2021x Refresh2 Version News

Magic Model Analyst

Released on: December 3, 2021

Magic Model Analyst 2021x Refresh2 brings several new functionalities that will benefit you in model simulation. The Trade Study Analysis engine has been enhanced by adding the automatic parameter sweep capability to help you find an optimal system configuration. In addition, a new Watch window allows monitoring selected properties and expression values, and the Variables pane now displays the Requirement text and the margin between the required and actual values.

Watch Window

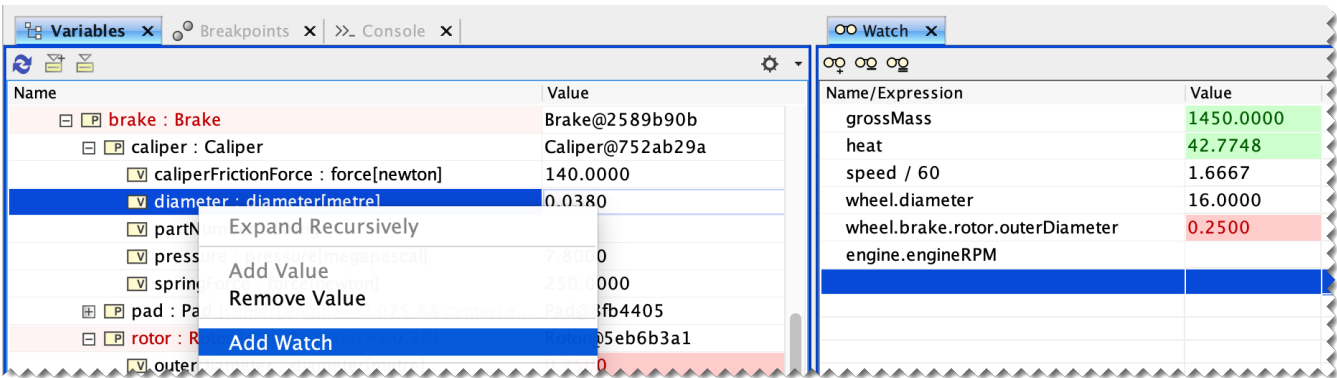Requirement and Margin Columns in the Variables Pane

Sweeping Parameters

Other

Discontinued Integrations

Watch Window

Now you can add and easily monitor selected properties and expression values in a new Watch window. Properties can be pre-selected in a Simulation Configuration or manually added from the Variables pane and represented as a flat list using "dot notation".

Using a Watch window.

Requirement and Margin Columns in the Variables Pane

In addition to hugely improved textual Requirements recognition patterns, the Requirement text and the margin between the required and actual values can be automatically derived and displayed in the Variables pane. The margin is also recorded as a tag on result instance slots after the simulation.
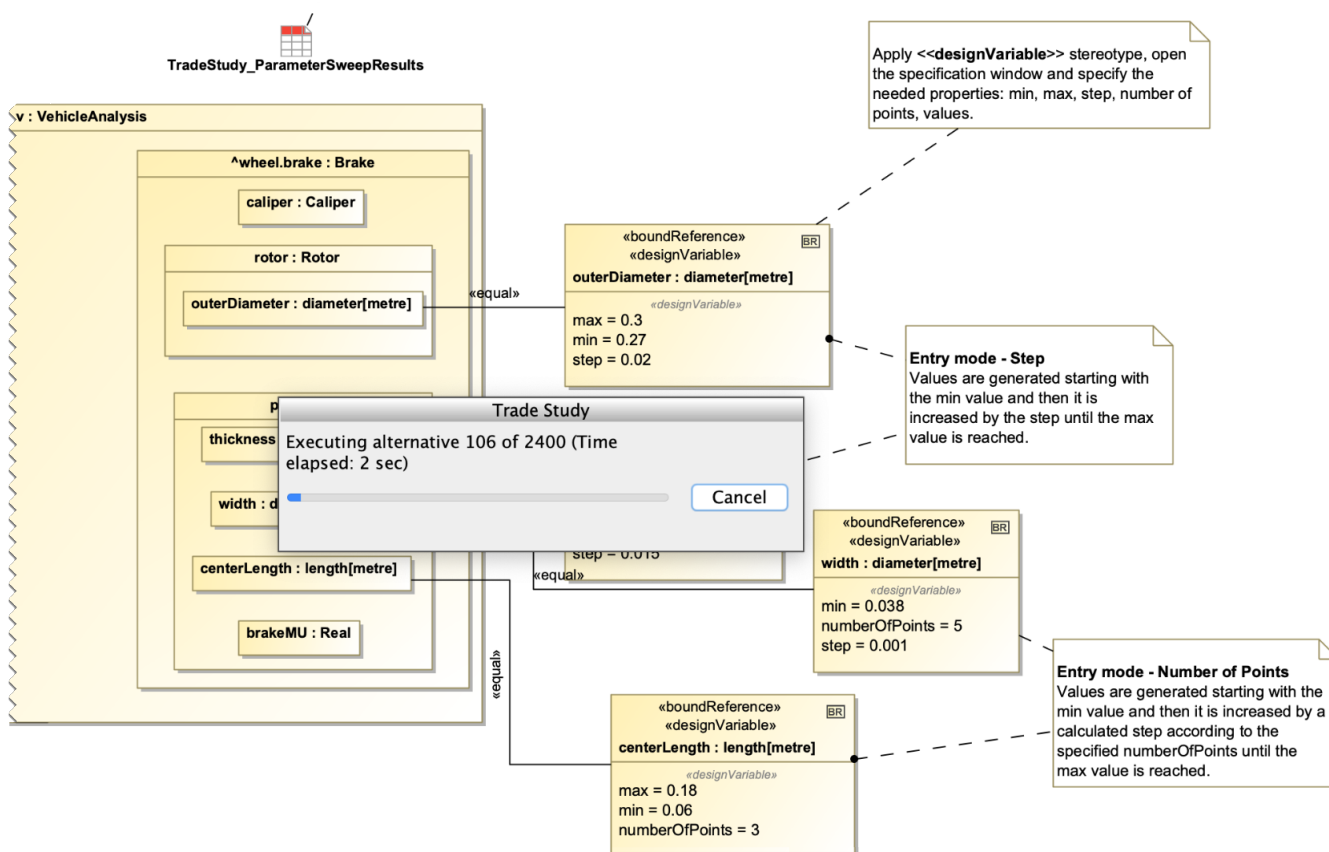
Name	Value	Requirement	Margin
brakeLifeExpectancy : distance[kilometre]	56413.0791	3 – "Brake pads shall have a projected life of at least 57500 kilometers under normal driving...	–1086.9209
brakeTorque : torque[newton metre]	537.8077		
effectiveRadius : diameter[metre]	0.1060		
grossMass : mass[kilogram]	1450.0000	4 – "The vehicle weight shall be equal to or less than 1450 kilograms."	0.0000
heat : output power[kilowatt]	42.7748	2 – "Braking at 100 kilometers per hour shall generate less than 53 kW of heat at each wheel."	10.2252
normalForce : force[newton]	8456.0966		
numberOfWheels : Integer	4		
pavement : Pavement Condition	dry		
requiredStoppingDistance : length[metre]	49.0993		

Causality
Show Simulation Time
✓ Show Requirement
✓ Show Margin
Show Constraint Properties

Displaying the margin between the required and actual values in the Variables pane.

Sweeping Parameters

It is often required to solve many variations of a model to find optimal system configuration. Instead of manually changing these property values and re-solving each time, you can perform an automatic parameter sweep as a part of the Trade Study Analysis now. The parameter sweep allows you to change the parameter values through the specified range at the specified step and automatically find the optimal configuration.

TradeStudy_ParameterSweepResults

v : VehicleAnalysis

^wheel.brake : Brake

caliper : Caliper

rotor : Rotor

outerDiameter : diameter[metre]

«equal»

Apply <<designVariable>> stereotype, open the specification window and specify the needed properties: min, max, step, number of points, values.

«boundReference»
«designVariable»
outerDiameter : diameter[metre]

«designVariable»
max = 0.3
min = 0.27
step = 0.02

Entry mode - Step
Values are generated starting with the min value and then it is increased by the step until the max value is reached.

thickness

width : d

centerLength : length[metre]

brakeMU : Real

Trade Study
Executing alternative 106 of 2400 (Time elapsed: 2 sec)
[Cancel]

step = 0.015
«equal»

«boundReference»
«designVariable»
width : diameter[metre]

«designVariable»
min = 0.038
numberOfPoints = 5
step = 0.001

Entry mode - Number of Points
Values are generated starting with the min value and then it is increased by a calculated step according to the specified numberOfPoints until the max value is reached.

«boundReference»
«designVariable»
centerLength : length[metre]

«designVariable»
max = 0.18
min = 0.06
numberOfPoints = 3

Parameter sweep.

Other

- Version 2021x Refresh2 comes with even further improved simulation performance. Now Trade Study analysis runs at least 2x faster while Monte Carlo analysis runs even 4x faster. The initialization phase (especially for big roll-ups) has been significantly improved as well.
- Proxy ports are now supported in Simulink import and co-simulation.
- There are more compatible Simulation Configuration choices in the Run menu of the diagram toolbar, tables, and diagrams.

The support of integration with Maple will be discontinued from version 2022x. Please contact us if this integration is important to you.

Documentation

- Magic Model Analyst 2021x Refresh2

News of earlier versions

- Magic Model Analyst 2021x Refresh1
- Magic Model Analyst 2021x
- Magic Model Analyst 19.0 LTR SP4

- Magic Model Analyst 19.0 LTR SP3
- Magic Model Analyst 19.0 LTR SP2