

Reactis V2011.2

Released December 20, 2011



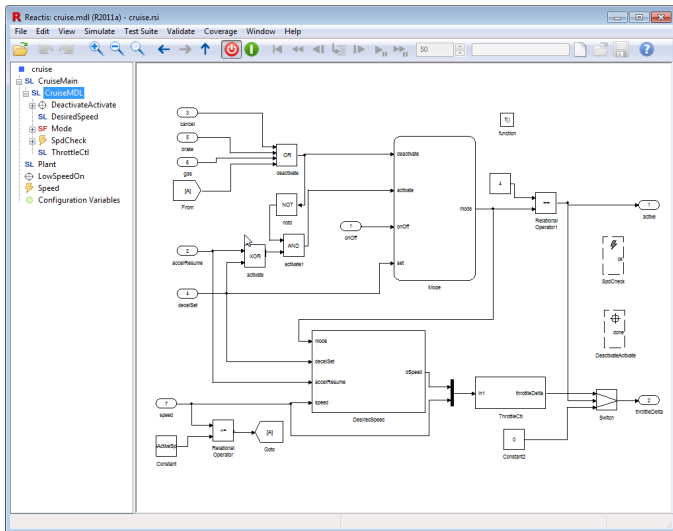
New Simulink Support

- ▶ 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++;”

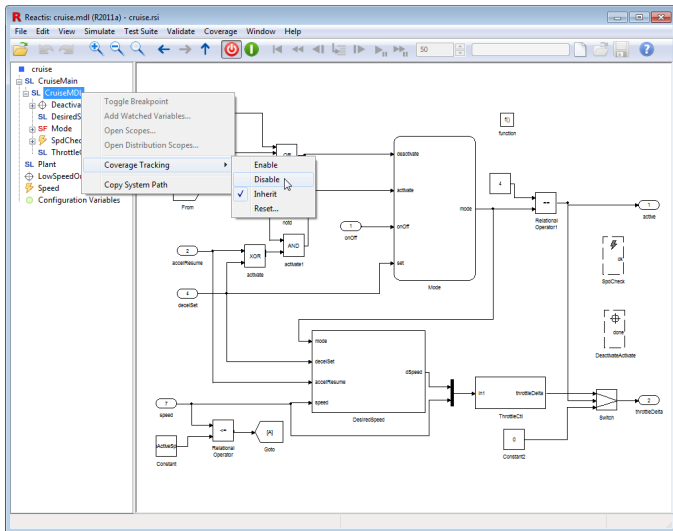
Coverage Tracking

- ▶ 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



Select Coverage Criteria Tracked for a Model

The screenshot shows the Reactis Info File Editor Coverage dialog box. The dialog is titled "Reactis Info File Editor: Coverage" and has a menu bar with "File", "Edit", "Tools", and "Help". The "Coverage" tab is selected, showing various coverage objectives with radio buttons for "Enabled" or "Disabled".

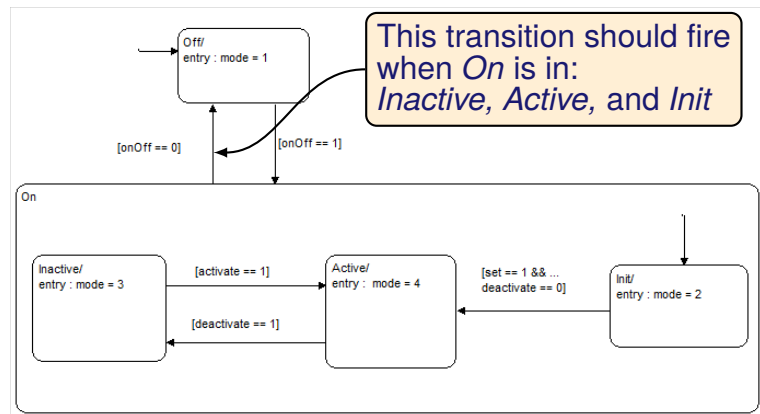
The main window behind the dialog is titled "Reactis: cruise.mdl (R2011a) - cruise.rsi" and has a menu bar with "File", "Edit", "View", "Simulate", "Test Suite", "Validate", "Coverage", "Window", and "Help". The "File" menu is open, showing options like "Undo", "Redo", "Cut", "Copy", "Paste", "Find...", "Import Types...", "Configuration Variables...", "Test Points...", "Output Tolerances...", "Coverage...", "Validator Objectives...", "C Code...", "Callbacks...", "Search Path...", and "Dependencies...". The "Coverage..." option is highlighted.

The Coverage dialog box contains the following sections:

- 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:
 - Lookup targets: Enabled Disabled
 - User targets: Enabled Disabled
 - Assertion violations: Enabled Disabled

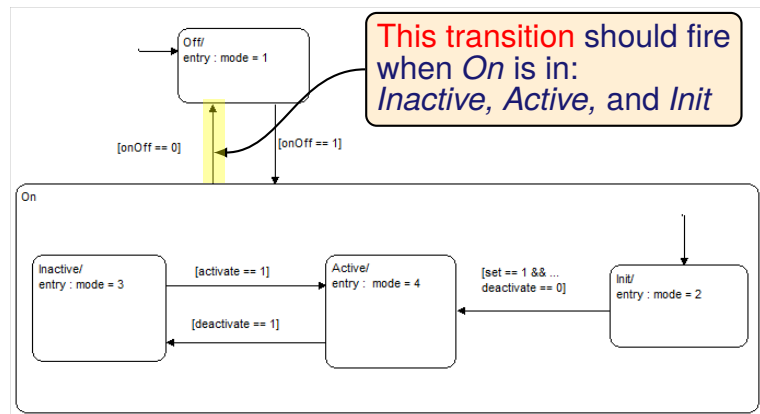
Child State Exit via Parent Transition (CSEPT)

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



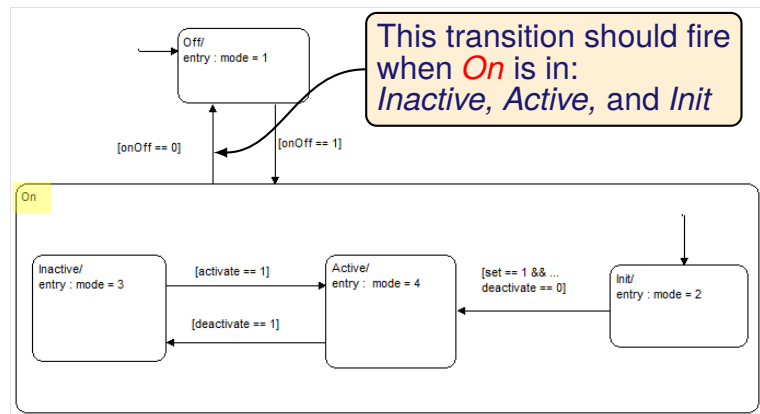
Child State Exit via Parent Transition (CSEPT)

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



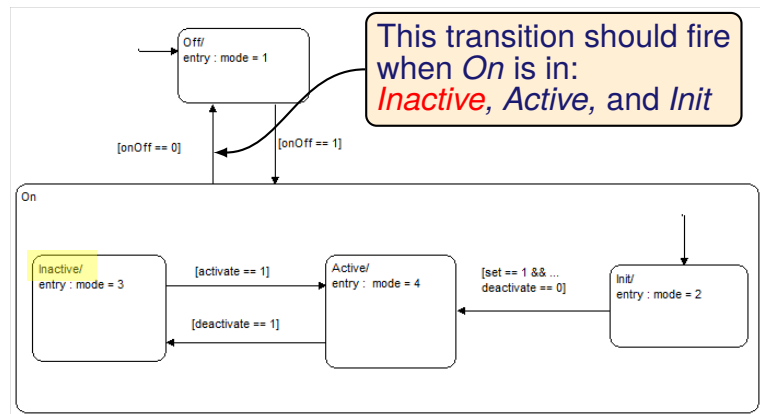
Child State Exit via Parent Transition (CSEPT)

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



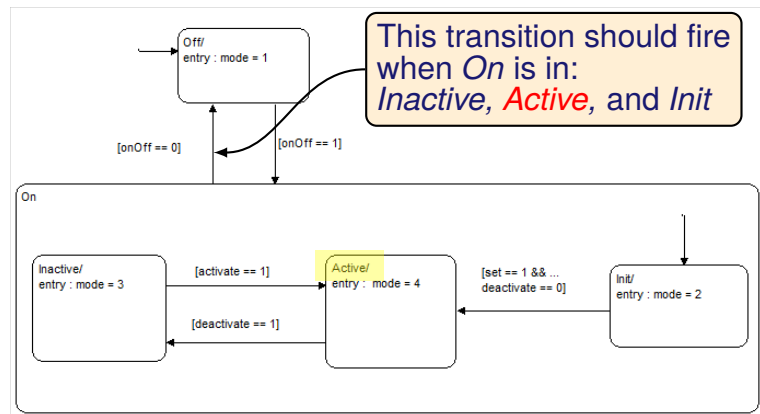
Child State Exit via Parent Transition (CSEPT)

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



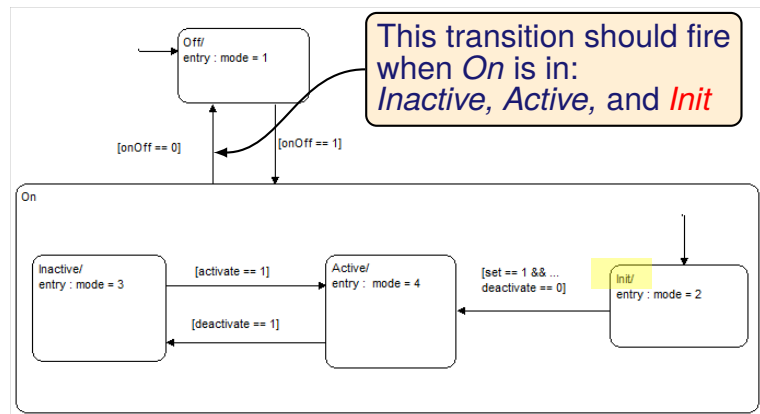
Child State Exit via Parent Transition (CSEPT)

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

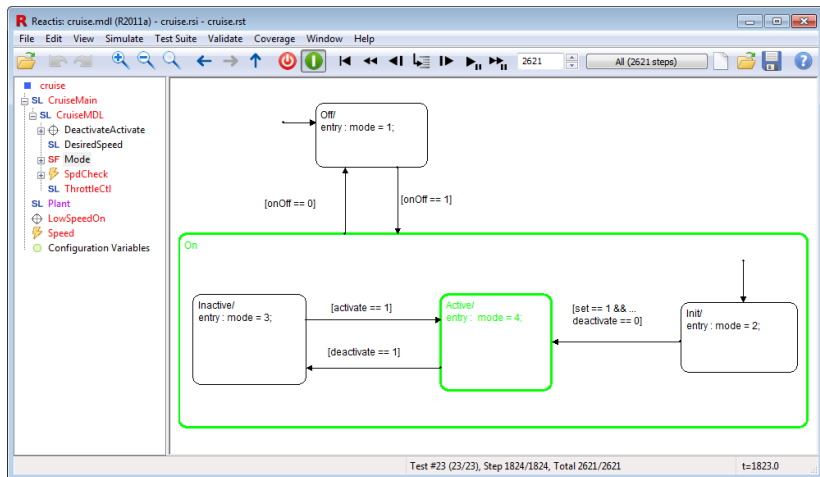


Child State Exit via Parent Transition (CSEPT)

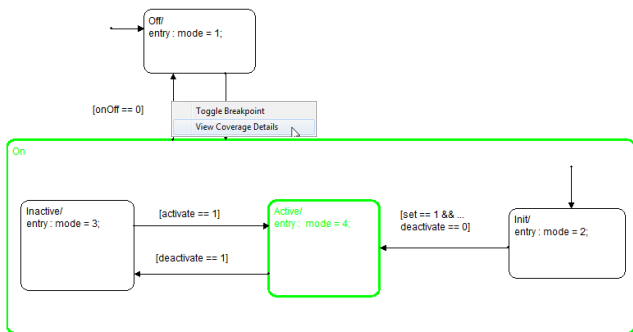
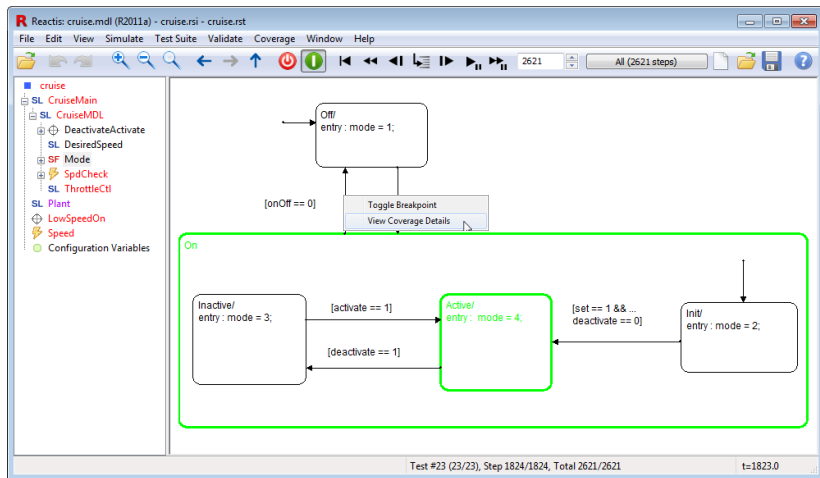
In Stateflow, for each transition exiting a state with child states, make sure that the transition causes each child state to exit.



Child State Exit via Parent Transition (CSEPT)



Child State Exit via Parent Transition (CSEPT)



Test #23 (23/23), Step 1824/1824, Total 2621/2621

t=1823.0

Child State Exit via Parent Transition (CSEPT)

The screenshot displays the Reactis simulation environment for a model named 'cruise'. The interface includes a menu bar (File, Edit, View, Simulate, Test Suite, Validate, Coverage, Window, Help), a toolbar with simulation controls, and a project tree on the left. The project tree shows a hierarchy of components: SL CruiseMain, SL CruiseMDL, DeactivateActivate, SL DesiredSpeed, SF Mode, SpdCheck, SL ThrottleCtl, SL Plant, LowSpeedOn, Speed, and Configuration Variables.

The central area shows a state machine diagram with the following states and transitions:

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

Transitions are labeled with conditions:

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

A green box highlights the **Active/** state and its transitions. A 'Toggle Breakpoint' button is visible above the diagram, with a 'View Coverage Details' button below it. The 'View Coverage Details' button is clicked, opening a 'Coverage Details' window.

The 'Coverage Details' window shows the following table:

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

The status bar at the bottom indicates: Test #23 (23/23), Step 1824/1824, Total 2621/2621, t=1823.0.

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 'Filter' section showing '#1 (50): Test 1'. A data table is displayed with columns for 'Step 3' through 'Step 10'. The first four rows are highlighted in blue, and a context menu is open over them, listing options: 'Hide Selected Rows', 'Unhide Selected Rows', 'Unhide All Rows', and 'Show Hidden Rows'. Below the table is a 'Configuration Variable' section with one entry: 'InitialSpeed' with a value of '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 | 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 | 37.8968472026745

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 test data for 'Test 1' across steps 3 to 10. The first four rows (Inputs 1-4) are highlighted in blue, indicating they are selected.

| | 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 after the 'Hide Selected Rows' action. The 'Suite History' tab is active, and the table displays test data for 'Test 1' across steps 1 to 10. The first four rows (Inputs 1-4) are hidden, and rows 5-8 are visible.

| | 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 | 0.0 |
| 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 | |
|--------------------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|------|
| Inputs | | | | | | | | | | |
| 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... | 0.00 |
| 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... | 37.5 |
| __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 has filtered the test data to show only steps where the brake was pressed. The table below displays the filtered data for test step #1 (27 of 50).

| | Step 4 | Step 7 | Step 9 | Step 10 | Step 15 | Step 17 | Step 19 | Step 21 | Step 22 |
|--------------------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Inputs | | | | | | | | | |
| 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... |
| 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

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 window title is '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' and is highlighted with a red rectangle. Below the toolbar are tabs for 'Test Data', 'Test History', and 'Suite History'. The main area displays a table with columns for test steps: 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. The 'Inputs' section includes rows for '1: onOff', '2: accelResume', '3: cancel', '4: accelSet', '5: brake', '6: gas', '7: inactiveThrottleDelta', and '8: drag'. The 'Outputs' section includes rows for '1: active', '2: throttleDelta', '3: speed', and 't'. A red rectangle highlights the '5: brake' row across all columns. At the bottom, a 'Configuration Variable' table shows 'InitialSpeed' with a value of '37.8968472026745'.

| | Step 4 | Step 7 | Step 9 | Step 10 | Step 15 | Step 17 | Step 19 | Step 21 | Step 22 |
|--------------------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Inputs | | | | | | | | | |
| 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: 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... |
| 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 |

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\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

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*

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

Tolerances for
comparing outputs

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:

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

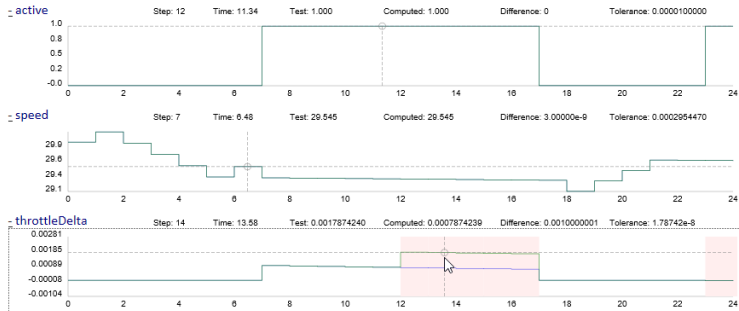
| Step | Output/Test Point | Test Suite Value Computed Value | Difference | Tolerance |
|------|-------------------|--------------------------------------|-----------------------|------------------------------------|
| 13 | throttleDelta | 0.001813667 0.0008136667432239597 | 0.00100000025677604 | relative: 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:

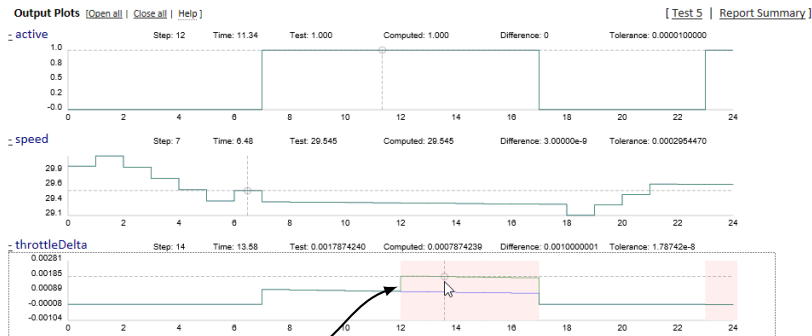
Output Plots [\[Open all\]](#) [\[Close all\]](#) [\[Help\]](#)

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



HTML Test Execution Report

Plots for each inport, outport, test point:



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 |

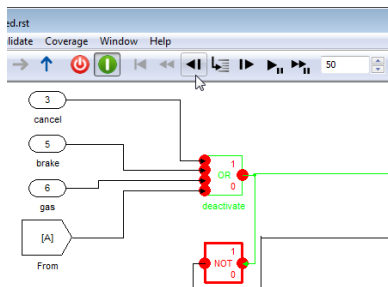
| Decision Details | | | Condition Details | | | MC/DC Details | |
|------------------|------|-------|-------------------|------|-------|---------------|------------|
| Decision | True | False | Condition | True | False | True | False |
| notd | 2/3 | 1/1 | Inport #1 | 1/1 | 2/3 | F : 2/3 | T : 1/1 |
| 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 for monitoring variables. At the top, a diagram shows a variable 'speed' with a value of 7, connected to a 'DesiredSpeed' input. Below the diagram is a watch list table with the following data:

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

The watch list table is located at the bottom of the interface, with the text 'New Test, Step 1' and 't=0.0' displayed below it. A red box highlights the number '1' in the watch list's scroll bar, indicating the number of significant digits to be displayed.

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 'speed' variable 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 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.

The 'Settings' dialog box contains the following text:

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)

The input field contains the value 4.

Buttons: 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, the 'Settings' dialog box is shown, where the number of significant digits is set to 4. The watch list below shows the variable's value rounded to 15.43.

Top Screenshot: Context Menu

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

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

Bottom Screenshot: Settings Dialog

Settings

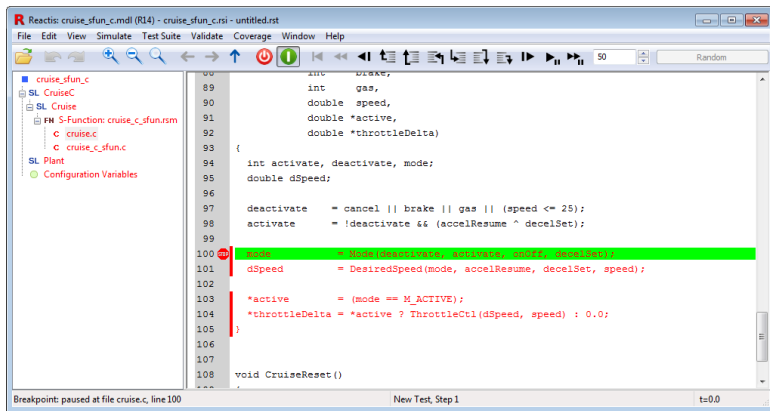
Please specify the number of significant digits:
an integer in the range 1-20 or -1 for the default (8 for single, 16 for double)

OK Cancel

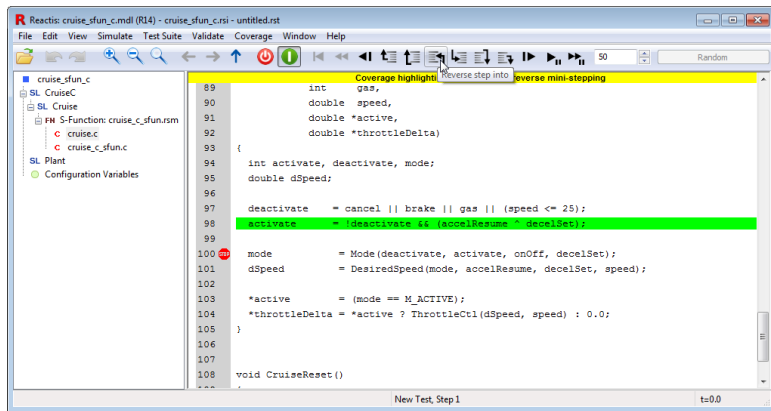
Bottom Screenshot: Watch List

| 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, navigation, and simulation control, including a "Reverse step into" button. A yellow tooltip is visible over this button, containing the text "Coverage highlights" and "Reverse step into".

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

```
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()  
...
```

New Test, Step 1

t=0.0

C Code Statement-Level Reverse Stepping

The screenshot shows the Reactis IDE interface. The title bar reads "Reactis: cruise_sfun_c.mdl (R14) - cruise_sfun_c.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, simulation control (stop, play, step back, step forward), and a "Random" button. The left sidebar shows a project tree with the following structure:

- cruise_sfun_c
 - SL CruiseC
 - SL Cruise
 - FN S-Function: cruise_sfun.rsm
 - c cruise.c
 - c cruise_c_sfun.c
 - SL Plant
 - Configuration Variables

The main editor displays C code for a function. A yellow banner at the top of the code area reads "Coverage highlighting disabled while reverse mini-stepping". The code is as follows:

```
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".

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 double bar at the end) 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