Modeling parametric constraints

This section explains how to model system constraints in the SysML Parametric Diagram.

Parametric constraints are formulas, and parameters are variables that can be bound to value properties later. Variables can be inputs and outputs of the formula.

In general, you must perform the following steps to model your system constraints. However, some actions may already be done in the model creation process, so you may skip these steps and use existing model data.

1. Create Constraint Block with a formula defined as a constraint and parse parameters. You may Extract Constraint from Requirement.

   > **Constraint Parameter types**
   > After parsing, the default type is assigned to each of variable. If necessary, you can change the type.

2. Create a Block and required Value Properties (if you do not already have those elements in your model).
3. Create a Parametric diagram the same way as any other diagram in the modeling tool.

   > **Diagram context**
   > Please note: the diagram must be created under a particular context, that is, in a particular system Block for which values are calculated.

4. Display Value Properties you are going to use for calculations, or create new ones.

   > Value properties can be defined in advance and then displayed in the Parametric Diagram instantly after the diagram is created. However, a new value property can be created directly on the diagram.

5. Drag the Constraint Block onto the Parametric Diagram. The Constraint property is created for the system architecture Block that owns the Parametric Diagram (diagram context). The Parametric Equation Wizard opens. By default, the wizard binds the parameters of the newly created Constraint Property to the Value Properties of that system architecture Block.
6. If you need more Value Properties, you may create them. You must bind them to the parameters of that Constraint Property. Use the Creating Binding Connector procedure to bind data manually.
7. Finally, you can make a simulation of your parametric data. To run the simulation: in the Model Browser, right-click the Block that owns the Parametric diagram and select **Simulation** > **Run,** or select the Block and press Ctrl+Alt+X.

Related pages

- Creating Constraint Parameters automatically
- Creating reusable constraint libraries
- Wrapping MATLAB functions