19.0 LTR SP3 Version News

Released on: November 21, 2019

This release comes with a new Trade Study modeling pattern and engine which automatically evaluates all permutations of parametric and design alternatives from model or Excel spreadsheets and finds the single best configuration that satisfies all requirements and scores the best overall value.
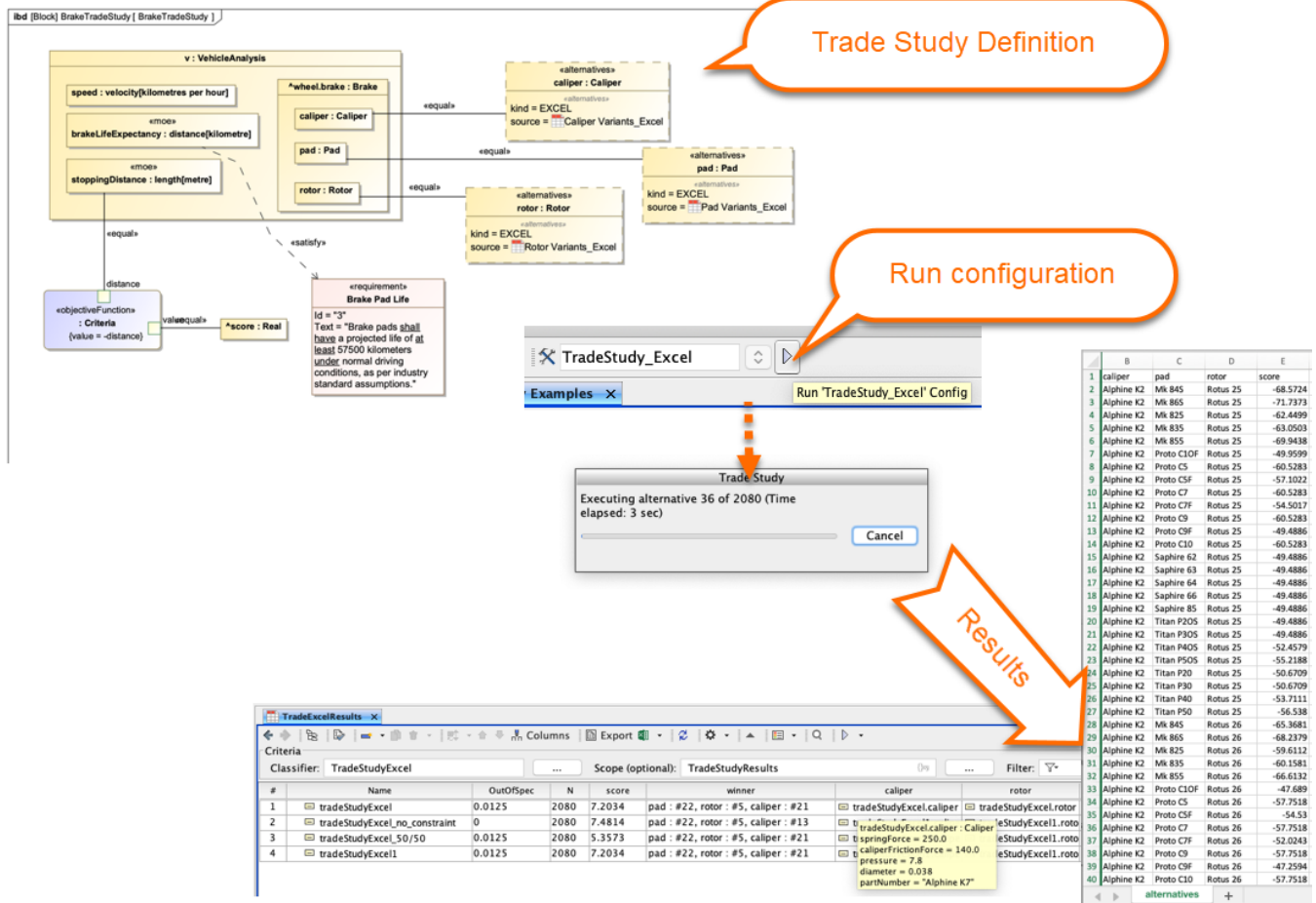
CST also adds a capability to co-simulate Simulink models imported and represented as blackbox <<SimulinkBlocks>>.

And please don't forget to give us your feedback on LinkedIn, Twitter or Facebook.

- Trade Studies
- Simulink import and co-simulation
- Value flow animation
- Other improvements

Trade Studies

19.0 SP3 comes with a new Trade Study modeling pattern and engine which automagically evaluates all permutations of parametric and design alternatives from the model or Excel spreadsheets and finds a single best configuration which satisfies all requirements and scores the best overall value.

Trade Study Definition

Run configuration

ibd [Block] BrakeTradeStudy [BrakeTradeStudy]

v : VehicleAnalysis

speed : velocity[kilometres per hour]

«moe»
brakeLifeExpectancy : distance[kilometre]

«moe»
stoppingDistance : length[metre]

^wheel.brake : Brake

caliper : Caliper

pad : Pad

rotor : Rotor

«equal»

«equal»

«equal»

«alternatives»
caliper : Caliper
«alternatives»
kind = EXCEL
source = Caliper Variants_Excel

«alternatives»
pad : Pad
«alternatives»
kind = EXCEL
source = Pad Variants_Excel

«alternatives»
rotor : Rotor
«alternatives»
kind = EXCEL
source = Rotor Variants_Excel

«satisfy»

«requirement»
Brake Pad Life
Id = "3"
Text = "Brake pads shall
have a projected life of at
least 57500 kilometres
under normal driving
conditions, as per industry
standard assumptions."

distance

«objectiveFunction»
: Criteria
{value = -distance}

value«equal»

^score : Real

TradeStudy_Excel

Examples ×

Run 'TradeStudy_Excel' Config

Trade Study

Executing alternative 36 of 2080 (Time
elapsed: 3 sec)

Cancel

Results

	B	C	D	E
1	caliper	pad	rotor	score
2	Alphine K2	Mk 845	Rotus 25	-68.5724
3	Alphine K2	Mk 865	Rotus 25	-71.7373
4	Alphine K2	Mk 825	Rotus 25	-62.4499
5	Alphine K2	Mk 835	Rotus 25	-63.0503
6	Alphine K2	Mk 855	Rotus 25	-69.9438
7	Alphine K2	Proto C1OF	Rotus 25	-49.9599
8	Alphine K2	Proto C5	Rotus 25	-60.5283
9	Alphine K2	Proto C5F	Rotus 25	-57.1022
10	Alphine K2	Proto C7	Rotus 25	-60.5283
11	Alphine K2	Proto C7F	Rotus 25	-54.5017
12	Alphine K2	Proto C9	Rotus 25	-60.5283
13	Alphine K2	Proto C9F	Rotus 25	-49.4886
14	Alphine K2	Proto C10	Rotus 25	-60.5283
15	Alphine K2	Saphire 62	Rotus 25	-49.4886
16	Alphine K2	Saphire 63	Rotus 25	-49.4886
17	Alphine K2	Saphire 64	Rotus 25	-49.4886
18	Alphine K2	Saphire 66	Rotus 25	-49.4886
19	Alphine K2	Saphire 85	Rotus 25	-49.4886
20	Alphine K2	Titan P2OS	Rotus 25	-49.4886
21	Alphine K2	Titan P3OS	Rotus 25	-49.4886
22	Alphine K2	Titan P4OS	Rotus 25	-52.4579
23	Alphine K2	Titan P5OS	Rotus 25	-55.2188
24	Alphine K2	Titan P20	Rotus 25	-50.6709
25	Alphine K2	Titan P30	Rotus 25	-50.6709
26	Alphine K2	Titan P40	Rotus 25	-53.7111
27	Alphine K2	Titan P50	Rotus 25	-56.538
28	Alphine K2	Mk 845	Rotus 26	-65.3681
29	Alphine K2	Mk 865	Rotus 26	-68.2379
30	Alphine K2	Mk 825	Rotus 26	-59.6112
31	Alphine K2	Mk 835	Rotus 26	-60.1581
32	Alphine K2	Mk 855	Rotus 26	-66.6132
33	Alphine K2	Proto C1OF	Rotus 26	-47.689
34	Alphine K2	Proto C5	Rotus 26	-57.7518
35	Alphine K2	Proto C5F	Rotus 26	-54.53
36	Alphine K2	Proto C7	Rotus 26	-57.7518
37	Alphine K2	Proto C7F	Rotus 26	-52.0243
38	Alphine K2	Proto C9	Rotus 26	-57.7518
39	Alphine K2	Proto C9F	Rotus 26	-47.2594
40	Alphine K2	Proto C10	Rotus 26	-57.7518

alternatives +

TradeExcelResults ×

Columns | Export | Q

Criteria

Classifier: TradeStudyExcel ... Scope (optional): TradeStudyResults ... Filter:

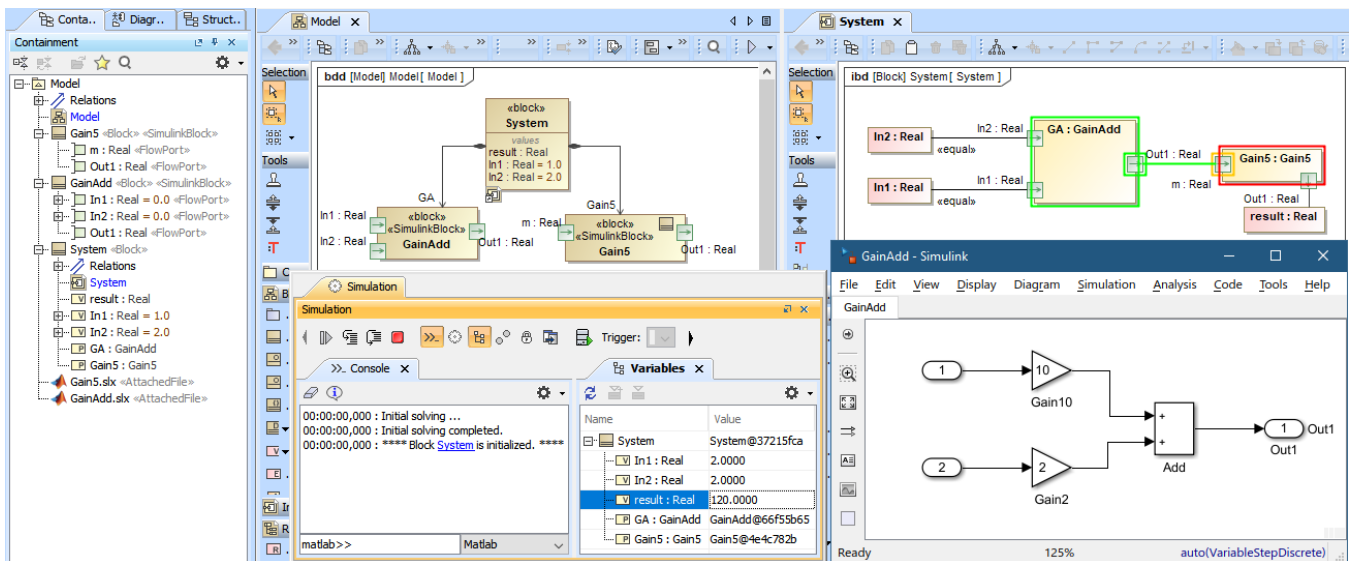| #	Name	OutOfSpec	N	score	winner	caliper	rotor
1	tradeStudyExcel	0.0125	2080	7.2034	pad : #22, rotor : #5, caliper : #21	tradeStudyExcel.caliper	tradeStudyExcel.rotor
2	tradeStudyExcel_no_constraint	0	2080	7.4814	pad : #22, rotor : #5, caliper : #13	tradeStudyExcel.caliper : Caliper	eStudyExcel1.roto
3	tradeStudyExcel_50/50	0.0125	2080	5.3573	pad : #22, rotor : #5, caliper : #21	springForce = 250.0	eStudyExcel1.roto
4	tradeStudyExcel1	0.0125	2080	7.2034	pad : #22, rotor : #5, caliper : #21	caliperFrictionForce = 140.0 pressure = 7.8 diameter = 0.038 partNumber = "Alphine K7"	eStudyExcel1.roto

Simulink import and co-simulation

Drag a Simulink file (in a **.slx** or **.mdl** formats) into the Block Definition diagram or Internal Block diagram of the project. The **Simulink Import Options** dialog will be shown as in the figure below. All input/output Ports are selected by default.
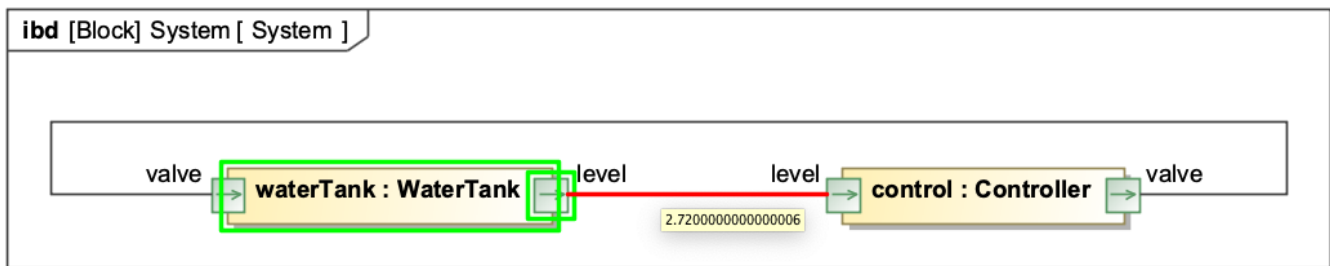
The Simulink Import Options dialog is shown after dragging a Simulink model into the Block Definition diagram or Internal Block diagram of the project.

Attach imported <<SimulinkBlock>> inputs and outputs to other blocks or value properties in IBD for co-simulation.

Value flow animation

Flow or value property change propagation among connectors between blocks is now animated in IBD diagrams for the user convenience.

Other improvements

- A new option for custom Web Server port number
- Contextualized guards evaluation inside swimlanes
- "and", "or", "not" and "xor" Boolean operators support in built-in math engine
- CSV export for parts
- Command line and text file manipulation utilities in Simulation Profile library
- Flow port direction semantics
- Multiple small bugfixes

You can check the list of publicly available issues or your own reported issues fixed in Cameo Simulation Toolkit 19.0 SP3.

Note: You will be required to login. Use the same username and password as for www.nomagic.com.