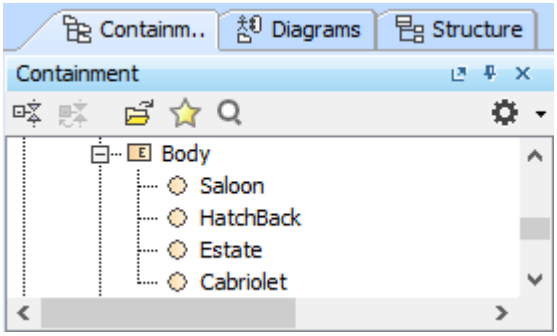


Features with the assigned *Boolean* type

Each feature that has multiple alternative choices is modeled as a UML property with *Enumeration* assigned as a type. The alternatives are modeled as *Enumeration literals*.

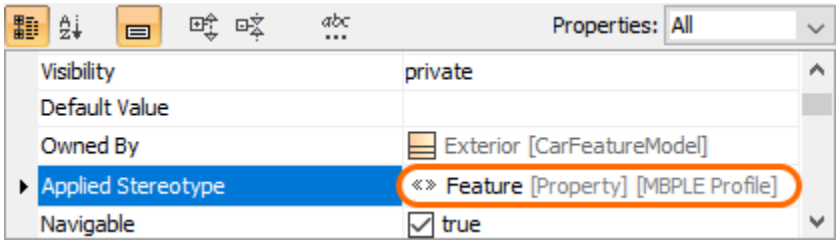


A feature containing multiple alternative choices with the assigned *Enumeration* type



Alternative choices modeled as Enumeration literals

All UML properties defined as features have the «Feature» stereotype applied.



Feature with the applied stereotype

To create a new feature

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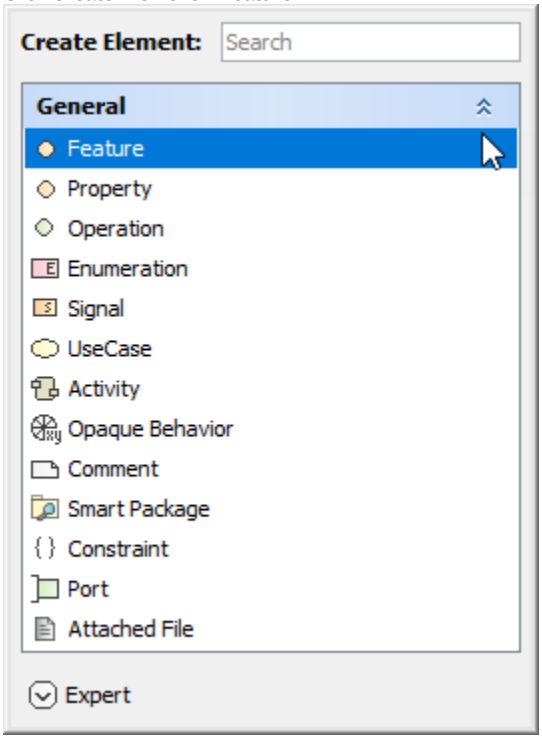
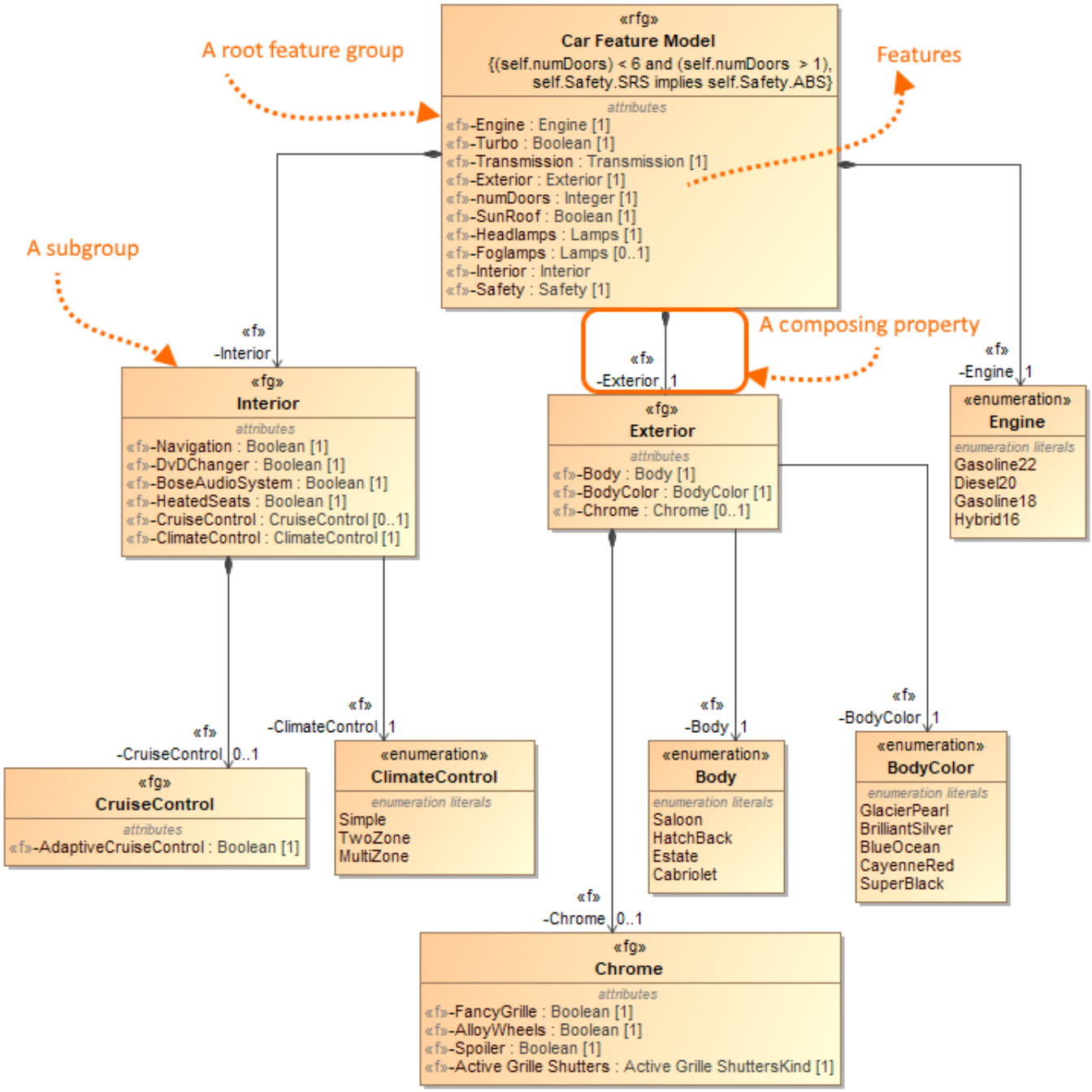
1. Right-click a **RootFeatureGroup** or **FeatureGroup** in Containment tree.
2. Click **Create Element** > **Feature**.



The composing properties must have the «Feature» stereotype applied as well. There can be multiple grouping levels (see the image below). Hereby, features are organized into a feature tree (starting from Root Feature Group).

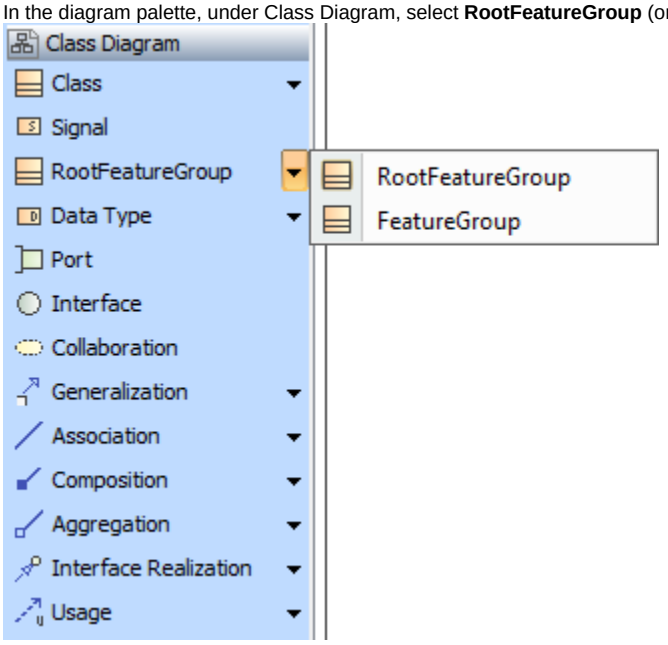


Feature Model example

Features can be placed either into a **Root Feature Group** (Class) (with the «RootFeatureGroup» stereotype applied) directly or a subgroup. A subgroup is modeled as a **FeatureGroup** (Class) with the «FeatureGroup» stereotype applied and then it is connected to the Root Feature Group using the Composition relationship.

To create a **RootFeatureGroup/Feature Group** element from the diagram palette

1. In the diagram palette, under Class Diagram, select **RootFeatureGroup** (or **FeatureGroup**).



2. Click on the diagram pane to create it.