

# Reactis V2011.2

Released December 20, 2011



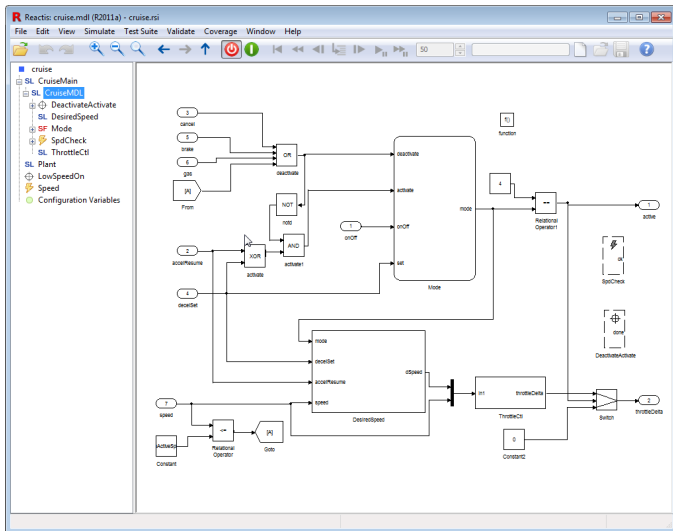
# New Simulink Support

- ▶ MATLAB R2011b
- ▶ New block support: Variant Subsystem, Model Variant
- ▶ Support combining actions in Stateflow state labels
  - ▶ Introduced in R2010a
  - ▶ e.g. “en, du, ex: y++;”

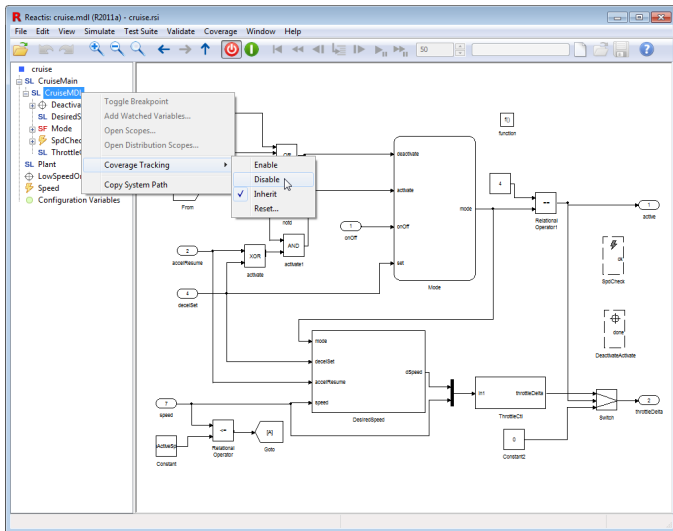
# Coverage Tracking

- ▶ Turn off coverage tracking for a subsystem
- ▶ Select coverage criteria tracked for a model
- ▶ Child State Exit via Parent Transition (CSEPT) coverage

# Turn Off Coverage Tracking for a Subsystem

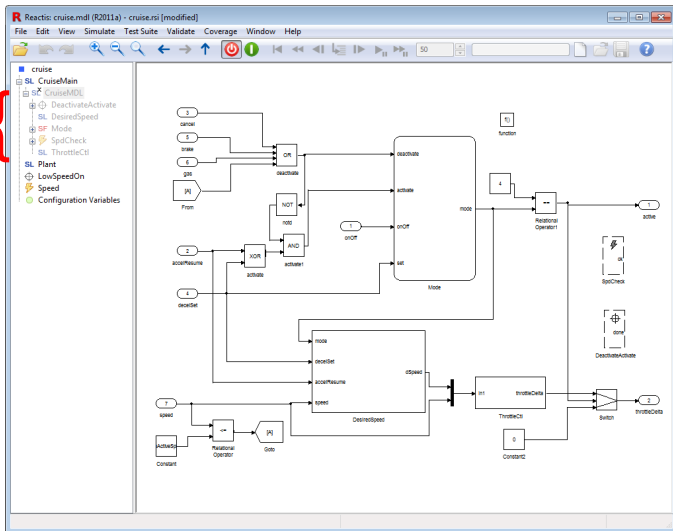


# Turn Off Coverage Tracking for a Subsystem

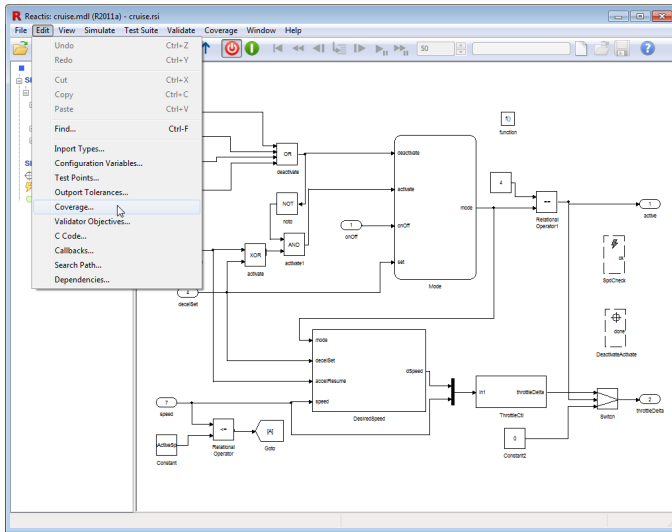


# Turn Off Coverage Tracking for a Subsystem

Coverage not tracked for this part of model



# Select Coverage Criteria Tracked for a Model



# Select Coverage Criteria Tracked for a Model

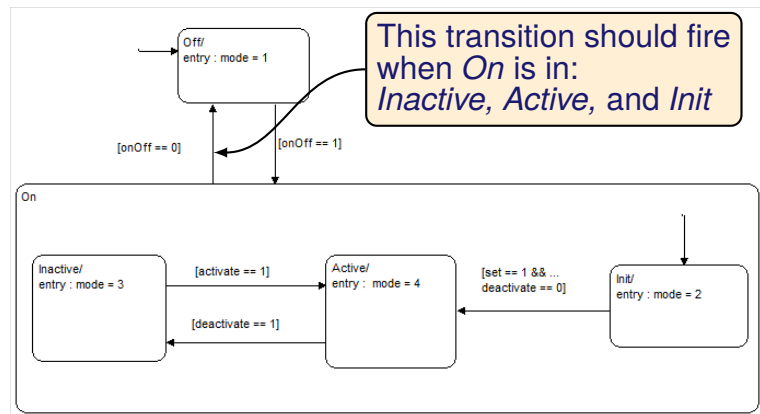
The screenshot shows the Reactis Info File Editor Coverage dialog box. The 'Coverage' tab is active, displaying the following settings:

- Simulink-specific objectives:**
  - Conditional subsystems:  Enabled  Disabled
  - Branches:  Enabled  Disabled
- Stateflow-specific objectives:**
  - States:  Enabled  Disabled
  - Child State Exit via Parent Transition (CSEPT):  Enabled  Disabled
  - CSEPT States:  All ancestors  Parent only
  - CSEPT Transitions:  Full transition paths  First segment only
  - Conditions Actions:  Enabled  Disabled
  - Transition Actions:  Enabled  Disabled
- C-specific objectives:**
  - C Statements:  Enabled  Disabled
- Generic objectives:**
  - Decisions:  Enabled  Disabled
  - Conditions:  Enabled  Disabled
  - Modified Condition/Decision Coverage (MC/DC):  Enabled  Disabled
  - Multi-block MC/DC:  Enabled  Disabled
  - Boundaries:  Enabled  Disabled
  - Boundary coverage for relational operators:  Enabled  Disabled
  - Include relational operators comparing floating-point values:  Yes  No
  - Relative tolerance: 0.0001
  - Lookup targets:  Enabled  Disabled
  - User targets:  Enabled  Disabled
  - Assertion violations:  Enabled  Disabled



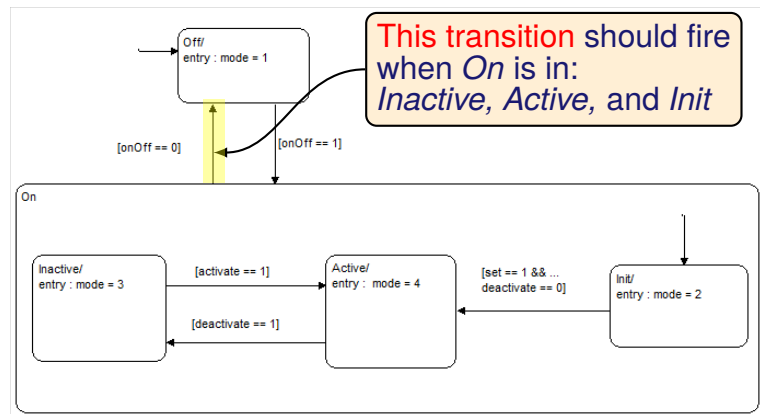
# Child State Exit via Parent Transition (CSEPT)

In Stateflow, for each transition exiting a state with child states, make sure that the transition causes each child state to exit.



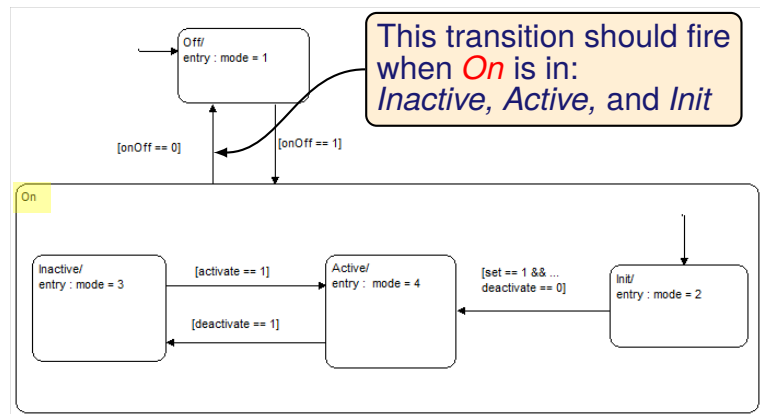
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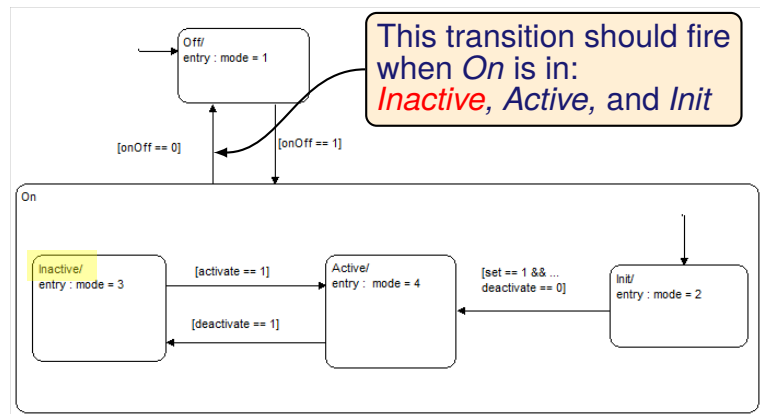
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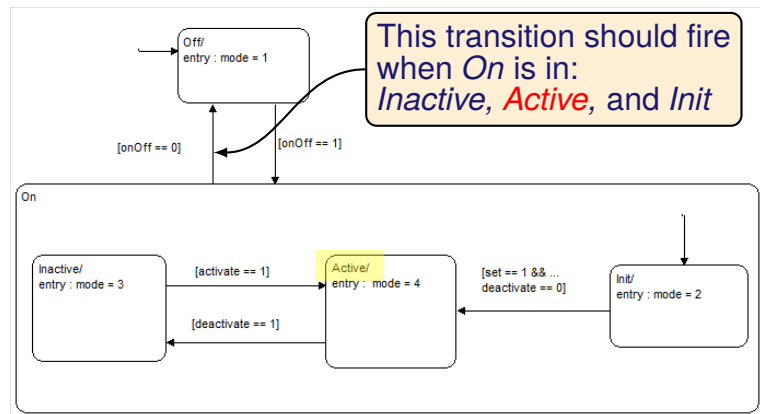
# Child State Exit via Parent Transition (CSEPT)

In Stateflow, for each transition exiting a state with child states, make sure that the transition causes each child state to exit.



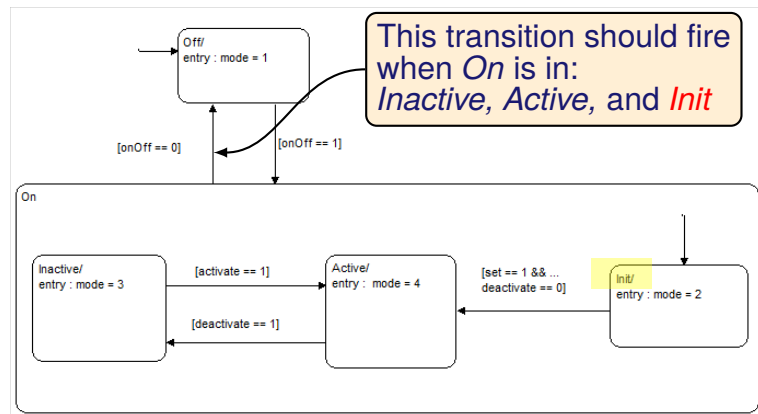
# Child State Exit via Parent Transition (CSEPT)

In Stateflow, for each transition exiting a state with child states, make sure that the transition causes each child state to exit.

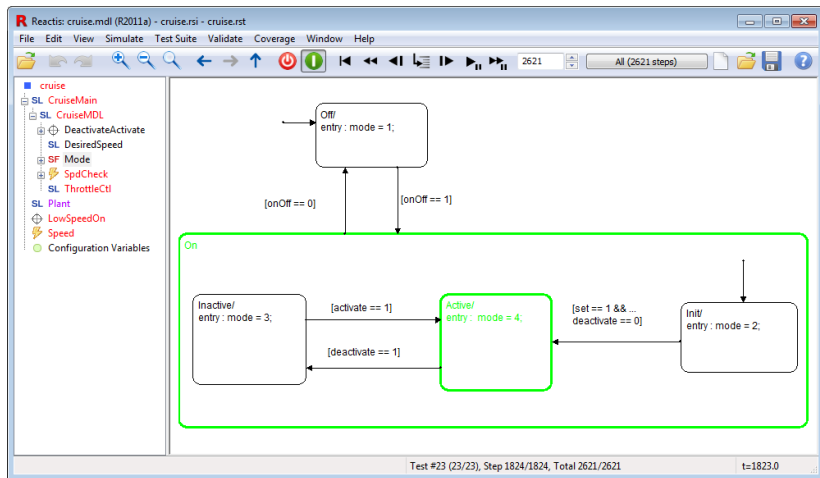


# Child State Exit via Parent Transition (CSEPT)

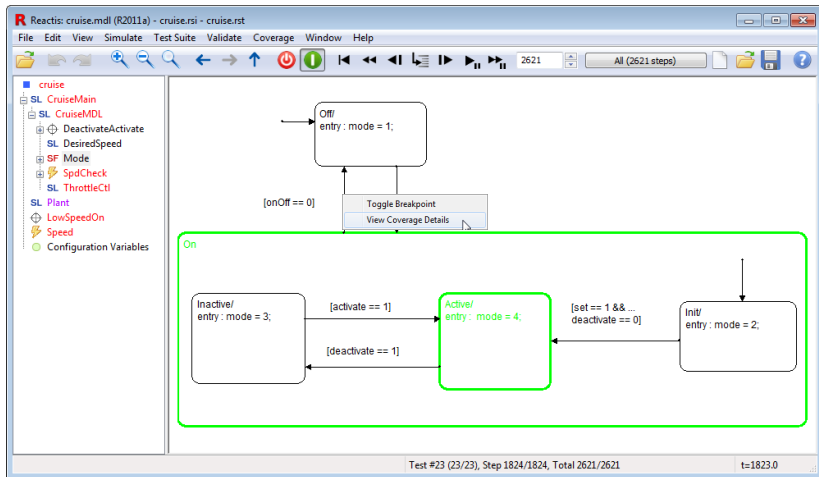
In Stateflow, for each transition exiting a state with child states, make sure that the transition causes each child state to exit.



# Child State Exit via Parent Transition (CSEPT)



# Child State Exit via Parent Transition (CSEPT)





# Child State Exit via Parent Transition (CSEPT)

The screenshot displays the Reactis software interface for a model named 'cruise'. The main window shows a state machine diagram with several states and transitions. A green box highlights a cycle of states: Inactive (mode = 3), Active (mode = 4), and Init (mode = 2). A 'Toggle Breakpoint' window is open over the transition from Inactive to Active, with a 'View Coverage Details' button highlighted. A 'Coverage Details' window is also open, showing a table of coverage data for the CSEPT decision.

**State Machine Diagram:**

- Off/ entry : mode = 1;
- Inactive/ entry : mode = 3;
- Active/ entry : mode = 4;
- Init/ entry : mode = 2;

**Transitions:**

- Off to Inactive: [onOff == 0]
- Inactive to Active: [activate == 1]
- Active to Inactive: [deactivate == 1]
- Active to Init: [set == 1 && ... deactivate == 0]
- Init to Active: [set == 1 && ... deactivate == 0]

**Coverage Details Window:**

Exited state	via transition	Test/Step	
On.Active	9	3/47	Highlight
On.Inactive	9	7/57	Highlight
On.Init	9	3/15	Highlight

# Test Suite Browser: Hide Rows

The screenshot shows the ReacTis Test-Suite Browser window for a test suite named 'cruise.rst'. The interface includes a menu bar (File, Edit, View, Filter, Help), a toolbar with a search icon, and a table of test data. A context menu is open over the first four rows of the table, with 'Hide Selected Rows' highlighted. The table has columns for 'Step 3' through 'Step 10' and a final column with values ranging from -0.1 to 1.0. Below the table is a 'Configuration Variable' section with 'InitialSpeed' set to '37.8968472026745'.

	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	
1: onOff	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	
2: accelResume	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	
3: cancel	0.0	1.0	0.0	1.0	0.0	0.0	0.0	1.0	
4: decelSet	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	
5: brake	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0
6: gas	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
7: inactiveThrottleDelta	-0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0
InitialSpeed	37.8968472026745								

# Test Suite Browser: Hide Rows

The screenshot shows the ReacTis Test-Suite Browser window for a test suite named 'cruise.rst'. The interface includes a menu bar (File, Edit, View, Filter, Help), a toolbar with a search icon, and a main data table. A context menu is open over the first four rows of the table, with 'Hide Selected Rows' highlighted. Below the table is a 'Configuration Variable' section with a table containing 'InitialSpeed' and its value '37.89684;20;5745'. A large grey arrow points downwards from the 'Hide Selected Rows' option.

	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
1: onOff	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
2: accelResume	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
3: cancel	0.0	1.0	0.0	1.0	0.0	0.0	0.0	1.0
4: decelSet	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
5: brake	0.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
6: gas	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0
7: inactiveThrottleDelta	-0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1

Configuration Variable	Value
InitialSpeed	37.89684;20;5745

# Test Suite Browser: Hide Rows

The screenshot shows the Reactis Test-Suite Browser interface. The 'Filter' menu is open, and 'Hide Selected Rows' is selected. The main table displays data for 'Test 1' across steps 3 to 10. The first four rows (Inputs 1-4) are highlighted in blue.

	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
1: onOff	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
2: accelResume	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
3: cancel	0.0	1.0	0.0	1.0	0.0	0.0	0.0	1.0
4: decelSet	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
5: brake	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
6: gas	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0
7: inactiveThrottleDelta	-0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1

Configuration Variable: InitialSpeed Value: 37.896842016745

The screenshot shows the Reactis Test-Suite Browser interface with the 'Suite History' tab selected. The main table displays data for 'Test 1' across steps 1 to 10. Row 5 is highlighted in blue.

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
5: brake	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0
6: gas	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0	1.0	0.0
7: inactiveThrottleDelta	-0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1
8: drag	0.0	-0.0009456...	-1.6524358...	-0.0004304...	-0.0004819...	-0.0002369...	-0.0007747...	-0.0012194...	-0.0002816...	-0.0005740...
1: active	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Configuration Variable: InitialSpeed Value: 37.8968472026745

# Test Suite Browser: Hide Columns

Show only columns (test steps) in which brake is pressed.

# Test Suite Browser: Hide Columns

Show only columns (test steps) in which brake is pressed.

Reactis Test-Suite Browser: cruise.rst

File Edit View Filter Help

#1 (27 of 50): Test 1 Filter: brake == 1

Test Data Test History Suite History

	Step 4	Step 7	Step 9	Step 10	Step 15	Step 17	Step 19	Step 21	Step 22
<b>Inputs</b>									
1: onOff	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2: accelResume	1.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0
3: cancel	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0	1.0
4: decelSet	1.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0
5: brake	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6: gas	0.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
7: inactiveThrottleDelta	0.0	-0.1	0.0	-0.1	0.1	-0.1	0.1	-0.1	0.1
8: drag	-0.0004304...	-0.0007747...	-0.0002816...	-0.0006740...	0.0017509...	0.0022582...	0.0013568...	0.0009286...	0.0017956...
<b>Outputs</b>									
1: active	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2: throttleDelta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3: speed	38.095884...	37.894735...	37.492741...	37.492459...	36.893548...	37.297369...	37.301144...	37.303656...	37.104585...
__t__	3.0	6.0	8.0	9.0	14.0	16.0	18.0	20.0	21.0

Configuration Variable Value

InitialSpeed 37.8968472026745

# Test Suite Browser: Hide Columns

Show only columns (test steps) in which brake is pressed.

The screenshot shows the Reactis Test-Suite Browser interface for a test suite named 'cruise.rst'. The 'Filter' field is set to 'brake == 1', which is highlighted with a red box. The main data table displays test steps 4, 7, 9, 10, 15, 17, 19, 21, and 22. The 'brake' input variable is highlighted in the first column, indicating that only steps where the brake was pressed are shown.

	Step 4	Step 7	Step 9	Step 10	Step 15	Step 17	Step 19	Step 21	Step 22	
<b>Inputs</b>										
1: onOff	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	
2: accelResume	1.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0	
3: cancel	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0	1.0	
4: decelSet	1.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	
5: brake	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
6: gas	0.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	
7: inactiveThrottleDelta	0.0	-0.1	0.0	-0.1	0.1	-0.1	0.1	-0.1	0.1	
8: drag	-0.0004304...	-0.0007747...	-0.0002816...	-0.0006740...	0.0017509...	0.0022582...	0.0013568...	0.0009286...	0.0017956...	
<b>Outputs</b>										
1: active	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2: throttleDelta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3: speed	38.095884...	37.894735...	37.492741...	37.492459...	36.893548...	37.297369...	37.301144...	37.303656...	37.104585...	
__t__	3.0	6.0	8.0	9.0	14.0	16.0	18.0	20.0	21.0	

Configuration Variable: InitialSpeed  
Value: 37.8968472026745

# Test Suite Browser: Hide Columns

Show only columns (test steps) in which brake is pressed.

The screenshot shows the Reactis Test-Suite Browser interface. The title bar reads "Reactis Test-Suite Browser: cruise.rst". The menu bar includes "File", "Edit", "View", "Filter", and "Help". The toolbar shows navigation icons and a search box containing "#1 (27 of 50): Test 1". A filter box on the right contains the text "Filter: brake == 1".

The main data area is a table with columns for "Step 4", "Step 7", "Step 9", "Step 10", "Step 15", "Step 17", "Step 19", "Step 21", and "Step 22". The table is divided into "Inputs" and "Outputs" sections.

**Inputs**

	Step 4	Step 7	Step 9	Step 10	Step 15	Step 17	Step 19	Step 21	Step 22
1: onOff	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2: accelResume	1.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0
3: cancel	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0	1.0
4: accelSet	1.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0
5: brake	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6: gear	0.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
7: inactiveThrottleDelta	0.0	-0.1	0.0	-0.1	0.1	-0.1	0.1	-0.1	0.1
8: drag	-0.0004304...	-0.0007747...	-0.0002816...	-0.0006740...	0.0017509...	0.0022582...	0.0013568...	0.0009286...	0.0017956...

**Outputs**

1: active	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2: throttleDelta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3: speed	38.095884...	37.894735...	37.492741...	37.492459...	36.893548...	37.297369...	37.301144...	37.303656...	37.104585...
__t__	3.0	6.0	8.0	9.0	14.0	16.0	18.0	20.0	21.0

Configuration Variable: InitialSpeed, Value: 37.8968472026745



# HTML Test Execution Report

Select *Simulate* → *Fast Run with Report*

Reactis Test Execution Report: cruise.html [not saved]

Save Close

C:\Users\simstmp\cruise\cruise.html

## Reactis Test Execution Report

Thu Feb 21 17:08:20 2019

Model File: C:\Users\simstmp\cruise\cruise.slx  
RSI File: C:\Users\simstmp\cruise\cruise.rsi (7)  
Test Suite: C:\Users\simstmp\cruise\cruise\_ts.rst  
Reactis Version: V2018.2

### Summary

Number	Test Name	Steps	Errors	Warnings	Differences
1	Test 1	5	0	0	0
2	Test 2	9	1	0	0
3	Test 3	3	0	0	0
4	Test 4	15	0	0	0
5	Test 5	25	0	0	2
6	Test 6	58	0	0	0
7	Test 7	30	0	0	0
8	Test 8	40	1	0	0

### Tolerances for Comparing Computed Values and Test Values

Outputs

Output	Method	Relative	Absolute
active	relative	1e-05	
speed	relative	1e-05	
throttleDelta	relative	1e-05	

# HTML Test Execution Report

Select *Simulate* → *Fast Run with Report*

Reactis Test Execution Report: cruise.html [not saved]

Save Close

C:\Users\sim\temp\cruise\cruise.html

### Reactis Test Execution Report

Thu Feb 21 17:08:20 2019

Model File: C:\Users\sim\temp\cruise\cruise.slx  
RSI File: C:\Users\sim\temp\cruise\cruise.rsi (7)  
Test Suite: C:\Users\sim\temp\cruise\cruise\_ts.rst  
Reactis Version: 2018.2

#### Summary

Number	Test Name	Steps	Errors	Warnings	Differences
1	Test 1	5	0	0	0
2	Test 2	9	1	0	0
3	Test 3	3	0	0	0
4	Test 4	15	0	0	0
5	Test 5	25	0	0	2
6	Test 6	58	0	0	0
7	Test 7	30	0	0	0
8	Test 8	40	1	0	0

#### Tolerances for Comparing Computed Values and Test Values

Outputs

Output	Method	Relative	Absolute
active	relative	1e-05	
speed	relative	1e-05	
throttleDelta	relative	1e-05	

# runtime errors  
in each test

# HTML Test Execution Report

Select *Simulate* → *Fast Run with Report*

Reactis Test Execution Report: cruise.html [not saved]

Save Close

C:\Users\sims\temp\cruise\cruise.html

### Reactis Test Execution Report

Thu Feb 21 17:08:20 2019

Model File: C:\Users\sims\temp\cruise\cruise.slx  
RSI File: C:\Users\sims\temp\cruise\cruise.rsi (7)  
Test Suite: C:\Users\sims\temp\cruise\cruise\_ts.rst  
Reactis Version: 2018.2

#### Summary

Number	Test Name	Steps	Errors	Warnings	Differences
1	Test 1	5	0	0	0
2	Test 2	9	1	0	0
3	Test 3	3	0	0	0
4	Test 4	15	0	0	0
5	Test 5	25	0	0	2
6	Test 6	58	0	0	0
7	Test 7	30	0	0	0
8	Test 8	40	1	0	0

#### Tolerances for Comparing Computed Values and Test Values

Outputs

Output	Method	Relative	Absolute
active	relative	1e-05	
speed	relative	1e-05	
throttleDelta	relative	1e-05	

# runtime errors  
in each test

# differences between  
output values stored in  
test and those computed  
by model

# HTML Test Execution Report

Select *Simulate* → *Fast Run with Report*

The screenshot shows a web browser window titled "Reactis Test Execution Report: cruise.html [not saved]". The report content includes:

- Reactis Test Execution Report**
- Thu Feb 21 17:08:20 2019
- Model File: C:\Users\sims\temp\cruise\cruise.slx
- RSI File: C:\Users\sims\temp\cruise\cruise.rsi (7)
- Test Suite: C:\Users\sims\temp\cruise\cruise\_ts.rst
- Reactis Version: 2018.2

**Summary**

Number	Test Name	Steps	Errors	Warnings	Differences
1	Test 1	5	0	0	0
2	Test 2	9	1	0	0
3	Test 3	3	0	0	0
4	Test 4	15	0	0	0
5	Test 5	25	0	0	2
6	Test 6	58	0	0	0
7	Test 7	30	0	0	0
8	Test 8	40	1	0	0

**Tolerances for Comparing Computed Values and Test Values**

Outputs

Output	Method	Relative	Absolute
active	relative	1e-05	
speed	relative	1e-05	
throttleDelta	relative	1e-05	

# runtime errors  
in each test

# differences between  
output values stored in  
test and those computed  
by model

Tolerances for  
comparing outputs

# HTML Test Execution Report

## Details about each runtime error found:

### Test 2

9 steps, 0 warnings, [1 error](#), 0 differences, [Input Plots](#), [Test Point Plots](#), [Output Plots](#)

#### Errors:

[\[ Test 2 \]](#) [Report Summary](#)

Step	8
Message	Assertion Failure
Path	cruise / LowSpeedInactive

**Input Plots** [\[Open all\]](#) | [\[Close all\]](#) | [Help](#)

[\[ Test 2 \]](#) [Report Summary](#)

± accelResume

± brake

# HTML Test Execution Report

## Details about each difference found:

### Test 5

25 steps, 0 warnings, 0 errors, [7 differences](#), [Input Plots](#), [Test Point Plots](#), [Output Plots](#)

7 Differences:

[\[ Test 5 | Report Summary \]](#)

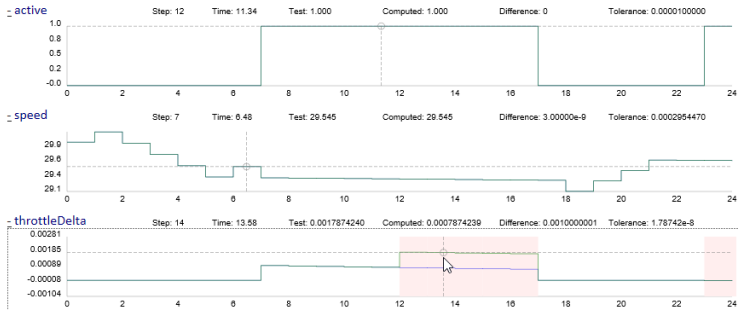
Step	Output/Test Point	Test Suite Value Computed Value	Difference	Tolerance
13	throttleDelta	0.001813667 0.0008136667432239597	0.00100000025677604	relative: 1E-5 => 8.13666743224E-9
14	throttleDelta	0.001787424 0.0007874238632131884	0.001000000136786811	relative: 1E-5 => 7.87423863213E-9
15	throttleDelta	0.001761425 0.0007614250627681567	0.0009999999372318435	relative: 1E-5 => 7.61425062768E-9
16	throttleDelta	0.001735668 0.0007356679707417629	0.001000000029258237	relative: 1E-5 => 7.35667970742E-9

# HTML Test Execution Report

Plots for each inport, outport, test point:

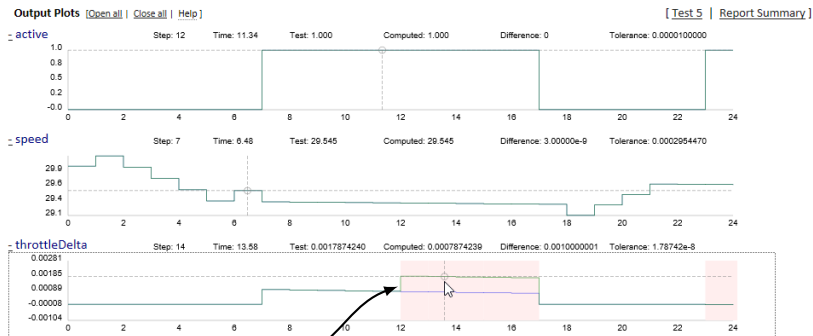
Output Plots [\[Open all\]](#) [\[Close all\]](#) [\[Help\]](#)

[\[Test 5\]](#) [\[Report Summary\]](#)



# HTML Test Execution Report

Plots for each inport, outport, test point:



Differences  
highlighted  
in red



# HTML Test Execution Report

## Detailed coverage information:

System: [cruise](#) / [CruiseMain](#) / [CruiseMDL](#)

Coverage Metric	Local				Cumulative			
	Covered	Unreachable	Uncovered		Covered	Unreachable	Uncovered	
Subsystem	4	0	0	100%	4	0	0	100%
Branch	14	0	0	100%	22	0	0	100%
Lookup Table	0	0	0	--	0	0	0	--
State	0	0	0	--	18	0	0	100%
Condition Action	0	0	0	--	25	0	1	96%

•  
•  
•

Branch	Relational Operator%b1	1/1
Branch	Relational Operator%b2	2/1
User-Defined Target	DeactivateActivate.done%u1	8/40
Assertion Violation	SpdCheck.ok%a1	8/34

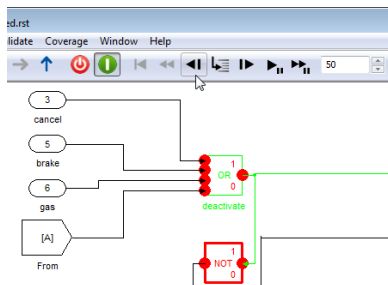
Decision Details			Condition Details			MC/DC Details	
Decision	True	False	Condition	True	False	True	False
notd	2/3	1/1	Inport #1	1/1	2/3	F : 2/3	T : 1/1
deactivate	1/1	2/3	Inport #1	1/3	1/1	FTFF : 2/7	FFFF : 2/3
			Inport #2	1/2	1/1	FTFF : 2/5	FFFF : 2/3
			Inport #3	1/2	1/1	FFTF : 2/2	FFFF : 2/3
			Inport #4	1/1	2/1	FFFT : 1/1	FFFF : 2/3
activate1	2/3	1/1	Inport #1	2/3	1/1	TT : 2/3	FT : 1/4
			Inport #2	1/4	1/1	TT : 2/3	TF : 2/6
activate	1/4	1/1	Inport #1	1/2	1/1	TF : 1/4	FF : 1/1
			Inport #2	1/2	1/1	TF : 1/4	TT : 1/2

# Pause Simulation Mid-Step



- ▶ Previously, clicking “pause” button during simulation (not fast) would finish the current simulation step before pausing
- ▶ Could take a significant amount of time when simulating large models and/or C code
- ▶ Reactis now pauses immediately at the current mini-step

# Back up Mid-Step



- ▶ Back up mid-step
- ▶ Previously had to complete step before backing up

# Set Significant Digits in Watch List

The screenshot displays a software interface with a watch list. At the top, a diagram shows a variable 'speed' with a value of 7, connected to a 'DesiredSpeed' input. A red box highlights the number '1' in the watch list, indicating the number of significant digits to be displayed. Below the diagram is a table with the following data:

Variable	Value	Type
cruise.CruiseMain.CruiseMDL.CruiseMDL speed	15.43318650324919	double

At the bottom of the interface, it shows 'New Test, Step 1' and 't=0.0'.

# Set Significant Digits in Watch List

The screenshot shows a software interface with a watch list. The watch list has the following data:

Variable	Value	Type
cruise.CruiseMain.CruiseMDL.CruiseMDL speed	15.43318650324910	double

A context menu is open over the watch list entry, with the following options:

- Add Variables
- Remove Variable
- Set Significant Digits
- Open Scope
- Open Distribution Scope
- Copy To Clipboard

The 'Set Significant Digits' option is highlighted by the mouse cursor. In the background, a diagram shows a variable 'speed' with a value of 7 and a red box containing the number 1, indicating the current number of significant digits.

# Set Significant Digits in Watch List

The screenshot shows a software interface with a watch list and a context menu. The watch list has the following data:

Variable	Value	Type
cruise.CruiseMain.CruiseMDL.CruiseMDL speed	15.43318650324910	double

The context menu is open over the watch list entry and contains the following options:

- Add Variables
- Remove Variable
- Set Significant Digits
- Open Scope
- Open Distribution Scope
- Copy To Clipboard

The 'Set Significant Digits' option is highlighted by the mouse cursor. In the background, a diagram shows a signal flow from a '7' in a rounded rectangle to a 'speed' variable, which then connects to a 'DesiredSpeed' variable. A red box highlights the number '1' in the watch list's value field.

Settings

Please specify the number of significant digits:  
an integer in the range 1-20 or -1 for the default (8 for single, 16 for double)

OK Cancel

# Set Significant Digits in Watch List

The image shows a two-step process for setting significant digits in a watch list. In the top screenshot, a context menu is open over a variable in the watch list, with 'Set Significant Digits' selected. In the bottom screenshot, a 'Settings' dialog box is shown with the number '4' entered in the input field.

**Top Screenshot:**

Variable	Value	Type
cruise.CruiseMain.CruiseMDL.CruiseMDL speed	15.43318650324910	double

Context menu options:

- Add Variables
- Remove Variable
- Set Significant Digits**
- Open Scope
- Open Distribution Scope
- Copy To Clipboard

**Bottom Screenshot:**

Settings dialog box:

Please specify the number of significant digits:  
an integer in the range 1-20 or -1 for the default (8 for single, 16 for double)

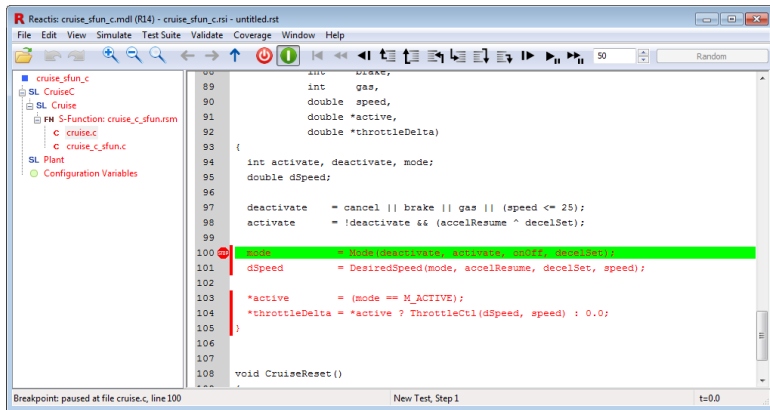
Input field: 4

Buttons: OK, Cancel

Watch list table:

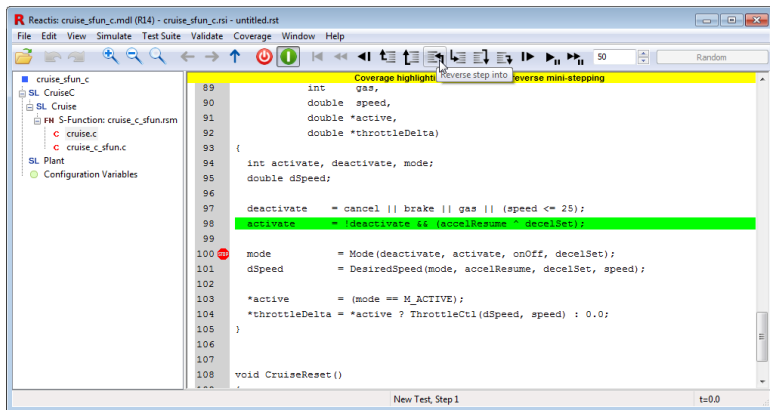
Variable	Value	Type
cruise.CruiseMain.CruiseMDL.CruiseMDL speed	15.43	double

# C Code Statement-Level Reverse Stepping





# C Code Statement-Level Reverse Stepping



The screenshot shows the Reactis IDE interface. The title bar reads "Reactis: cruise\_sfuns.mdl (R14) - cruise\_sfuns\_rsi - untitled.rst". The menu bar includes "File", "Edit", "View", "Simulate", "Test Suite", "Validate", "Coverage", "Window", and "Help". The toolbar contains various icons for file operations, search, and simulation control. A dropdown menu is open over the "Reverse step into" icon, showing options: "Coverage highlight" (selected), "Reverse step into", and "Reverse mini-stepping".

The left sidebar shows a project tree with the following structure:

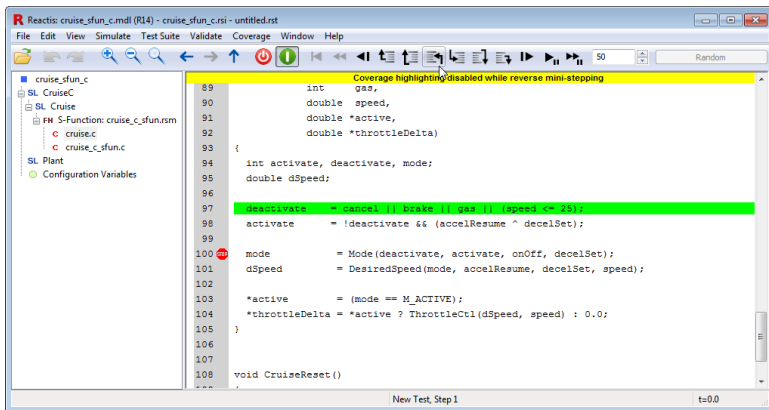
- cruise\_sfuns\_c
  - SL CruiseC
    - SL Cruise
      - FN S-Function: cruise\_sfuns\_rsm
        - c cruise.c
        - c cruise\_sfuns.c
- SL Plant
  - Configuration Variables

The main editor displays the following C code:

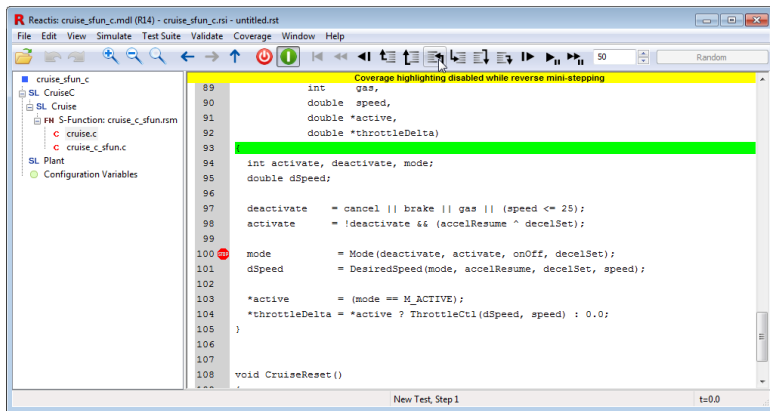
```
89     int gas,
90     double speed,
91     double *active,
92     double *throttleDelta)
93 {
94     int activate, deactivate, mode;
95     double dSpeed;
96
97     deactivate = cancel || brake || gas || (speed <= 25);
98     activate = deactivate && (accelResume ^ decelSet);
99
100    mode = Mode(deactivate, activate, onOff, decelSet);
101    dSpeed = DesiredSpeed(mode, accelResume, decelSet, speed);
102
103    *active = (mode == M_ACTIVE);
104    *throttleDelta = *active ? ThrottleCtl(dSpeed, speed) : 0.0;
105 }
106
107
108 void CruiseReset()
109
```

The status bar at the bottom indicates "New Test, Step 1" and "t=0.0".

# C Code Statement-Level Reverse Stepping



# C Code Statement-Level Reverse Stepping



The screenshot shows the Reactis IDE interface. The title bar reads "Reactis: cruise\_sfuns.mdl (R14) - cruise\_sfuns\_rsi - untitled.rst". The menu bar includes "File", "Edit", "View", "Simulate", "Test Suite", "Validate", "Coverage", "Window", and "Help". The toolbar contains various navigation and simulation controls, including a "Reverse" button (a left-pointing arrow with a vertical line) which is currently active. A yellow banner at the top of the code editor states "Coverage highlighting disabled while reverse mini-stepping". The code editor displays the following C code:

```
89     int    gas,  
90     double speed,  
91     double *active,  
92     double *throttleDelta)  
93  
94     int activate, deactivate, mode;  
95     double dSpeed;  
96  
97     deactivate = cancel || brake || gas || (speed <= 25);  
98     activate   = !deactivate && (accelResume ^ decelSet);  
99  
100    mode       = Mode(deactivate, activate, onOff, decelSet);  
101    dSpeed     = DesiredSpeed(mode, accelResume, decelSet, speed);  
102  
103    *active     = (mode == M_ACTIVE);  
104    *throttleDelta = *active ? ThrottleCtl(dSpeed, speed) : 0.0;  
105 }  
106  
107  
108 void CruiseReset()  
...
```

The status bar at the bottom indicates "New Test, Step 1" and "t=0.0".

# Other Enhancements

- ▶ API Functions to add input constraints
- ▶ New implication operator in Validator  
Expression Objectives:  $A \Rightarrow B$  (A implies B)
- ▶ New *Load and Close* button in Tester results dialog combines the actions of the *Load* and *Close* buttons:
  - ▶ load newly-generated test suite in Reactis Simulator
  - ▶ close Tester results dialog