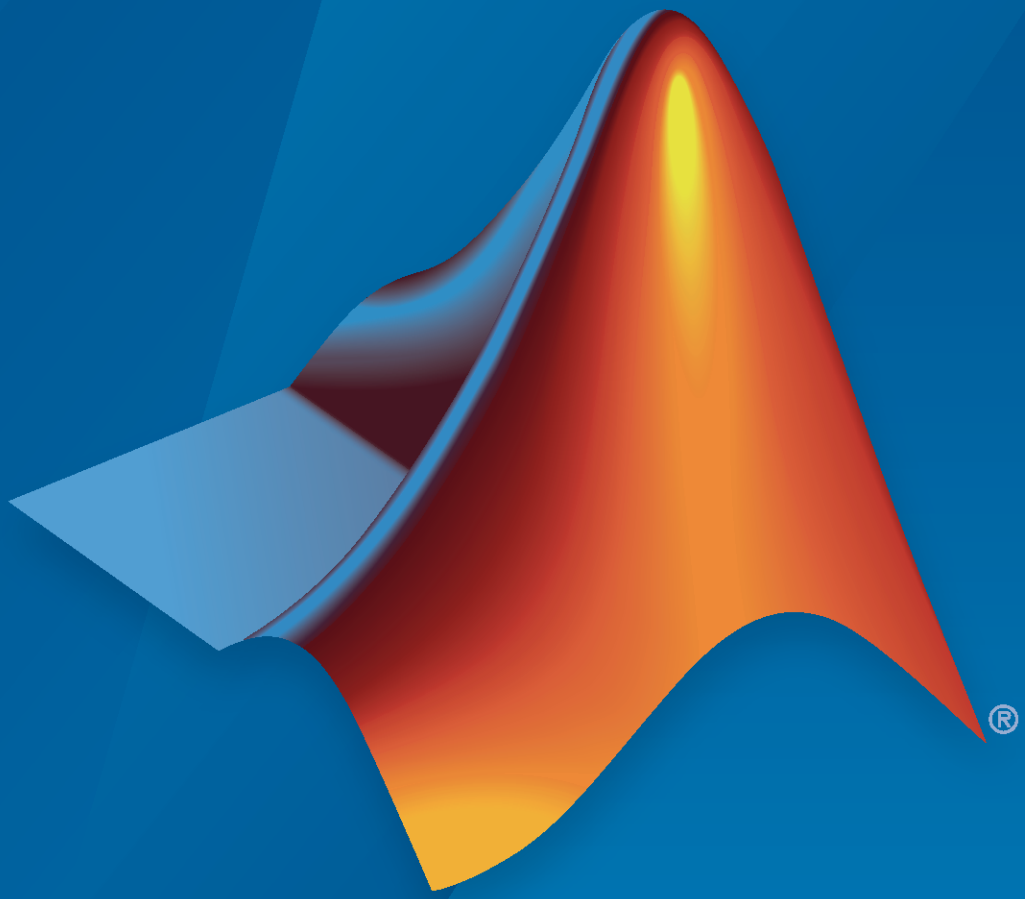
Simulink® Test™

Reference



MATLAB® & SIMULINK®

R2021b

MathWorks®

How to Contact MathWorks

Latest news: `www.mathworks.com`

Sales and services: `www.mathworks.com/sales_and_services`

User community: `www.mathworks.com/matlabcentral`

Technical support: `www.mathworks.com/support/contact_us`

Phone: 508-647-7000

The MathWorks, Inc.
1 Apple Hill Drive
Natick, MA 01760-2098

Simulink® Test™ Reference

Trademarks

MATLAB and Simulink are registered trademarks of The MathWorks, Inc. See `www.mathworks.com/trademarks` for a list of additional trademarks. Other product or brand names may be trademarks or registered trademarks of their respective holders.

Patents

MathWorks products are protected by one or more U.S. patents. Please see `www.mathworks.com/patents` for more information.

Revision History

March 2015	Online Only	New for Version 1.0 (Release 2015a)
September 2015	Online Only	Revised for Version 1.1 (Release 2015b)
October 2015	Online only	Rereleased for Version 1.0.1 (Release 2015aSP1)
March 2016	Online Only	Revised for Version 2.0 (Release 2016a)
September 2016	Online Only	Revised for Version 2.1 (Release 2016b)
March 2017	Online Only	Revised for Version 2.2 (Release 2017a)
September 2017	Online Only	Revised for Version 2.3 (Release 2017b)
March 2018	Online Only	Revised for Version 2.4 (Release 2018a)
September 2018	Online Only	Revised for Version 2.5 (Release 2018b)
March 2019	Online Only	Revised for Version 3.0 (Release 2019a)
September 2019	Online Only	Revised for Version 3.1 (Release 2019b)
March 2020	Online Only	Revised for Version 3.2 (Release 2020a)
September 2020	Online Only	Revised for Version 3.3 (Release 2020b)
March 2021	Online Only	Revised for Version 3.4 (Release 2021a)
September 2021	Online Only	Revised for Version 3.5 (Release 2021b)

Contents

Functions

disp

Display results of `sltest.AssessmentSet` or `sltest.Assessment`

Syntax

```
disp(as)
```

Description

`disp(as)` displays the results of the assessment object `as`.

Examples

Display results of an assessment

Display the results of the assessment `as`, where `as` is an `sltest.Assessment`.

```
disp(as)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1×1 Simulink.SimulationData.BlockPath]
       Values: [1×1 timeseries]
       Result: Fail
```

Input Arguments

as — Assessment object

`sltest.Assessment` | `sltest.AssessmentSet`

Assessment object for which to display results.

Example: `as`

See Also

`sltest.getAssessments` | `sltest.Assessment` | `sltest.AssessmentSet`

Introduced in R2016b

Test Manager

Model and code testing in different execution environments, manage test suites, and analyze and report results

Description

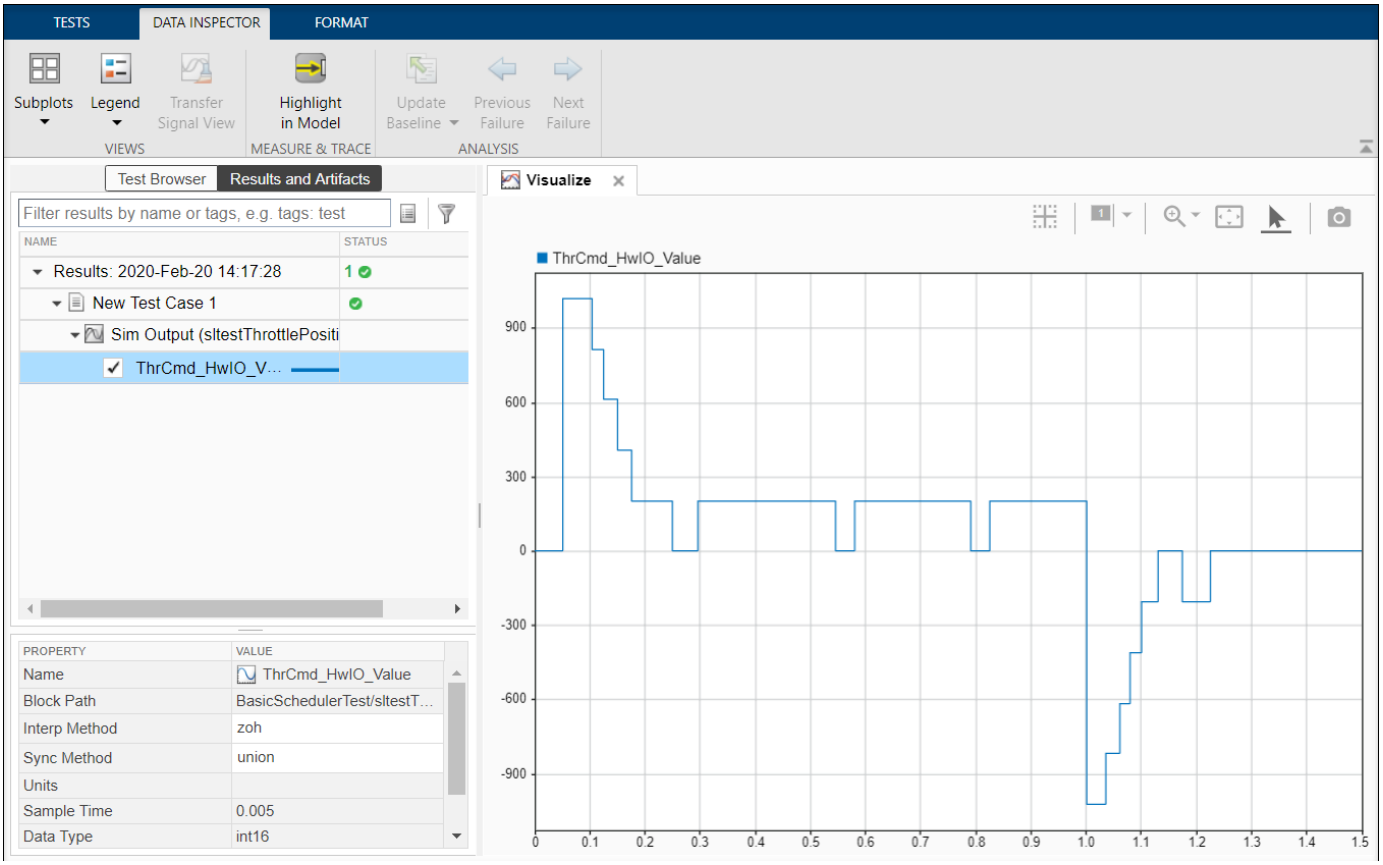
You can use the **Test Manager** to create test cases for Simulink models and code in desktop, SIL, PIL, and HIL (for target computers running Simulink Real-Time™) execution environments. You can create or import test data, run tests, view results, and create reports. You can also import and test C and C++ code, and MATLAB® test scripts.

You can group test cases into test suites, which are saved in a test file. The types of test you can create are simulation tests, equivalence (back-to-back) tests to compare models or generated code, and baseline tests to compare model output to a known baseline. You can run tests directly on your model or use test harnesses, which keep the test environment separate from your model. See “Test Harness and Model Relationship”.

You can specify the model or component to test, as well as:

- Test inputs
- Test outputs, such as logged signals and states
- Baseline criteria for baseline tests
- Iterations to run different combinations of inputs, parameters, baseline criteria, etc.
- Temporal and logical assessments of simulation behavior
- Model parameter and configuration overrides
- Callbacks to run before and after loading the model
- Coverage settings to measure the extent to which model or code execution paths are exercised
- Link requirements to the tests that verify them

Note If your model or test harness contains a To Workspace block, the block variable is not saved in the base workspace after the test finishes running. Upon test completion, the base workspace is restored to its original state.



Open the Test Manager

- In the Simulink toolstrip
  1. Open the **Apps** tab.
  2. In the Model Verification, Validation, and Test section, click **Simulink Test**.
  3. On the **Tests** tab, click **Simulink Test Manager** on the Tests toolstrip.
- At the MATLAB command prompt, enter `sltest.testmanager.view`.

In the Test Manager, the test sections in the **Test Browser** pane contain the options for the test. For descriptions of the options, see “Specify Test Properties in the Test Manager”.

Examples

- “Specify Test Properties in the Test Manager”
- “Capture Simulation Data in a Test Case”
- “Create and Run a Back-to-Back Test”
- “Create and Run a Baseline Test”
- “Create a Test Harness”

- “View Test Case Results”

See Also

Topics
“Specify Test Properties in the Test Manager”
“Capture Simulation Data in a Test Case”
“Create and Run a Back-to-Back Test”
“Create and Run a Baseline Test”
“Create a Test Harness”
“View Test Case Results”

Introduced in R2015a

find

Find assessments in `sltest.AssessmentSet` or `sltest.Assessment` object

Syntax

```
asout = find(as,'PropertyName','PropertyValue')
asout = find(as,'PropertyName1','PropertyValue1','-logical','PropertyName2',
'PropertyValue2'...)
asout = find(as,'-regexp','PropertyName','PropertyValue')
```

Description

`asout = find(as,'PropertyName','PropertyValue')` returns the results `asout` specified by the properties matching `'PropertyName'`, and `'PropertyValue'`.

`asout = find(as,'PropertyName1','PropertyValue1','-logical','PropertyName2', 'PropertyValue2'...)` returns the results `asout` specified by multiple `'PropertyName'`, `'PropertyValue'` pairs, and the `'-logical'` operator specifying the connective between the pairs. `'-logical'` can be `'-and'` or `'-or'`.

`asout = find(as,'-regexp','PropertyName','PropertyValue')` returns assessment results whose `'PropertyName'` matches the regular expression `'PropertyValue'`. When using regular expression search, `'PropertyName'` can be the assessment object `'Name'` or `'BlockPath'`.

Examples

Get Assessments from a Simulation

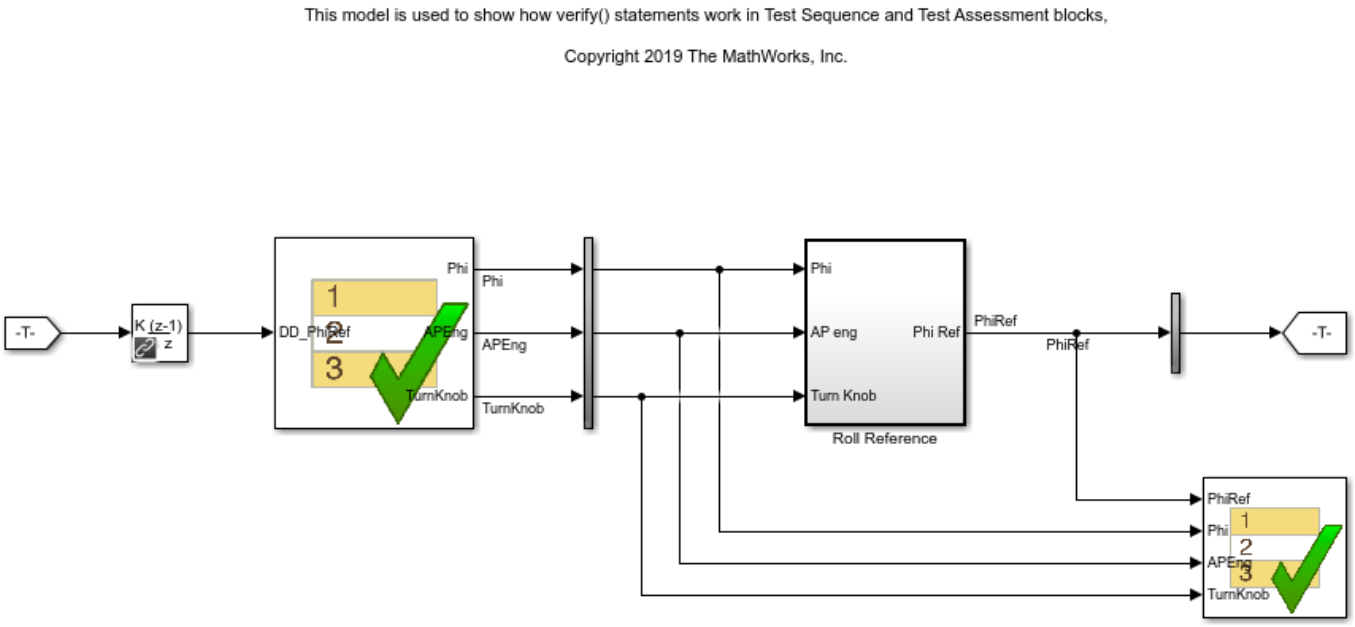
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

      Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
```

```
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

Input Arguments

as — Assessment object

`sltest.Assessment` | `sltest.AssessmentSet`

Assessment object to search.

Example: `as`

'–logical' — Logical operator

`'–and'` | `'–or'`

Logical operator connecting multiple property names or property values.

Example: `'–and'`

'PropertyName' — Type of property to search

`'Name'` | `'Result'` | `'BlockPath'`

Type of property to search.

Example: `'BlockPath'`

'PropertyValue' — Property value to search

character vector | `slTestResult` enumeration

Property value to search, specified as a character vector. Can be a regular expression when using the `'–regexp'` argument.

When using the `'Result'` property name, `'PropertyValue'` is an enumeration of the assessment result:

- `slTestResult.Fail` for failed assessments
- `slTestResult.Pass` for passed assessments
- `slTestResult.Untested` for untested assessments

Example: `slTestResult.Fail`

Example: `'[Aa]sess'`

'–regexp' — Command to search using regular expression

character vector

Regular expression for `BlockPath` properties search, specified as a character vector.

Example: `'–regexp'`

Output Arguments

asout — Assessment results output
`sltest.assessmentSet` object

Assessment results output from the find operation, specified as an `sltest.assessmentSet` object.

Example: `sltest.AssessmentSet`

See Also

`sltest.getAssessments` | `sltest.Assessment` | `sltest.AssessmentSet`

Introduced in R2016b

get

Get assessment of `sltest.AssessmentSet`

Syntax

```
indexResult = get(as,index)
```

Description

`indexResult = get(as,index)` gets the individual assessment result `indexResult` from the `sltest.AssessmentSet` `as`, specified by the integer `index`.

Examples

Get Assessments from a Simulation

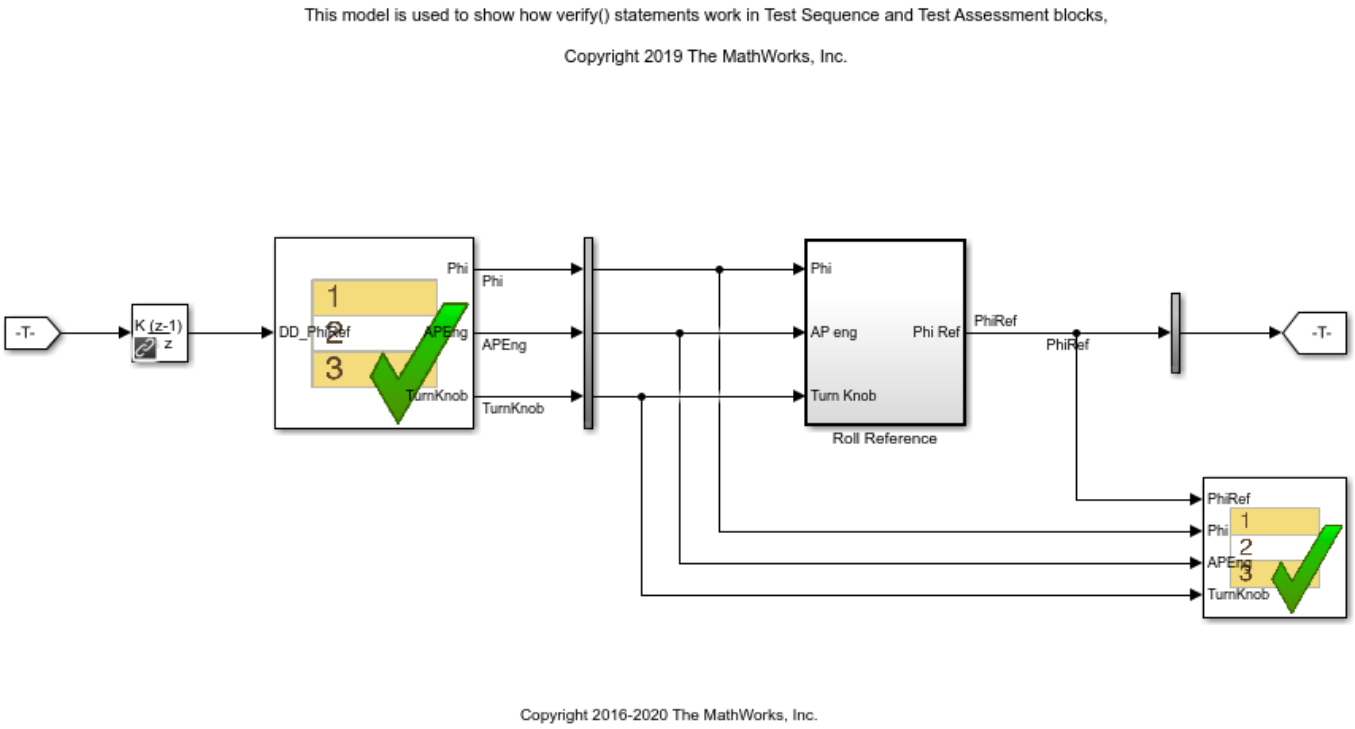
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

      Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
```

```
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

Input Arguments

as — Assessment set from which to get a single assessment

`sltest.AssessmentSet`

This is the `sltest.AssessmentSet`, from which to get a single assessment.

Example: `sltest.AssessmentSet`

index — Index of single assessment

integer

Index of a single assessment to return to the `sltest.Assessment` object, specified as an integer.

Example: 3

See Also

`sltest.getAssessments` | `sltest.Assessment` | `sltest.AssessmentSet`

Introduced in R2016b

getSummary

Get summary of `sltest.AssessmentSet`

Syntax

```
testOut = getSummary(as)
```

Description

`testOut = getSummary(as)` gets the summary `testOut` of the `sltest.AssessmentSet` `as`.

Examples

Get Assessments from a Simulation

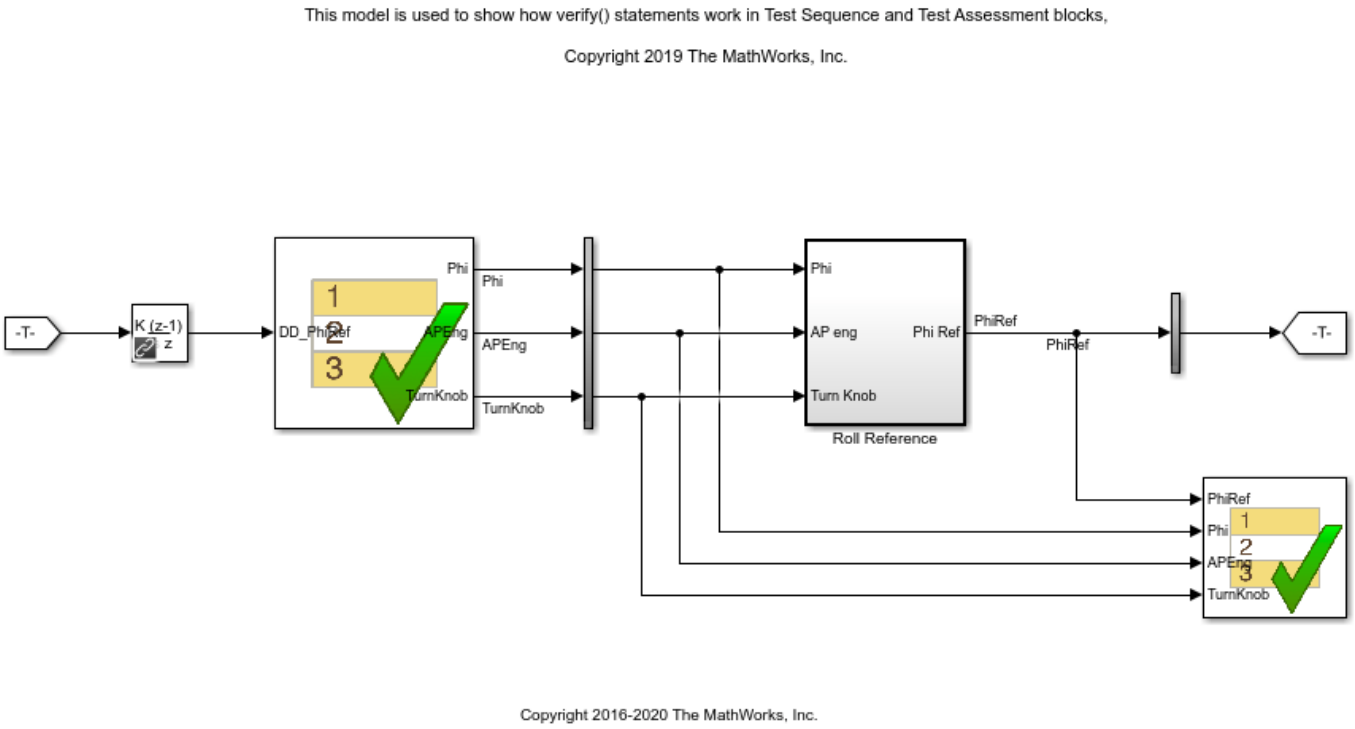
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

      Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
```

```
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

Input Arguments

as — Assessment set from which to get a summary

`sltest.AssessmentSet`

This is the `sltest.AssessmentSet`, from which to get a summary.

Example: `sltest.AssessmentSet`

Output Arguments

testOut — Assessment summary

struct

Summary of the assessment set, specified as a `struct`.

See Also

`sltest.getAssessments` | `sltest.Assessment` | `sltest.AssessmentSet`

Introduced in R2016b

sltest.getAssessments

Returns test assessment set object

Syntax

```
as = sltest.getAssessments(model)
```

Description

`as = sltest.getAssessments(model)` returns `as`, an `sltest.AssessmentSet` from assessments in `model`. Simulate the model before getting the assessment results.

`as` includes results from:

- `verify` statements
- Blocks in the Model Verification library

Examples

Get Assessments from a Simulation

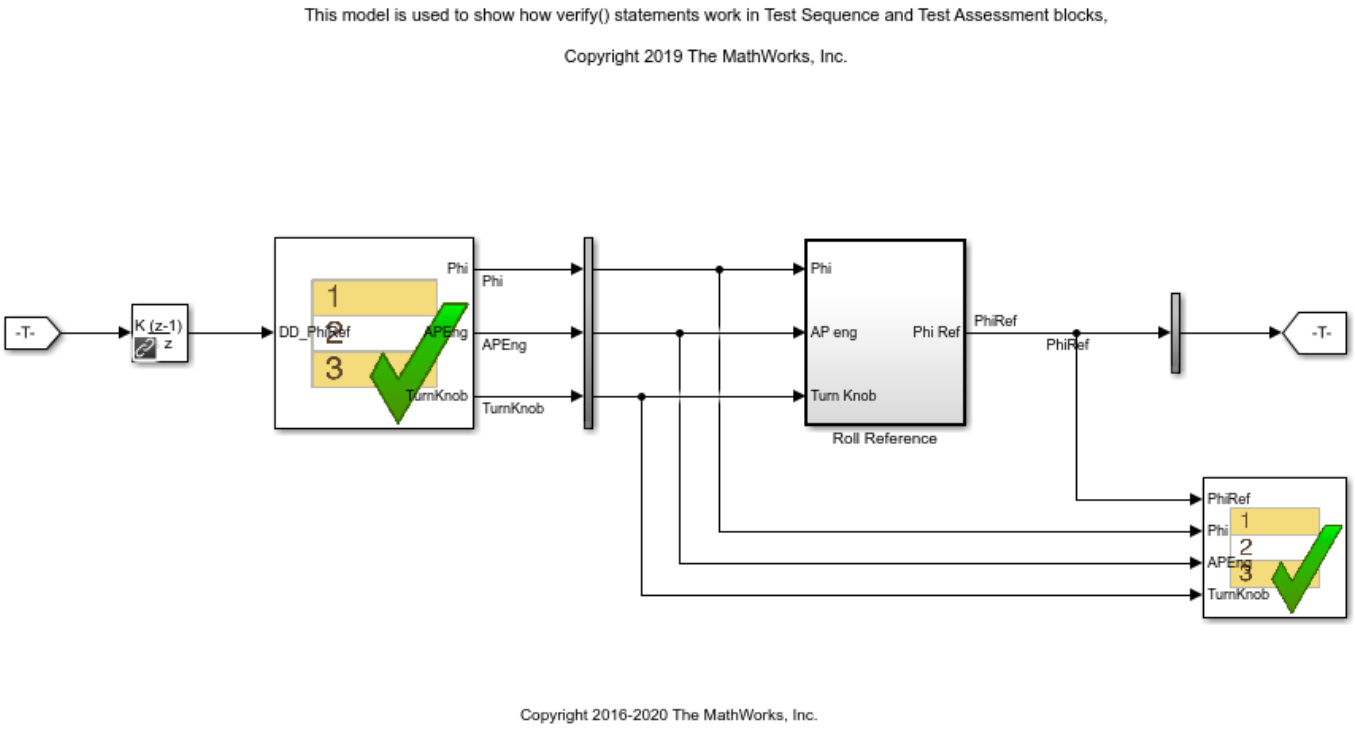
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

      Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
```

```
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

See Also

`sltest.Assessment` | `sltest.AssessmentSet`

Topics

“Examine Model Verification Results by Using Simulation Data Inspector”

Introduced in R2016b

sltest.harness.check

Compare component under test between harness model and main model

Syntax

```
[CheckResult,CheckDetails] = sltest.harness.check(harnessOwner,harnessName)
```

Description

`[CheckResult,CheckDetails] = sltest.harness.check(harnessOwner,harnessName)` computes the checksum of the component under test in the harness model `harnessName` and compares it to the checksum of the component `harnessOwner` in the main model, returning the overall `CheckResult` and additional `CheckDetails` of the comparison. You cannot use `sltest.harness.check` on Subsystem models test harnesses.

Examples

Compare Component Under Test Between Model and Harness

This example shows how to compare a component under test between the main model and the test harness. Comparing the component under test can help you determine if the CUT contains unsynchronized changes.

Check the `Controller` subsystem in the `f14` model against the `Controller` subsystem in a test harness.

1. Load the model.

```
load_system('f14');
```

2. Create a test harness for `Controller`.

```
sltest.harness.create('f14/Controller','Name','ControllerHarness');
```

3. Run the comparison.

```
[CheckResult,CheckDetails] = sltest.harness.check('f14/Controller',...
    'ControllerHarness');
```

4. View the overall result.

```
CheckResult
```

```
CheckResult = logical
   1
```

5. View the details of the comparison.

```
CheckDetails
```

```
CheckDetails = struct with fields:
     overall: 1
```

```
    contents: 1
      reason: 'The checksum of the harnessed component and the component in the main model are sa
```

```
clear('CheckResult','CheckDetails');
close_system('f14',0);
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or double.

Example: `1.9500e+03`

Example: `'model_name'`

Example: `'model_name/Subsystem'`

`harnessName` — Harness name

character vector

The name of the harness, specified as a character vector.

Example: `'harness_name'`

Output Arguments

`CheckResult` — Result of comparison

true | false

The result of the component comparison between the harness model and the system model, returned as true or false.

For a block diagram harness, the function returns `CheckResult = true`.

For a virtual subsystem harness, the function returns `CheckResult = false`.

`CheckDetails` — Details of the check operation

structure

Details of the check operation, returned as a structure. Structure fields contain the comparison results for the overall component, the component contents, the component interface, and a reason for the comparison result. If `sltest.harness.check` returns `false`, rebuild the test harness and retry `sltest.harness.check`.

See Also

`sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.clone

Copy test harness

Syntax

```
sltest.harness.clone(HarnessOwner,HarnessName)
sltest.harness.clone(HarnessOwner,HarnessName,NewHarness)
sltest.harness.clone(HarnessOwner,HarnessName,Name,Value)
```

Description

`sltest.harness.clone(HarnessOwner,HarnessName)` clones the test harness `HarnessName` associated with the model or component `HarnessOwner`. The cloned harness contains the source harness model contents, configuration settings, and callbacks.

`sltest.harness.clone(HarnessOwner,HarnessName,NewHarness)` uses an additional argument `NewHarness` to specify the name of the cloned harness.

`sltest.harness.clone(HarnessOwner,HarnessName,Name,Value)` clones the test harness `HarnessName` associated with `HarnessOwner` using additional options specified by one or more `Name,Value` pair arguments.

Examples

Clone a Subsystem Test Harness

Create a test harness `ControllerHarness1` for the `Controller` subsystem of the model `f14`. Clone the harness and save it as `ControllerHarness2`.

```
f14
sltest.harness.create('f14/Controller','Name',...
   'ControllerHarness1','SynchronizationMode',...
   'SyncOnOpenAndClose')
sltest.harness.clone('f14/Controller',...
   'ControllerHarness1','ControllerHarness2')
```

Clone the test harness `ControllerHarness1` created in the previous step to the `Aircraft Dynamics Model` subsystem and save it as `ControllerHarnessClone`.

```
sltest.harness.clone('f14/Controller',...
   'ControllerHarness1','DestinationOwner',...
   'f14/Aircraft Dynamics Model','Name',...
   'ControllerHarnessClone')
```

Input Arguments

`HarnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or a double.

Example: 1.9500e+03

Example: 'f14'

Example: 'f14/Controller'

`HarnessName` — Source harness name
character vector

The name of the source harness, specified as a character vector.

Example: 'ControllerHarness'

`NewHarness` — Cloned harness name
character vector

The name of the cloned harness, specified as a character vector. If no value is specified, a default value is automatically generated.

Example: 'ControllerHarness2'

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'DestinationOwner','model3/Controller3','Name','newClonedHarness'`

`DestinationOwner` — Owner block to which the harness is cloned
harnessOwner (default) | character vector

Owner block to which the test harness is cloned, specified as the comma-separated pair consisting of `'DestinationOwner'` and a character vector.

Example: `'DestinationOwner','model3/Controller3'`

`Name` — Name of the cloned test harness
autogenerated name (default) | character vector

The name of the cloned test harness, specified as the comma-separated pair consisting of `'Name'` and a character vector. If no value is specified for `Name`, a default value is automatically generated.

Example: `'Name','newClonedHarness'`

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015b

sltest.harness.close

Close test harness

Syntax

```
sltest.harness.close(modelName)
sltest.harness.close(harnessOwner)
sltest.harness.close(harnessOwner,harnessName)
```

Description

`sltest.harness.close(modelName)` closes the open test harness associated with the model `modelName`.

`sltest.harness.close(harnessOwner)` closes the open test harness associated with the model or component `harnessOwner`.

`sltest.harness.close(harnessOwner,harnessName)` closes the test harness `harnessName`, which is associated with the model or component `harnessOwner`.

Examples

Close a Harness Associated With a Subsystem

Close the test harness named `controller_harness`, associated with the subsystem `Controller` in the model `f14`.

```
f14;
sltest.harness.create('f14/Controller',...
   'Name','sample_controller_harness');
sltest.harness.open('f14/Controller',...
   'sample_controller_harness');
sltest.harness.close('f14/Controller',...
   'sample_controller_harness');
```

Close a Harness Associated With a Top-level Model

Close the test harness named `sample_harness`, which is associated with the model `f14`.

```
f14;
sltest.harness.create('f14','Name','sample_harness');
sltest.harness.open('f14','sample_harness');
sltest.harness.close('f14','sample_harness');
```

Input Arguments

`modelName` — Model name
character vector | double

Model handle or path, specified as a character vector or double.

Example: `1.9500e+03`

Example: `'model_name'`

`harnessOwner` — Model or component name
character vector | double

Model or component handle or path, specified as a character vector or double.

Example: `1.9500e+03`

Example: `'model_name'`

Example: `'model_name/Subsystem'`

`harnessName` — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.convert

Convert test harnesses between internal and external storage

Syntax

```
sltest.harness.convert(modelName)
sltest.harness.convert(modelName,conversion)
```

Description

`sltest.harness.convert(modelName)` converts the test harnesses storage type for `modelName`.

`sltest.harness.convert(modelName,conversion)` converts test harnesses storage type using the additional option `conversion` specifying which storage type is being converted to.

Examples

Convert Test Harnesses from External to Internal

```
sltest.harness.convert('f14','ExternalToInternal')
```

Input Arguments

`modelName` — Model name
character vector

Model handle or path, specified as a character vector.

Example: `'model_name'`

`conversion` — Conversion type
`'InternalToExternal'` | `'ExternalToInternal'`

Conversion to perform, specified as a character vector.

Example: `'InternalToExternal'`

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.open` | Model Reference Conversion Advisor

Introduced in R2016a

sltest.harness.create

Create test harness

Syntax

```
sltest.harness.create(harnessOwner)
sltest.harness.create(harnessOwner,Name,Value)
```

Description

`sltest.harness.create(harnessOwner)` creates a test harness for the model component `harnessOwner`, using default properties.

`sltest.harness.create(harnessOwner,Name,Value)` uses additional options specified by one or more `Name`,`Value` pair arguments.

Examples

Create Harness for a Model

Create harness for the `f14` model. The harness is called `sample_harness` and has a Signal Editor block source and a scope sink.

```
f14;
sltest.harness.create('f14','Name','sample_harness','Source',...
'Signal Editor','Sink','Scope')
```

Create Harness for a Subsystem

Create a harness for the `Controller` subsystem of the `f14` model.

```
f14;
sltest.harness.create('f14/Controller');
```

Create a Harness That Uses a Chart Scheduler

Create a harness that uses a Stateflow® Chart as the test harness scheduler for the `Controller` subsystem of the `f14` model.

```
f14;
sltest.harness.create('f14/Controller','SchedulerBlock','Chart');
```

Input Arguments

`harnessOwner` — Model or component
character vector | double

Model or component handle or path, specified as a character vector or double.

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

Data Types: `double` | `char`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Name','controller_harness','Source','Signal Editor','Sink','To File'` specifies a harness named `controller_harness`, with a signal editor block source and To File block sinks for the component under test.

`Name` — Harness name

character vector

The name for the harness you create, specified as the comma-separated pair consisting of `'Name'` and a valid MATLAB file name.

Example: `'Name','harness_name'`

Data Types: `char`

`Description` — Harness description

character vector

The harness description, specified as the comma-separated pair consisting of `'Description'` and a character vector.

Example: `'Description','A test harness'`

Data Types: `char`

`Source` — Component under test input

`'Inport'` (default) | `'Signal Editor'` | `'From Workspace'` | `'From File'` | `'Test Sequence'` | `'Signal Editor'` | `'Chart'` | `'None'` | `'Custom'`

The input to the component, specified as the comma-separated pair consisting of `'Source'` and one of the possible source values.

Example: `'Source','Signal Editor'`

Data Types: `char`

`CustomSourcePath` — Path to library block for custom source

character vector

For a custom source, the path to the library block to use as the source, specified as the comma-separated pair consisting of `'CustomSourcePath'` and the path.

Example: `'CustomSourcePath','simulink/Sources/Sine Wave'`

Data Types: `char`

`Sink` — Harness output
`'Outport'` (default) | `'Scope'` | `'To Workspace'` | `'To File'` | `'Terminator'` | `'None'` | `'Custom'`

The output of the component, specified as the comma-separated pair consisting of `'Sink'` and one of the possible sink values.

If your test harness contains a To Workspace block, the block variable is not saved in the base workspace after the test finishes running. Upon test completion, the base workspace is restored to its original state.

Example: `'Sink','Scope'`

Data Types: `char`

`CustomSinkPath` — Path to library block for custom sink
character vector

For a custom sink, the path to the library block to use as the sink, specified as the comma-separated pair consisting of `'CustomSinkPath'` and the path.

Example: `'CustomSinkPath','simulink/Sinks/Display'`

`SeparateAssessment` — Separate Test Assessment block
`false` (default) | `true`

Option to add a separate Test Assessment block to the test harness, specified as a comma-separated pair consisting of `'SeparateAssessment'` and `false` or `true`.

Example: `'SeparateAssessment',true`

Data Types: `logical`

`SynchronizationMode` — Specifies the synchronization behavior of the component under test
`'SyncOnOpenAndClose'` (default) | `'SyncOnOpen'` | `'SyncOnPushRebuildOnly'`

Option to specify when the component under test synchronizes the main model and the test harness. Subsystem model test harnesses are always synchronized with their underlying model.

- `'SyncOnOpenAndClose'` rebuilds the component under test from the main model when the test harness opens, and pushes changes from the component under test to the main model when the test harness closes.
- `'SyncOnOpen'` rebuilds the component under test from the main model when the test harness opens. It does not push changes from the component under test to the main model when the test harness closes.
- `'SyncOnPushRebuildOnly'` rebuilds and pushes changes only when you manually initiate rebuild or push for the entire test harness. For more information, see “Synchronize Changes Between Test Harness and Model”.

Example: `'SynchronizationMode','SyncOnOpen'`

Data Types: `char`

`CreateWithoutCompile` — Option to create harness without compiling main model
`false` (default) | `true`

Option to specify harness creation without compiling the main model, specified as a comma-separated pair consisting of `'CreateWithoutCompile'` and `false` or `true`. This option is set to `true` for Subsystem model test harnesses.

`false` compiles the model and runs other operations to support the harness build. `true` creates the harness without model compilation.

Example: `'CreateWithoutCompile',false`

Data Types: `logical`

`VerificationMode` — Option to use normal (model), software-in-the-loop (SIL), or processor-in-the-loop (PIL) block as component under test
`'Normal'` (default) | `'SIL'` | `'PIL'`

Option to specify what type of block to use in the test harness, specified as a comma-separated pair consisting of `'VerificationMode'` and the type of block to use. SIL and PIL blocks require Simulink Coder. This option is set to `normal` for Subsystem models.

Example: `'VerificationMode','SIL'`

Data Types: `char`

`ExistingBuildFolder` — Path to folder of existing generated code verified using SIL/PIL
string | character vector

Path to main build folder of existing generated code verified using SIL/PIL, specified as a string or character vector. If you specify a build folder, the existing code in that folder is used, which enables faster harness creation time. If you do not specify a build folder, the code is regenerated. You cannot set a default value for this property in an `sl_customization` file or using `sltest.harness.setHarnessCreateDefaults`.

Example: `'ExistingBuildFolder','C:\TestMdl\SILHarness\Amplifier_ert_rtw'`

Data Types: `string` | `char`

`RebuildOnOpen` — Sets the harness rebuild command to execute when the harness opens
`false` (default) | `true`

Option to have the harness rebuild when it opens, specified as the comma-separated pair consisting of `'UseDefaultName'` and `false` or `true`.

Example: `'RebuildOnOpen',true`

Data Types: `logical`

`RebuildModelData` — Sets configuration set and model workspace entries to be updated during the test harness rebuild
`false` (default) | `true`

Option to have the configuration set and model workspace entries updated during test harness rebuild, specified as the comma-separated pair consisting of `'RebuildModelData'` and `true` or `false`. This option is set to `true` for Subsystem model test harnesses.

Example: `'RebuildModelData',true`

Data Types: `logical`

`SaveExternally` — Test harnesses saved as separate SLX files
`false` (default) | `true`

Option to have each test harness saved as a separate SLX file, specified as the comma-separated pair consisting of `'SaveExternally'` and `true` or `false`. A model cannot use both external and internal test harness storage. If a model already has test harnesses, a new test harness follows the storage type of the existing harnesses, which this option does not override. See “Manage Test Harnesses”.

Example: `'SaveExternally',true`

Data Types: `logical`

`HarnessPath` — Path to external test harness file
character vector

If `'SaveExternally'` is specified, you can specify a location for the external harness SLX file using a comma-separated pair consisting of `'HarnessPath'` and a character vector..

Example: `'HarnessPath','C:\MATLAB\SafetyTests'`

Data Types: `char`

`LogOutputs` — Log all harness output signals
`false` (default) | `true`

Log all harness output signals for the component under test, specified as `false` or `true`. When the value is `true`, all signals are logged, except for signals incompatible with logging. Signals are logged during test case execution and return test results. If an output signal does not have a name or a propagated name, it is assigned one in the harness using the format `<component under test name>:<output port number>`. To remove a signal from being logged, you can remove its badge manually.

Example: `'LogOutputs',true`

Data Types: `logical`

`PostCreateCallback` — Harness customization after creation
character vector

Use a post create callback function to customize a test harness. The post create callback function executes after the harness is created. For more information, see “Customize Test Harnesses”.

Example: `'PostCreateCallback','HarnessCustomization'`

Data Types: `char`

`PostRebuildCallback` — Harness customization after rebuild
character vector

Use a post rebuild callback function to customize a test harness. The post rebuild callback function executes after the harness rebuild. For more information, see “Customize Test Harnesses”.

Example: `'PostRebuildCallback','HarnessCustomization'`

Data Types: `char`

`ScheduleInitTermReset` — Drive model initialize, reset, and terminate ports
`false` (default) | `true`

Option to drive model initialize, reset, and terminate ports with the chosen test harness source, specified as the comma-separated pair consisting of `'ScheduleInitTermReset'` and `false` or `true`. This option only applies to harnesses created for a block diagram. This option is set to `false` for Subsystem models.

Example: `'ScheduleInitTermReset',true`

Data Types: `logical`

`SchedulerBlock` — Include scheduler block for periodic signals and function calls
`'Test Sequence'` | `'MATLAB Function'` | `'Chart'` | `'None'`

Option to include a scheduler block in the test harness, specified as the comma-separated pair consisting of `'SchedulerBlock'` and the type of block to use. The block is included if the test harness is created for a model block diagram or a Model block and contains function calls or periodic event ports. To include no scheduler block and connect all ports to harness source blocks, use `'None'` .

Example: `'SchedulerBlock','Test Sequence'`

Example: `'SchedulerBlock','None'`

Data Types: `char`

`AutoShapeInputs` — Match scalar and double value source to input signal dimension
`false` (default) | `true`

Option to shape scalar and double values to match the dimension of the input signals to the component under test, specified as the comma-separated pair consisting of `'AutoShapeInputs'` and `false` or `true`. This option only applies to harnesses with Inport, Constant, Signal Editor, From Workspace, or From File blocks. This option is set to `false` for Subsystem models.

Example: `'AutoShapeInputs',true`

Data Types: `logical`

`FunctionInterfaceName` — Name of reusable library subsystem function interface
string | character vector

Name of reusable library subsystem function interface, specified as a string or character vector. The test harness is created for the function interface of the reusable library subsystem. You cannot set a default value for this property in an `sl_customization.m` file or by using `sltest.harness.setHarnessCreateDefaults`.

Example: `'FunctionInterfaceName','double_RLS'`

Data Types: `string` | `char`

Compatibility Considerations

`DriveFcnCallWithTestSequence` in `sltest.harness.create` is not recommended
Not recommended starting in R2018b

Starting with the R2018b release, you can use the `'SchedulerBlock'` option to include a scheduler block when creating a test harness. The name-value pair `'SchedulerBlock','Test Sequence'` uses a Test Sequence scheduler block and replaces `'DriveFcnCallWithTestSequence',true`.

`'SchedulerBlock'` provides more scheduler options, and creates a simplified block interface compared to `'DriveFcnCallWithTestSequence'`. To update your code, for instances of

`sltest.harness.create`, replace `'DriveFcnCallWithTestSequence',true` with `'SchedulerBlock','Test Sequence'`.

See Also

`sltest.harness.check` | `sltest.harness.clone` | `sltest.harness.close` | `sltest.harness.convert` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.delete

Delete test harness

Syntax

```
sltest.harness.delete(harnessOwner,harnessName)
```

Description

`sltest.harness.delete(harnessOwner,harnessName)` deletes the harness `harnessName` associated with `harnessOwner`.

Examples

Delete a Harness Associated With a Subsystem

Delete the test harness `controller_harness`, which is associated with the `Controller` subsystem in the `f14` model.

```
f14;
sltest.harness.create('f14/Controller','Name','controller_harness');
sltest.harness.delete('f14/Controller','controller_harness');
```

Delete a Harness Associated With a Top-level Model

Delete the test harness `bd_harness`, which is associated with the model `f14`.

```
f14;
sltest.harness.create('f14','Name','bd_harness');
sltest.harness.delete('f14','bd_harness');
```

Input Arguments

`harnessOwner` — Model or component
character vector | double

Model or component handle or path, specified as a character vector or double.

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.clone` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.export

Export test harness to Simulink model

Syntax

```
sltest.harness.export(harnessOwner,harnessName,'Name',modelName)
```

Description

`sltest.harness.export(harnessOwner,harnessName,'Name',modelName)` exports the harness `harnessName`, associated with the model or component `harnessOwner`, to a new Simulink model specified by the pair `'Name',modelName`.

The model must be saved prior to export.

Examples

Export a Harness to a New Model

Export the harness `controller_harness`, which is associated with the `Controller` subsystem of the `f14` model. The new model name is `model_from_harness`.

```
f14;
sltest.harness.create('f14/Controller','Name','controller_harness');
sltest.harness.export('f14/Controller','controller_harness','Name',...
'model_from_harness');
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Name of the harness from which to create the model

character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

`modelName` — Name of the new model

character vector

A valid MATLAB filename for the model generated from the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.clone` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.find` | `sltest.harness.import` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.find

Find test harnesses in model

Syntax

```
harnessList = sltest.harness.find(harnessOwner)
harnessList = sltest.harness.find(harnessOwner,Name,Value)
```

Description

`harnessList = sltest.harness.find(harnessOwner)` returns a structure listing harnesses and harness properties that exist for the component or model `harnessOwner`.

`harnessList = sltest.harness.find(harnessOwner,Name,Value)` uses additional search options specified by one or more `Name`,`Value` pair arguments.

Examples

Use RegExp to Find Harnesses for a Model Component

Find harnesses for the `f14` model and its first-level subsystems. The function matches harness names according to a regular expression.

```
f14;
sltest.harness.create('f14','Name','model_harness');
sltest.harness.create('f14/Controller','Name',...
   'Controller_Harness1');
harnessList = sltest.harness.find('f14',...
   'SearchDepth',1,'Name','_[Hh]arnes+',...
   'RegExp','on')
```

```
harnessList =

1x2 struct array with fields:

    model
    name
    description
    type
    ownerHandle
    ownerFullPath
    ownerType
    isOpen
    canBeOpened
    verificationMode
    saveExternally
    rebuildOnOpen
    rebuildModelData
    graphical
```

```
origSrc
origSink
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

Name-Value Pair Options

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'SearchDepth',2,'Name','controller_harness'` searches the model or component, and two lower hierarchy levels, for harnesses named `controller_harness`.

`Name` — Harness name to search for

character vector | regular expression

Harness name to search for in the model, specified as the comma-separated pair consisting of `'Name'` and a character vector or a regular expression. You can specify a regular expression only if you also use the `Name`,`Value` pair `'RegExp'`,`'on'`.

Example: `'Name','sample_harness''Name','_[Hh]arnes+'`

`RegExp` — Ability to search using a regular expression

`'off'` (default) | `'on'`

Ability to search using a regular expression, specified as the comma-separated pair consisting of `'RegExp'` and `'off'` or `'on'`. When `'RegExp'` is set to `'on'`, you can use a regular expression with `'Name'`.

Example: `'RegExp','on'`

`SearchDepth` — Subsystem levels to search

all levels (default) | nonnegative integer

Subsystem levels into `harnessOwner` to search for harnesses, specified as the comma-separated pair consisting of `'SearchDepth'` and an integer. For example:

`0` searches `harnessOwner`.

`1` searches `harnessOwner` and its subsystems.

`2` searches `harnessOwner`, its subsystems, and their subsystems.

When you do not specify `SearchDepth`, the function searches all levels of `harnessOwner`.

Example: `'SearchDepth',1`

`OpenOnly` — Search option for open harnesses
`'off'` (default) | `'on'`

Search option to return only active harnesses, specified as the comma-separated pair consisting of `'OpenOnly'` and `'off'` or `'on'`.

Example: `'OpenOnly','on'`

`FunctionInterfaceName` — Name of the function interface to search for
string | character vector

Name of the function interface for the reusable library subsystem to search for, specified as a string or character vector. Using this Name-Value pair returns a list of all harnesses for the specified function interface.

Example: `'FunctionInterfaceName','double_RLS'`

Output Arguments

`harnessList` — List of harnesses and properties
structure

List of harnesses and properties for the component or model `harnessOwner`, returned as a structure. The structure fields are shown in the “Use RegExp to Find Harnesses for a Model Component” on page 1-42 example.

See Also
`sltest.harness.check` | `sltest.harness.clone` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.getHarnessCreateDefaults

Get harness creation default values

Syntax

```
sltest.harness.getHarnessCreateDefaults
```

Description

`sltest.harness.getHarnessCreateDefaults` returns a structure that contains the current default property values for creating new test harnesses. You can customize the default values by using `sltest.harness.setHarnessCreateDefaults` or by creating an `sl_customization` file "Customize Test Harness Creation Default Property Values".

Examples

Display Harness Creation Default Values

Change the default property values for two harness creation options and display the current default values.

```
sltest.harness.setHarnessCreateDefaults(SynchronizationMode=...
   "SyncOnPushRebuildOnly",Sink = "Scope");
sltest.harness.getHarnessCreateDefaults
```

```
ans =

  struct with fields:

                    Name: ""
       PostCreateCallback: ""
           SaveExternally: 0
               LogOutputs: 0
                   Source: "Inport"
                     Sink: "Scope"
              Description: ""
        SeparateAssessment: 0
       SynchronizationMode: "SyncOnPushRebuildOnly"
      CreateWithoutCompile: 0
             RebuildOnOpen: 0
         RebuildModelData: 0
              HarnessPath: ""
        PostRebuildCallback: ""
     ScheduleInitTermReset: 0
           SchedulerBlock: "Test Sequence"
          AutoShapeInputs: 0
         CustomSourcePath: ""
```

```
          CustomSinkPath: ""
        VerificationMode: "Normal"
```

See Also

`sltest.harness.setHarnessCreateDefaults` | `sltest.harness.create`

Topics

“Customize Test Harness Creation Default Property Values”

Introduced in R2021b

sltest.harness.import

Import Simulink model to test harness

Syntax

```
sltest.harness.import(harnessOwner,'ImportFileName',
importModel,'ComponentName',TestedComponent)
sltest.harness.import(harnessOwner,'ImportFileName',
importModel,'ComponentName',TestedComponent,Name,Value)
```

Description

`sltest.harness.import(harnessOwner,'ImportFileName', importModel,'ComponentName',TestedComponent)` creates a test harness from the Simulink model `importModel`, with a default harness name, associated with `harnessOwner`, with `TestedComponent` the harness component under test.

`sltest.harness.import(harnessOwner,'ImportFileName', importModel,'ComponentName',TestedComponent,Name,Value)` uses additional `Name,Value` arguments to specify test harness properties.

Examples

Programmatically Create a Test Harness from a Standalone Model

This example shows how to use `sltest.harness.import` to create a test harness by importing a standalone verification model. You create a test harness for a basic cruise control subsystem.

The standalone model contains a Signal Builder block driving a copy of the `Controller` subsystem, with a subsystem verifying that the throttle output goes to 0 if the brake is applied for three consecutive time steps.

```
mainModel = 'sltestBasicCruiseControl';
harnessModel = 'sltestBasicCruiseControlHarnessModel';
```

1. Load the main model.

```
load_system(mainModel)
```

2. Create a test harness from the standalone model. Create the harness for subsystem `Controller` in the main model, with `Controller` the harness component under test.

```
sltest.harness.import([mainModel '/Controller'],'ImportFileName',harnessModel,...
    'ComponentName',[harnessModel '/Controller'],'Name',...
    'VerificationSubsystemHarness')
```

3. Return the properties of the new test harness.

```
testHarnessProperties = sltest.harness.find([mainModel '/Controller'])
```

```
testHarnessProperties=1×2 struct array with fields:
    model
    name
    description
    type
    ownerHandle
    ownerFullPath
    ownerType
    isOpen
    canBeOpened
    verificationMode
    saveExternally
    rebuildOnOpen
    rebuildModelData
    postRebuildCallback
    graphical
    origSrc
    origSink
    synchronizationMode
    existingBuildFolder
    functionInterfaceName
      ⋮
```

```
close_system(mainModel,0)
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`importModel` — File path

character vector

Path to the standalone model to import as a test harness

Example: 'C:\MATLAB\sltestBasicCruiseControlTestModel'

`TestedComponent` — Tested component in standalone model

character vector

The name or path and name of the tested component in the standalone model. After import, this component is linked to the `harnessOwner` component in the main model.

Example: 'Controller'

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Name','harness_name','RebuildOnOpen',true`

`Name` — Harness name

character vector

The name for the harness you create, specified as the comma-separated pair consisting of `'Name'` and a valid MATLAB filename.

Example: `'Name','harness_name'`

`SynchronizationMode` — Specifies the synchronization behavior of the component under test

`'SyncOnOpenAndClose'` (default) | `'SyncOnOpen'` | `'SyncOnPushRebuildOnly'`

Option to specify when the component under test synchronizes the main model and the test harness. Subsystem model test harnesses are always synchronized with their underlying model.

- `'SyncOnOpenAndClose'` rebuilds the component under test from the main model when the test harness opens, and pushes changes from the component under test to the main model when the test harness closes.
- `'SyncOnOpen'` rebuilds the component under test from the main model when the test harness opens. It does not push changes from the component under test to the main model when the test harness closes.
- `'SyncOnPushRebuildOnly'` rebuilds and pushes changes only when you manually initiate rebuild or push for the entire test harness. For more information, see “Synchronize Changes Between Test Harness and Model”.

Example: `'SynchronizationMode','SyncOnOpen'`

Data Types: `char`

`RebuildOnOpen` — Sets the harness rebuild command to execute when the harness opens

`false` (default) | `true`

Option to have the harness rebuild when it opens, specified as the comma-separated pair consisting of `'UseDefaultName'` and `false` or `true`.

Example: `'RebuildOnOpen',true`

Data Types: `logical`

`RebuildModelData` — Sets configuration set and model workspace entries to be updated during the test harness rebuild

`false` (default) | `true`

Option to have the configuration set and model workspace entries updated during test harness rebuild, specified as the comma-separated pair consisting of `'RebuildModelData'` and `true` or `false`. This option is set to `true` for Subsystem model test harnesses.

Example: `'RebuildModelData',true`

Data Types: `logical`

`SaveExternally` — Test harnesses saved as separate SLX files
`false` (default) | `true`

Option to have each test harness saved as a separate SLX file, specified as the comma-separated pair consisting of `'SaveExternally'` and `true` or `false`. A model cannot use both external and internal test harness storage. If a model already has test harnesses, a new test harness follows the storage type of the existing harnesses, which this option does not override. See “Manage Test Harnesses”.

Example: `'SaveExternally',true`

Data Types: `logical`

`HarnessPath` — Path to external test harness file
character vector

If `'SaveExternally'` is specified, you can specify a location for the external harness SLX file using a comma-separated pair consisting of `'HarnessPath'` and a character vector..

Example: `'HarnessPath','C:\MATLAB\SafetyTests'`

Data Types: `char`

See Also

`sltest.harness.clone` | `sltest.harness.create` | `sltest.harness.export` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Topics
“Create Test Harnesses from Standalone Models”

Introduced in R2017a

sltest.harness.load

Load test harness

Syntax

```
sltest.harness.load(harnessOwner,harnessName)
```

Description

`sltest.harness.load(harnessOwner,harnessName)` loads the harness `harnessName` into memory. `harnessName` is associated with the model or component `harnessOwner`.

Examples

Load a Harness Associated With a Subsystem

Load the test harness `controller_harness`, which is associated with the `Controller` subsystem in the `f14` model.

```
f14;
sltest.harness.create('f14/Controller','Name','controller_harness');
save_system('f14');
sltest.harness.load('f14/Controller','controller_harness');
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle or path, specified as a character vector or double.

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Harness name

character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.move

Move test harness from linked instance to library block or to a different harness owner

Syntax

```
sltest.harness.move(HarnessOwner,HarnessName)
sltest.harness.move(HarnessOwner,HarnessName,NewPath)
sltest.harness.move(HarnessOwner,HarnessName,Name,Value)
```

Description

`sltest.harness.move(HarnessOwner,HarnessName)` moves the test harness `HarnessName` associated with the block `HarnessOwner` from the linked instance to its reference library block. Moving the test harness removes it from the linked instance. This command results in an error if `HarnessName` is not a linked instance.

`sltest.harness.move(HarnessOwner,HarnessName,NewPath)` moves the test harness `harnessName` associated with the block `HarnessOwner` to the destination path specified by `NewPath`.

`sltest.harness.move(HarnessOwner,HarnessName,Name,Value)` moves the test harness `HarnessName` associated with `HarnessOwner` using additional options specified by one or more `Name`, `Value` pairs.

Examples

Move Test Harness

Move the test harness `Baseline_controller_tests` from the linked instance of the `Controller` subsystem to the library subsystem.

```
% Open the model
open_system sltestHeatpumpLibraryLinkExample
% Move the test harness
sltest.harness.move('sltestHeatpumpLibraryLinkExample/Controller',...
'Baseline_controller_tests')
```

Move the test harness `Requirements_Tests` from the linked instance of the `Controller` subsystem to the `Plant` subsystem and save it as `Requirements_Tests_Moved`.

```
sltest.harness.move...
   ('sltestHeatpumpLibraryLinkExample/Controller',...
   'Requirements_Tests','DestinationOwner',...
   'sltestHeatpumpLibraryLinkExample/Plant',...
   'Name','Requirements_Tests_Moved')
```

Input Arguments

`HarnessOwner` — Model or component name
character vector | double

Model or component handle or path, specified as a character vector or a double.

Example: `1.9500e+03`

Example: `'model_name'`

Example: `'model_name/Subsystem'`

`HarnessName` — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

`NewPath` — Destination path
character vector

The destination path of the moved test harness, specified as a character vector.

Example: `'model_name/Subsystem2'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'DestinationOwner','model3/Controller3','Name','newMovedHarness'`

`DestinationOwner` — Owner block to which the harness is moved
harnessOwner (default) | character vector

Owner block to which the test harness is moved, specified as the comma-separated pair consisting of `'DestinationOwner'` and a character vector.

Example: `'DestinationOwner','model3/Controller3'`

`Name` — Name of moved test harness
name of the test harness (default) | character vector

The name of the moved test harness, specified as the comma-separated pair consisting of `'Name'` and a character vector. If a value is not specified for `Name`, the name of the test harness is used by default.

Example: `'Name','newMovedHarness'`

See Also

`sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.find` | `sltest.harness.open`

Introduced in R2016a

sltest.harness.open

Open test harness

Syntax

```
sltest.harness.open(harnessOwner,harnessName)
```

Description

`sltest.harness.open(harnessOwner,harnessName)` opens the harness `harnessName`, which is associated with the model or component `harnessOwner`.

Examples

Open a Harness Associated With a Subsystem

Open the test harness `controller_harness`, which is associated with the `Controller` subsystem in the `f14` model.

```
f14;
sltest.harness.create('f14/Controller','Name','controller_harness');
sltest.harness.open('f14/Controller','controller_harness');
```

Open a Harness Associated With a Model

Open the test harness `sample_harness`, which is associated with the `f14` model.

```
f14;
sltest.harness.create('f14','Name','sample_harness');
sltest.harness.open('f14','sample_harness');
```

Input Arguments

`harnessOwner` — Model or component
character vector | double

Model or component handle or path, specified as a character vector or double.

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.push

Push test harness workspace entries and configuration set to model

Syntax

```
sltest.harness.push(harnessOwner,harnessName)
```

Description

`sltest.harness.push(harnessOwner,harnessName)` pushes the configuration parameter set and workspace entries associated with the component under test from the test harness `harnessName` to the main model containing the model or component `harnessOwner`. Subsystem model test harnesses always push.

Examples

Push Parameters from Harness to Model

Change the denominator value of the Stick Prefilter in the harness. Then, push the change in the `controller_harness` to the `f14` model. Notice that the parameter is updated in the model.

```
f14;
sltest.harness.create('f14/Controller',...
    'Name','controller_harness',...
    'SynchronizationMode','SyncOnPushRebuildOnly');

sltest.harness.open('f14/Controller','controller_harness')
set_param('controller_harness/Controller/Stick Prefilter',...
    'Denominator','[Ts,2]')

blkpath = 'f14/Controller/Stick Prefilter';
disp(['Original denominator: ' get_param(blkpath,'Denominator')])

sltest.harness.push('f14/Controller','controller_harness');
disp(['Updated denominator: ' get_param(blkpath,'Denominator')])
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle, or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.rebuild` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.rebuild

Rebuild test harness and update workspace entries and configuration parameter set based on main model

Syntax

```
sltest.harness.rebuild(harnessOwner,harnessName)
```

Description

`sltest.harness.rebuild(harnessOwner,harnessName)` rebuilds the test harness `harnessName` based on the main model containing `harnessOwner`. The function transfers the configuration set and workspace entries associated with `harnessOwner` to the test harness `harnessName`. The function also rebuilds conversion subsystems in the test harness. If you specified to use existing generated code for a SIL/PIL subsystem using `sltest.harness.create` or `sltest.harness.set`, the harness rebuild uses that code instead of regenerating it. Subsystem model test harnesses always rebuild.

Examples

Rebuild Parameters from Model to Harness

Change the denominator value of the Stick Prefilter in the main model. Then, rebuild the `controller_harness`, which is associated with the `Controller` subsystem in the `f14` model. Notice that the parameter is updated in the harness.

```
f14;
sltest.harness.create('f14/Controller',...
    'Name','controller_harness',...
    'SynchronizationMode','SyncOnPushRebuildOnly');

set_param('f14/Controller/Stick Prefilter',...
    'Denominator','[Ts,2]')

sltest.harness.open('f14/Controller','controller_harness')
blkpath = 'controller_harness/Controller/Stick Prefilter';
disp(['Original denominator: ' get_param(blkpath,'Denominator')])

sltest.harness.rebuild('f14/Controller','controller_harness');
disp(['Updated denominator: ' get_param(blkpath,'Denominator')])
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle, or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

harnessName — Harness name
character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` | `sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.set`

Introduced in R2015a

sltest.harness.set

Change test harness property

Syntax

```
sltest.harness.set(harnessOwner,harnessName,Name,Value)
```

Description

`sltest.harness.set(harnessOwner,harnessName,Name,Value)` changes a property, specified by one `Name,Value` pair argument, for the test harness `harnessName` owned by the model or component `harnessOwner`.

Examples

Change the Name of a Test Harness

This example shows how to change the name of a test harness using `sltest.harness.set`.

Create a Test Harness

Load the f14 model and create a test harness for the `Controller` subsystem.

```
load_system('f14')
sltest.harness.create('f14/Controller','Name','Harness1')
```

Change the Test Harness Name

Change the name from `Harness1` to `ControllerHarness`.

```
sltest.harness.set('f14/Controller','Harness1','Name','ControllerHarness')
```

Close the Model

```
close_system('f14',0)
```

Input Arguments

`harnessOwner` — Model or component

character vector | double

Model or component handle, or path, specified as a character vector or double

Example: 1.9500e+03

Example: 'model_name'

Example: 'model_name/Subsystem'

`harnessName` — Harness name

character vector

The name of the harness, specified as a character vector.

Example: 'harness_name'

Name-Value Pair Options

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Name','updated_harness'` specifies a new harness name `'updated_harness'`.

`Name` — New harness name
character vector

The new name for the harness, specified as the comma-separated pair consisting of `'Name'` and a valid MATLAB filename.

Example: `'Name','new_harness_name'`

`Description` — New harness description
character vector

The new description for the harness, specified by the comma-separated pair consisting of `'Description'` and a character vector.

Example: `'Description','An updated test harness'`

`SynchronizationMode` — Specifies the synchronization behavior of the component under test
`'SyncOnOpenAndClose'` (default) | `'SyncOnOpen'` | `'SyncOnPushRebuildOnly'`

Option to specify when the component under test synchronizes the main model and the test harness. Subsystem model test harnesses are always synchronized with their underlying model.

- `'SyncOnOpenAndClose'` rebuilds the component under test from the main model when the test harness opens, and pushes changes from the component under test to the main model when the test harness closes.
- `'SyncOnOpen'` rebuilds the component under test from the main model when the test harness opens. It does not push changes from the component under test to the main model when the test harness closes.
- `'SyncOnPushRebuildOnly'` rebuilds and pushes changes only when you manually initiate rebuild or push for the entire test harness. For more information, see “Synchronize Changes Between Test Harness and Model”.

Example: `'SynchronizationMode','SyncOnOpen'`

Data Types: `char`

`RebuildOnOpen` — Sets the harness rebuild command to execute when the harness opens
`false` (default) | `true`

Option to have the harness rebuild when it opens, specified as the comma-separated pair consisting of `'UseDefaultName'` and `false` or `true`.

Example: `'RebuildOnOpen',true`

Data Types: `logical`

`ExistingBuildFolder` — Path to folder of existing generated code verified using SIL/PIL
string | character vector

Path to main build folder of existing generated code verified using SIL/PIL, specified as a string or character vector. If you specify a build folder, the existing code in that folder is used, which enables faster harness creation time. If you do not specify a build folder, the code is regenerated. You cannot set a default value for this property in an `sl_customization` file or using `sltest.harness.setHarnessCreateDefaults`.

Example: `'ExistingBuildFolder','C:\TestMdl\SILHarness\Amplifier_ert_rtw'`

Data Types: `string` | `char`

`RebuildModelData` — Sets configuration set and model workspace entries to be updated during the test harness rebuild
`false` (default) | `true`

Option to have the configuration set and model workspace entries updated during test harness rebuild, specified as the comma-separated pair consisting of `'RebuildModelData'` and `true` or `false`. This option is set to `true` for Subsystem model test harnesses.

Example: `'RebuildModelData',true`

Data Types: `logical`

`RebuildWithoutCompile` — Sets the harness to rebuild without compiling the main model
`false` (default) | `true`

Option to rebuild the harness without compiling the main model, in which cached information from the most recent compile is used to update the test harness workspace, and conversion subsystems are not updated, specified as the comma-separated pair consisting of `'RebuildWithoutCompile'` and `true` or `false`.

Example: `'RebuildWithoutCompile',true`

`PostRebuildCallback` — Harness customization after rebuild
character vector

Use a post rebuild callback function to customize a test harness. The post rebuild callback function executes after the harness rebuild. For more information, see “Customize Test Harnesses”.

Example: `'PostRebuildCallback','HarnessCustomization'`

`FunctionInterfaceName` — Name of the function interface to associate to the harness
string | character vector

Name of the function interface to associate with the harness, specified as a string or character vector. This option applies only to reusable library components with function interfaces.

Example: `'FunctionInterfaceName','double_RLS'`

See Also

`sltest.harness.check` | `sltest.harness.close` | `sltest.harness.create` | `sltest.harness.delete` | `sltest.harness.export` | `sltest.harness.find` |

`sltest.harness.load` | `sltest.harness.open` | `sltest.harness.push` | `sltest.harness.rebuild`

Introduced in R2015a

sltest.harness.setHarnessCreateDefaults

Package: `sltest.harness`

Customize default property values for test harness creation

Syntax

```
sltest.harness.setHarnessCreateDefaults(name = value)
```

Description

`sltest.harness.setHarnessCreateDefaults(name = value)` sets and registers the specified harness creation default values for the specified name-value arguments.

For a list of valid name-value arguments, see `sltest.harness.create`.

As an alternative to using `sltest.harness.setHarnessCreateDefaults`, you can use an `sl_customization.m` file to customize harness creation default values. See “Customize Test Harness Creation Default Property Values”.

If you created an `sl_customization.m` file, you can then use `sltest.harness.setHarnessCreateDefaults` to set additional default values or overwrite the values defined in that file. If you create an `sl_customization.m` file and register it after using `sltest.harness.setHarnessCreateDefaults`, the default values that you previously specified are overwritten with the default values in the file.

Examples

Set Default Value to Save Harness Externally

```
sltest.harness.setHarnessCreateDefaults(SaveExternally = true)
```

See Also

`sltest.harness.getHarnessCreateDefaults` | `sltest.harness.create`

Introduced in R2021b

sltest.harness.showDialog

Package: `sltest`

Show test harness dialog box

Syntax

```
sltest.harness.showDialog(dialogtype,systemundertest)
```

Description

`sltest.harness.showDialog(dialogtype,systemundertest)` opens a test harness dialog box of the specified type for the specified system under test.

Example

Examples

Open the Create Test Harness Dialog Box

Open the Create Test Harness dialog box for the `Controller` component of `my_model`.

```
sltest.harness.showDialog('HarnessCreate','my_model/Controller')
```

Input Arguments

`dialogtype` — Type of test harness dialog box

`'HarnessCreate'` | `'HarnessManager'` | `'HarnessImport'`

Type of test harness dialog box specified as one of these values:

- `'HarnessCreate'` — Create Test Harness dialog box
- `'HarnessManager'` — Manage Test Harness dialog box
- `'HarnessImport'` — Import Test Harness dialog box

`systemundertest` — Simulink model or component being tested

character vector | string | handle

Simulink model or component being tested, specified as a character vector or string of the path to the system under test, or as the handle of the system under test.

See Also

`sltest.harness.create` | `sltest.harness.import` | `sltest.harness.set` | `sltest.harness.push` | `sltest.harness.rebuild` | `sltest.harness.convert`

Topics

“Create Test Harnesses and Select Properties”

“Manage Test Harnesses”

Introduced in R2018b

sltest.import.sldvData

Create test cases from Simulink Design Verifier results

Syntax

```
[owner,testHarness,testFile,testCase] = sltest.import.sldvData(dataFile)
[owner,testHarness,testFile,testCase] = sltest.import.sldvData(dataFile,
Name,Value)
```

Description

`[owner,testHarness,testFile,testCase] = sltest.import.sldvData(dataFile)` creates a test harness and test file using Simulink Design Verifier™ analysis results contained in `dataFile`. The function returns the model component `owner` associated with the test case, the `testHarness`, and the `testFile`.

`[owner,testHarness,testFile,testCase] = sltest.import.sldvData(dataFile, Name,Value)` creates a test harness and test file with additional options specified by one or more `Name,Value` pair arguments. Specify name-value pair arguments after the data file input argument.

Examples

Create Test Cases for ShiftLogic Subsystem

Create a test file and test harness for the ShiftLogic subsystem in the `sldvdemo_autotrans` model. The inputs reflect the analysis objectives.

Analyze the ShiftLogic subsystem with Simulink Design Verifier to generate test inputs for subsystem coverage. The results data file is `ShiftLogic_sldvdata.mat`.

Create the test case.

```
[component,harness,testfile] = ...
   sltest.import.sldvData...
   ('./sldv_output/ShiftLogic/ShiftLogic_sldvdata.mat',...
   'TestHarnessName','CoverageHarness',...
   'TestFileName','CoverageTests')
```

Open the test harness.

```
sltest.harness.open(component,harness)
```

Open the test file.

```
open(testfile)
```

Create Test Cases for ShiftLogic Subsystem Using an Existing Test Harness

Create a test file and test harness for the ShiftLogic subsystem in the `sldvdemo_autotrans` model, using an existing test harness.

Analyze the ShiftLogic subsystem with Simulink Design Verifier to generate test inputs for subsystem coverage. The results data file is `ShiftLogic_sldvdata.mat`. The existing test harness is named `DatafileHarness`.

Create the test case.

```
[component,harness,testfile] = sltest.import.sldvData...
('./sldv_output/ShiftLogic/ShiftLogic_sldvdata.mat',...
'TestHarnessName','DatafileHarness','TestFileName','CoverageTests',...
'CreateHarness',false)
```

Open the test harness.

```
sltest.harness.open(component,harness)
```

Open the test file.

```
open(testfile)
```

Input Arguments

`dataFile` — Data file full path name

character vector | string scalar

Path and file name of the data file generated by Simulink Design Verifier analysis, specified as a character vector or string scalar. The input file is a MAT file. When the file is imported into Simulink Test, sldvData creates an MLDATX file, and an Excel® file at the location specified in `ExcelFilePath`. If the Excel file already exists, a new sheet is added to the file.

Example: `'ShiftLogic0/ShiftLogic0_sldvdata.mat'`

Name-Value Pair Options

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'TestHarnessName','DatafileHarness','CreateHarness',false`

`CreateHarness` — Create a test harness for the model or subsystem

`true` (default) | `false`

Option to add a test harness to the model or model component, which corresponds to the test cases in the test file, specified as a comma-separated pair consisting of `'CreateHarness'` and `true` or `false`.

If you specify `true`, use a new test harness name with the `'TestHarnessName'` name-value pair.

If you specify `false`, use an existing test harness name with the `'TestHarnessName'` name-value pair.

Note If the model under analysis is a test harness, the `CreateHarness` default value is `false`.

Example: `'CreateHarness',false`

`TestHarnessName` — Harness name
character vector | string scalar

The test harness used for running the test cases, specified as the comma-separated pair consisting of `'TestHarnessName'` and the name of a test harness.

Use a new test harness name if `'CreateHarness'` is `true` and an existing test harness name if `'CreateHarness'` is `false`.

Example: `'TestHarnessName','ModelCoverageTestHarness'`

`TestHarnessSource` — Source of the new test harness
`'Inport'` (default) | `'Signal Editor'`

The source of the new test harness, specified as the comma-separated pair consisting of `'TestHarnessSource'` and `'Inport'` or `'Signal Editor'`.

Use a new test harness name if `'CreateHarness'` is `true` and an existing test harness name if `'CreateHarness'` is `false`.

Example: `'TestHarnessName','ModelCoverageTestHarness'`

`TestFileName` — Test file name
character vector | string scalar

The name for the test file created for the test cases, specified as the comma-separated pair consisting of `'TestFileName'` and the name of a test file.

Example: `'TestFileName','ModelCoverageTests'`

`ExtractedModelPath` — Path of extracted model
character vector | string scalar

The path to the model extracted from Simulink Design Verifier analysis, specified as the comma-separated pair consisting of `'ExtractedModelPath'` and a path.

Simulink Test uses the extracted model to generate the test harness. By default, `sltest.import.sldvData` looks for the extracted model in the output folder specified in the Design Verifier configuration parameters. Use `ExtractedModelPath` if the extracted model is in a different location.

Simulink Design Verifier does not use an extracted model when you analyze a top-level model. When you generate test cases for a top-level model, Simulink Test does not use `'ExtractedModelPath'`.

Example: `'Tests/ExtractedModels/'`

`TestCase` — Test case
character vector | string scalar

The test case to reuse for import operation, specified as the comma-separated pair consisting of `'TestCase'` and the name of the test case. Do not specify any other name-value pair when you use this option.

Example: `'TestCase','ModelCoverageTest2'`

`ExcelFilePath` — Path of Excel file
character vector | string scalar

Path of the Excel file, specified as a character vector or string scalar.

Example: `'TestCase','ModelCoverageTest2'`

Output Arguments

`owner` — Path of the component under test
character vector | string scalar

Path of the component under test, returned as a character vector

Example: `'ShiftLogic0/ShiftLogic0_sldvdata'`

`testHarness` — Test harness name
character vector

Name of the test harness for running the test cases, returned as a character vector.

`testFile` — Test file name
character vector

Name of the test file created or updated using the test cases, returned as a character vector.

`testCase` — Test case name
character vector | string scalar

Name of the newly created or updated test case, returned as a character vector.

See Also

Topics
“Increase Coverage by Generating Test Inputs”

Introduced in R2015b

sltest.testmanager.clear

Clear test files from the Test Manager

Syntax

```
sltest.testmanager.clear
```

Description

`sltest.testmanager.clear` clears all test files from the Simulink Test Test Manager. Changes to unsaved test files are not saved.

Examples

Clear Test File from Test Manager

```
% Create test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Clear test file from test manager
sltest.testmanager.clear;
```

See Also

`sltest.testmanager.view` | `sltest.testmanager.close`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

sltest.testmanager.clearResults

Clear results from Test Manager

Syntax

```
sltest.testmanager.clearResults
```

Description

`sltest.testmanager.clearResults` clears all results data from the Test Manager **Results and Artifacts** pane.

Examples

Clear Results From Test Manager

```
% Run test files in Test Manager
sltest.testmanager.run;

% Clear results from Test Manager
sltest.testmanager.clearResults
```

See Also

`sltest.testmanager.clear`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.close

Close the Simulink Test Manager

Syntax

```
sltest.testmanager.close
```

Description

`sltest.testmanager.close` closes the Simulink Test Manager interface. Test files and results are retained in the Test Manager until the MATLAB session is closed.

Examples

Clear Test File and Close Test Manager

```
% Create test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Clear test file from Test Manager
sltest.testmanager.clear;

% Close Test Manager
sltest.testmanager.close;
```

See Also

`sltest.testmanager.view`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

sltest.testmanager.copyTests

Copy test cases or test suites to another location

Syntax

```
objArray = sltest.testmanager.copyTests(srcObjArray,targetObj)
```

Description

`objArray = sltest.testmanager.copyTests(srcObjArray,targetObj)` copies test cases or test suites to another test file or test suite.

Examples

Copy Test Cases to a New Test Suite

- ```
  % Create test structure
  tf = sltest.testmanager.TestFile('Test File');
  ts_orig = tf.createTestSuite('Original Test Suite');
  tc1 = ts_orig.createTestCase('baseline','Baseline Test Case 1');
  tc2 = ts_orig.createTestCase('baseline','Baseline Test Case 2');

  % Create new test suite for the target location
  ts_new = tf.createTestSuite('New Test Suite');

  % Copy test cases to new test suite
  objArray = sltest.testmanager.copyTests([tc1,tc2],ts_new)

  objArray =

    1x2 TestCase array with properties:

      Name
      Description
      Enabled
      ReasonForDisabling
      TestFile
      TestPath
      TestType
      Parent
  ```

Input Arguments

`srcObjArray` — Test case or test suites to copy

object array

Test cases or test suites to copy, specified as an array of `sltest.testmanager.TestCase` or `sltest.testmanager.TestSuite` objects.
  ```

`targetObj` — Target test file or test suite
object

The destination test file or test suite to copy to, specified as an `sltest.testmanager.TestFile` or `sltest.testmanager.TestSuite` object.

Output Arguments

`objArray` — Test cases or test suites at new location
object array

Test cases or test suites at the target destination location, returned as an array of `sltest.testmanager.TestCase` or `sltest.testmanager.TestSuite` objects.

See Also

`sltest.testmanager.moveTests`

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.createTestForComponent

Create test case and test harness for model or model component

Syntax

```
tc = sltest.testmanager.createTestForComponent('TestFile',tf,'Component',
componentName)
tc = sltest.testmanager.createTestForComponent( ___ ,Name,Value)
```

Description

`tc = sltest.testmanager.createTestForComponent('TestFile',tf,'Component', componentName)` creates a test case in the specified test file or test suite for the specified model component. The test file must already exist unless `CreateTestFile` is set to `true`.

`tc = sltest.testmanager.createTestForComponent( ___ ,Name,Value)` creates a test case with additional options specified by one or more `Name,Value` pair arguments. Specify name-value pair arguments after the test file and component input arguments.

Examples

Create Baseline Test for a Model

This example shows how to create a baseline test case for a model and save the inputs in an Excel file. A test harness is created automatically.

Note that this code uses the current folder as the `ExcelFileLocation`. To save the Excel file to a another location, can change the `ExcelFileLocation` value to a different writable folder.

```
load_system('vdp');

tf = sltest.testmanager.TestFile('MyBaselineTestFile');

sltest.testmanager.createTestForComponent('TestFile',tf,...
   'Component','vdp',...
   'TestType','baseline',...
   'ExcelFileLocation','mybaseline_inputdata.xlsx');
```

Create Equivalence Test for a Component

Create an equivalence (back-to-back) test case for the `Controller` component of the `sltestNormalSILEquivalenceExample` model.

```
load_system('sltestNormalSILEquivalenceExample');

tf = sltest.testmanager.TestFile('MyB2BTestFile');
```

```
sltest.testmanager.createTestForComponent("TestFile",tf,...
   "Component","sltestNormalSILEquivalenceExample/Controller",...
   "TestType","equivalence",...
   "Simulation1Mode","Normal",...
   "Simulation2Mode","Software-in-the-Loop (SIL)");

### Starting build procedure for: Controller
### Successful completion of build procedure for: Controller
### Creating SIL block ...
Building with 'Microsoft Visual C++ 2019 (C)'.
MEX completed successfully.

Build Summary

Top model targets built:

Model       Action                        Rebuild Reason
========================================================================================
Controller  Code generated and compiled  Code generation information file does not exist.

1 of 1 models built (0 models already up to date)
Build duration: 0h 0m 57.751s
```

Set Harness Options When Creating a Test Case

This example shows how to create a test case and test harness for a model component. It also shows how to use the `HarnessOptions` property. The test case uses only a component harness and is set up with no inputs or baseline strategy. To use this test case creation strategy, the `UseComponentInputs` property of `createTestForComponent` function must be false, and the `SLDVTestGeneration` property must be `off`. The `HarnessSource` property is ignored and the `FunctionInterfaceName` is deduced from the argument passed to `createTestForComponent`.

Once the test case is set up, you can specify the verification strategy for the component, such as importing test input data for the component into the created test case.

This code creates a test file and harness for the `Contoller` component of the `f14` model. The HarnessOptions specify that the harness name is `myHarness`, a Signal Editor is used as the harness source, and the harness syncs with the model when the harness is opened.

```
load_system('f14');

tcObj = sltest.testmanager.createTestForComponent(...
    'CreateTestFile',true,'TestFile','MyHarnessTest', ...
    'Component','f14/Controller','UseComponentInputs', ...
    false,'HarnessOptions',{'Name','myHarness', ...
    'Source','Signal Editor','SynchronizationMode', ...
    'SyncOnOpen'});
```

Input Arguments

`tf` — Test file or suite to which to add the test case

`sltest.testmanager.TestFile` object | `sltest.testmanager.TestSuite` object | string | character vector

Test file or test suite to which to add the test case, specified as an `sltest.testmanager.TestFile` or `sltest.testmanager.TestSuite` object, string or character vector. If `CreateTestFile` is false, the test file object must exist. If `CreateTestFile` is `true`, `TestFile` is the path of a new test file, specified as a string or character vector.

C

Example: `'TestFile','myTestFile'`

`componentName` — Model or component to test
string | character vector | `Simulink.BlockPath` object

Model or component to test, specified as a string or character vector of the full path or as a `Simulink.BlockPath` object. You can specify any model or block that is supported for test harness generation. See “Test Harness and Model Relationship” for a list of components for which you can build test harnesses.

Example: `'Component','sf_car/shift_logic'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'CreateTestFile',true`

`CreateTestFile` — Whether to create a new test file
`false` (default) | `true`

Whether to create a new test file, specified as specified as the comma-separated pair consisting of `'CreateTestFile'` and `true` or `false`.

Example: `'CreateTestFile',true`

`TopModel` — Model name at top of hierarchy
string | character vector

Model name at the top of the hierarchy if the component to test is in a referenced model, specified as the comma-separated pair consisting of `'TopModel'` and as a string or character vector. If the `componentName` is a top model, do not use the `TopModel` property.

Example: `'TopModel','Plant'`

`TestType` — Test case type
`'baseline'` (default) | `'equivalence'` | `'simulation'`

Test case type, specified as the comma-separated pair consisting of `'TestType'` and `'baseline'`, `'equivalence'`, or `'simulation'`.

Example: `'TestType','equivalence'`

`CreateHarness` — Whether to create a test harness
`true` (default) | `false`

Whether to create a test harness for a model, specified as the comma-separated pair consisting of `'CreateHarness'` and `true` or `false`. When the `Component` is not a top-level model or when you

generate test cases using Simulink Design Verifier, this option is set to `true` automatically and a test harness is always created. If the model being tested is an export-function model, a Test Sequence scheduler block is created automatically in the test harness.

To generate only a test harness, set "SLDVTestGeneration" on page 1-0 to `off` and "UseComponentInputs" on page 1-0 to `false`. Optionally specify any desired "HarnessOptions" on page 1-0 .

Example: `'CreateHarness',false`

`UseComponentInputs` — Option to simulate model to obtain inputs
`true` (default) | `false`

Option to simulate the model to obtain component inputs for the created test harness, specified as `true` or `false`. If this property is `true`, the test harness uses the inputs from the model simulation. If this property is `false`, the test harness does not use the component inputs from the simulation.

Example: `'UseComponentInputs',false`

`FunctionInterface` — Function interface for a reusable library subsystem
string | character vector

Function interface, specified as the comma-separated pair consisting of `'FunctionInterface'` and a string or character vector. Specify `FunctionInterface` to create tests for a reusable library subsystem. The subsystem must be at the top level of the subsystem library and must have a function interface.

Example: `'FunctionInterface','single'`

`Simulation1Mode` — Simulation mode for simulation 1 of equivalence test
`'Normal'` | `'Accelerator'`

Simulation mode for simulation 1 of an equivalence test, specified as the comma-separated pair consisting of `'Simulation1Mode'` and either `'Normal'` or `'Accelerator'`. If you do not specify a simulation mode, the mode of the system under test is used. The required test harness is created automatically for the simulation mode.

Example: `'Simulation1Mode','Normal'`

`Simulation2Mode` — Simulation mode for simulation 2 of equivalence test
`'Normal'` | `'Accelerator'` | `'Rapid Accelerator'` | `'Software-in-the-Loop (SIL)'` | `'Processor-in-the-Loop (PIL)'`

Simulation mode for simulation 2 of an equivalence test, specified as the comma-separated pair consisting of `'Simulation2Mode'` and `'Normal'`, `'Accelerator'`, `'Rapid Accelerator'`, `'Software-in-the-Loop (SIL)'`, or `'Processor-in-the-Loop (PIL)'`.. If you do not specify a simulation mode, the mode of the system under test is used. If `TestType` is `'equivalence'` and `Simulation2Mode` is `'Software-in-the-Loop (SIL)'`, an extra test harness is created in addition to the test case and test harness, unless the component under test is an atomic subsystem. When equivalence testing an atomic subsystem using normal and SIL or PIL modes, a single test harness is created and used for both modes.

Example: `'Simulation2Mode','Software-in-the-Loop (SIL)'`

`InputsLocation` — File path for storing logged inputs in MAT-file
string | character vector

File path for storing logged inputs in a MAT-file, specified as the comma-separated pair consisting of `'InputsLocation'` and a character vector or string array. Include the file extension `.mat`. If you do not specify an `InputsLocation`, a default location is used.

Example: `'InputsLocation','C:\MATLAB\inputs_data.mat'`

`BaselineLocation` — File path for storing baseline logged outputs in MAT-file
string | character vector

File path for storing baseline logged output data in a MAT-file, specified as the comma-separated pair consisting of `'BaselineLocation'` and a character vector or string. Include the file extension `.mat`. If you do not specify a `BaselineLocation`, a default location is used.

Example: `'BaselineLocation','C:\MATLAB\baseline_data.mat'`

`CreateExcelFile` — Whether to use Excel format for inputs and outputs
`false` (default) | `true`

Whether to use Excel format for inputs and, for baseline tests only, outputs, specified as the comma-separated pair consisting of `'CreateExcelFile'` and either `true` or `false`. If you use the `'ExcelFileLocation'` argument to specify the file name and location, you do not need to also use `'CreateExcelFile'`.

Example: `'CreateExcelFile',true`

`ExcelFileLocation` — File path for Excel file
string | character vector

File path for the Excel file, specified as the comma-separated pair consisting of `'ExcelFileLocation'` and a character vector or string array. Include the extension `.xlsx`. If you specify a location, you do not need to also use the `'CreateExcelFile'` option. If you do not specify an `ExcelFileLocation`, the current working folder is used.

Note If `SLDVTestGeneration` is `true` and `HarnessSource` is `'Signal Editor'`, you cannot save data to an Excel file.

Example: `'ExcelFileLocation','C:\MATLAB\baseline_data.xlsx'`

`Sheet` — Name of Excel sheet to save data to
string | character vector

Name of Excel sheet in which to save data, specified as the comma-separated pair consisting of `'Sheet'` and a character vector or string. If you do not specify a `Sheet`, the current working folder is used.

Example: `'Sheet','MySubsysTest'`

`SLDVTestGeneration` — Whether to generate tests using Simulink Design Verifier
`'off'` (default) | `'on'` | `'EnhancedMCDC'`

Whether to generate tests using Simulink Design Verifier, specified as:

- `'off'` — Do not use Simulink Design Verifier to generate tests.
- `'on'` — Use Simulink Design Verifier to generate tests and use the Simulink Design Verifier options from the model configuration.

`'EnhancedMCDC'` — Use Simulink Design Verifier to generate tests with the model coverage objectives as enhanced MCDC. The `EnhancedMCDC` option is valid only if `TestType` is `'equivalence'` and `Simulation2Mode` is `'Software-in-the-Loop (SIL)'` or `'Processor-in-the-Loop (PIL)'`.

Note To generate tests from Simulink Design Verifier, the system under test must be an atomic subsystem.

Example: `'SLDVTestGeneration','on'`

`SimulateModelForSLDVTestGeneration` — Whether to simulate top model during test generation
`false` (default) | `true`

Whether to simulate the top model during Simulink Design Verifier test generation, specified as a logical value. When the returned tests have model coverage lower than expected, after you analyze the possible causes and reconfigure the default simulation, set this property to `true`. Then, rerun Simulink Design Verifier test generation. If the coverage results are still lower than expected, you can iterate the analysis, simulation reconfiguration, and test generation.

Example: `'SimulateModelForSLDVTestGeneration','true'`

`HarnessSource` — Input source block for the harness
`'Inport'` (default) | `'Signal Editor'`

Input source block for the test harness, specified as the comma-separated pair consisting of `'HarnessSource'` and either `'Inport'` or `'Signal Editor'`.

Example: `'HarnessSource','Signal Editor'`

`HarnessOptions` — Test harness creation options
cell array

Test harness creation options, specified as a cell array of comma-separated name-value pairs. See `sltest.harness.create` for valid options. Do not include the `harnessOwner` handle as the first argument in the cell array. The first argument is set automatically to the `Component` value.

Use `HarnessOptions` only when you create a harness for your component and set up a test case for the harness without any added input, that is, `UseComponentInputs` is `false`. The `HarnessOptions` values are only when you are not using top model simulation or the Simulink Design Verifier workflow.

Example: `'HarnessOptions',`
`{'SynchronizationMode','SyncOnOpen','SeparateAssessment',true}`

Output Arguments

`tc` — Test case
`sltest.testmanager.TestCase` object

Test case, returned as an `sltest.testmanager.TestCase` object.

See Also

`sltest.harness.create` | `sltest.testmanager.TestCase` | `sltest.testmanager.TestFile`

Topics

“Create and Run Test Cases with Scripts”
“Generate Tests and Test Harnesses for a Component or Model”
“Create and Run a Back-to-Back Test”
“Library-Based Code Generation for Reusable Library Subsystems” (Embedded Coder)

Introduced in R2020b

sltest.testmanager.createTestsFromModel

Generate test cases from a model

Syntax

```
testFile = sltest.testmanager.createTestsFromModel(filePath,modelName,
testType)
```

Description

`testFile = sltest.testmanager.createTestsFromModel(filePath,modelName, testType)` generates test cases based on the model structure. The function creates test cases from test harnesses and Signal Editor scenarios in the model and assigns them to a test file.

Examples

Create Test Cases From a Model

Create a new test file with new test cases in the Test Manager. Each test case uses a Signal Editor scenario.

```
% Open the model for this example
openExample('sldemo_autotrans');

testFile = sltest.testmanager.createTestsFromModel...
('C:\MATLAB\TestFile.mldatx','sldemo_autotrans','baseline')
```

```
testFile =

  TestFile with properties:

       Name: 'TestFile'
    FilePath: 'C:\MATLAB\TestFile.mldatx'
      Dirty: 0
```

Input Arguments

`filePath` — Test file name and path

character vector

The path and name of the test file to save the generated test cases to, specified as a character vector.

Example: `'C:\MATLAB\TestFile.mldatx'`

`modelName` — Model name

character vector

The name of the model to generate test cases from, specified as a character vector.

Example: `'mymodel'`

`testType` — Test case type
`'baseline'` (default) | `'simulation'` | `'equivalence'`

The type of test cases to generate, specified as a character vector. The function creates test cases using this test case type.

Output Arguments

`testFile` — Test file
`sltest.testmanager.TestFile` object

Test file that contains the generated test cases, returned as an `sltest.testmanager.TestFile` object.

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.exportResults

Export results set from Test Manager

Syntax

```
sltest.testmanager.exportResults(resultObjs,filePath)
```

Description

`sltest.testmanager.exportResults(resultObjs,filePath)` exports the specified results set objects to a .mldatx file.

Examples

Export Results Set From Test Manager

```
% Get the results set object from Test Manager
result = sltest.testmanager.getResultSets

% Export the results set object to a file
sltest.testmanager.exportResults(result,'C:\MATLAB\results.mldatx')
```

Input Arguments

`resultObjs` — Results set array

object

Result sets, specified as an array of `sltest.testmanager.ResultSet` objects.

`filePath` — Results file path and name

character vector

The file path and name of the result file you want to output, specified as a character vector. The results file is a .mldatx file.

Example: `'C:\MATLAB\results.mldatx'`

See Also

`sltest.testmanager.getResultSets` | `sltest.testmanager.ResultSet`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.getpref

Get Test Manager preferences

Syntax

```
settings = sltest.testmanager.getpref(group)
settings = sltest.testmanager.getpref(group,preferences)
```

Description

`settings = sltest.testmanager.getpref(group)` returns Test Manager preference settings in `group`.

`settings = sltest.testmanager.getpref(group,preferences)` returns Test Manager preferences for one or more `preferences`. Use `settings = sltest.testmanager.getpref(group)` to get valid preferences for `group`.

Examples

Get Test Suite Section Preferences

Get the preferences for the sections that appear in test suites.

Get preferences for test suite display. A value of 1 means the section appears.

```
settings = sltest.testmanager.getpref('TestSuiteDisplay')
```

```
settings =
  struct with fields:

        TestTag: 1
    Description: 1
    Requirement: 1
       Callback: 1
       Coverage: 1
```

Get the settings for `Description` and `Requirement` preferences.

```
settings = sltest.testmanager.getpref('TestSuiteDisplay',{'Description','Requirement'})
```

```
settings =
  struct with fields:

    Description: 1
    Requirement: 1
```

Get MATLAB Release Information

Get a list of MATLAB releases available in Test Manager.

Get the list of MATLAB release preferences.

```
settings = sltest.testmanager.getpref('MATLABReleases')
```

```
ans =
  1×2 struct array with fields:

    Name
    MATLABRoot
    IsDefault
    Selected
```

Get the `Name` value.

```
settings.Name
```

```
ans =
    '14a'
ans =
    'R2017b'
```

Get Value of Show Logs at Command Prompt

Show the current setting of `ShowSimulationLogs` `IncludeOnCommandPrompt`. The value `0` indicates that displaying logs is turned off, and the value `1` indicates it is turned on.

```
settings = sltest.testmanager.getpref...
    ('ShowSimulationLogs','IncludeOnCommandPrompt')
```

```
ans =
  logical

   1
```

Input Arguments

group — Preference group

`'TestFileDisplay'` | `'TestSuiteDisplay'` | `'TestCaseDisplay'` | `'MATLABReleases'`

Preference group name, specified as one of these values:

- `'TestFileDisplay'` — File preferences and their display status
- `'TestSuiteDisplay'` — Test suite preferences and their display status
- `'TestCaseDisplay'` — Test case preferences and their display status
- `'MATLABReleases'` — Releases available for testing

preferences — Preference name

character vector | cell array of character vectors

Preference name, specified as a character vector or a cell array of character vectors. Use `settings = sltest.testmanager.getpref(group)` to get valid preferences for each `group`.

Example: `('TestSuiteDisplay','Description')`

Example: `('ShowSimulationLogs','IncludeOnCommandPrompt')`

Output Arguments

`settings` — Test Manager preferences

struct

Preference settings, returned as a struct.

See Also

`sltest.testmanager.setpref`

Topics

“Specify Test Properties in the Test Manager”

Introduced in R2017a

sltest.testmanager.getResultSets

Returns result set objects in Test Manager

Syntax

```
rsList = sltest.testmanager.getResultSets
```

Description

`rsList = sltest.testmanager.getResultSets` returns an array of result set objects, `sltest.testmanager.ResultSet`, from the results currently in the Test Manager **Results and Artifacts** pane.

Examples

Get Test Suite Result

To work with a test suite result programmatically, use the `sltest.testmanager.ResultSet` function to get the result set object. For example:

```
rsList = sltest.testmanager.getResultSets;
tsrList = getTestSuiteResults(rsList(1));
```

Output Arguments

`rsList` — Result set array

array of objects

The results currently in the Test Manager **Results and Artifacts** pane, returned as an array of `sltest.testmanager.ResultSet` objects.

See Also

`sltest.testmanager.ResultSet` | `sltest.testmanager.view`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.getTestFiles

Get test files open in the Test Manager

Syntax

```
testFiles = sltest.testmanager.getTestFiles
```

Description

`testFiles = sltest.testmanager.getTestFiles` returns an array of test files that are currently open in the Test Manager. The array contains an `sltest.testmanager.TestFile` object for each test file.

Examples

Get Test Files From Test Manager

You can use the `sltest.testmanager.getTestFiles` function to get `sltest.testmanager.TestFile` objects for each test file open in the Test Manager.

Load test files in the Test Manager that you want to get the objects for.

```
% Get test files from Test Manager
testFiles = sltest.testmanager.getTestFiles
```

Output Arguments

`testFiles` — Test files
`sltest.testmanager.TestFile` object array

Test files that are open in the test manager, returned as an array of `sltest.testmanager.TestFile` objects.

See Also

`sltest.testmanager.view` | `sltest.testmanager.TestFile`

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2016b

sltest.testmanager.importResults

Import Test Manager results file

Syntax

```
resultObjs = sltest.testmanager.importResults(filePath)
```

Description

`resultObjs = sltest.testmanager.importResults(filePath)` imports a results set file (.mldatx) into the Test Manager.

Examples

Import Results and Generate Report

```
% Import results set from a file
result = sltest.testmanager.importResults('testResults.mldatx');

% Set a filepath and filename for the report
filePath = 'testreport.zip';

% Generate the report
sltest.testmanager.report(result,filePath,...
            'Author','User',...
            'Title','Test',...
            'IncludeMLVersion',true,...
            'IncludeTestResults',int32(0),...
            'LaunchReport', true);
```

Input Arguments

`filePath` — File name and path of results set

character vector

File name and path of results set, specified as a character vector.

Example: `'testResults.mldatx'`

Output Arguments

`resultObjs` — Results set

object

Results set, returned as an array of `sltest.testmanager.ResultSet` objects.

See Also

`sltest.testmanager.ResultSet` | `sltest.testmanager.report`

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.load

Load a test file in the Simulink Test manager

Syntax

```
tfObj = sltest.testmanager.load(filename)
```

Description

`tfObj = sltest.testmanager.load(filename)` loads a test file in the Simulink Test manager.

Examples

Load a Test File

Load a test file and view it in the Test Manager.

```
exampleFile = 'sltestParameterOverridesTestSuite.mldatx';

sltest.testmanager.load(exampleFile);
sltest.testmanager.view;
```

Input Arguments

`filename` — File name of test file

character vector

File name of a test file, specified as a character vector. The character vector must fully specify the location of the test file. The file can be a test file (`.mldatx`), or a MATLAB test file (`.m`), if that MATLAB test file is a derived class from `sltest.TestCase`.

Example: `'C:\MATLAB\test_file.mldatx'`

Output Arguments

`tfObj` — Test file object

object

Test file, returned as an `sltest.testmanager.TestFile` object.

See Also

`sltest.TestCase` | `sltest.testmanager.run` | `sltest.testmanager.view` | `sltest.testmanager.TestFile`

Topics

“Create and Run Test Cases with Scripts”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2015a

sltest.testmanager.moveTests

Move test cases or test suites to a new location

Syntax

```
objArray = sltest.testmanager.moveTests(srcObjArray,targetObj)
```

Description

`objArray = sltest.testmanager.moveTests(srcObjArray,targetObj)` moves test cases or test suites to another test file or test suite.

Examples

Move Test Suite to a New Test File

```
% Create test structure
tf1 = sltest.testmanager.TestFile('Test File 1');
ts = tf1.createTestSuite('Test Suite');

% Create new test file
tf2 = sltest.testmanager.TestFile('Test File 2');

% Move test suite to Test File 2
objArray = sltest.testmanager.moveTests(ts,tf2)
```

```
objArray =

  TestSuite with properties:

          Name: 'Test Suite'
    Description: ''
        Enabled: 1
       TestFile: [1x1 sltest.testmanager.TestFile]
       TestPath: 'Test File 2 > Test Suite'
         Parent: [1x1 sltest.testmanager.TestFile]
```

Input Arguments

`srcObjArray` — Test case or test suites to move

object array

Test cases or test suites to move, specified as an array of `sltest.testmanager.TestCase` or `sltest.testmanager.TestSuite` objects.

`targetObj` — Target test file or test suite

object

The destination test file or test suite to move to, specified as an `sltest.testmanager.TestFile` or `sltest.testmanager.TestSuite` object.

Output Arguments

`objArray` — Test cases or test suites at new location
object array

Test cases or test suites at the target destination location, returned as an array of `sltest.testmanager.TestCase` or `sltest.testmanager.TestSuite` objects.

See Also

`sltest.testmanager.copyTests`

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.report

Generate report of test results

Syntax

```
sltest.testmanager.report(resultObj,filePath,Name,Value)
```

Description

`sltest.testmanager.report(resultObj,filePath,Name,Value)` generates a report of the specified results in `resultObj` and saves the report to the `filePath` location.

Examples

Generate a Test Report

Generate a report that includes the test author, test title, and the MATLAB version used to run the test case. The report includes only failed results.

```
filePath = 'test.pdf';
sltest.testmanager.report(resultObj,filePath,...
    'Author','TestAuthor',...
    'Title','Test',...
    'IncludeMLVersion',true,...
    'IncludeTestResults',2);
```

Use Custom Report Class to Generate Report

If you create a custom class to customize how the report is generated using the `sltest.testmanager.TestResultReport` class, then generate the report using:

```
% Import existing results or use sltest.testmanager.run to run tests
% and collect results
result = sltest.testmanager.importResults('testResults.mldatx');
filePath = 'testreport.zip';
sltest.testmanager.report(result,filePath,...
    'Author','User',...
    'Title','Test',...
    'IncludeMLVersion',true,...
    'IncludeTestResults',int32(0),...
    'IncludeSimulationSignalPlots',true,...
    'NumPlotColumnsPerPage',2,...
```

```
    'CustomReportClass','CustomReport',...
    'LaunchReport',true);
```

Input Arguments

`resultObj` — Results set object

object

Results set object to get results from, specified as an `sltest.testmanager.ResultSet` object.

`filePath` — File name and path of the generated report

character vector

File name and path of the generated report, specified as a character vector. File path must have file extension of pdf, docx, or zip, which are the only supported file types.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'IncludeTestRequirement',true`

`Author` — Report author

empty character vector (default)

Name of the report author, specified as a character vector.

Example: `'Test Engineer'`

`Title` — Report title

`'Test'` (default) | character vector

Title of the report, specified as a character vector.

Example: `'Test_Report_1'`

`IncludeMLVersion` — Include the MATLAB version

`true` (default) | `false`

Choose to include the version of MATLAB used to run the test cases, specified as a Boolean value, `true` or `false`.

`IncludeTestRequirement` — Include the test requirement

`true` (default) | `false`

Choose to include the test requirement link defined under **Requirements** in the test case, specified as a Boolean value, `true` or `false`.

`IncludeSimulationSignalPlots` — Include the simulation output plots

`false` (default) | `true`

Choose to include the simulation output plots of each signal, specified as a Boolean value, `true` or `false`.

`NumPlotRowsPerPage` — Number of rows of plots to include on report pages
2 (default)

Number of rows of plots to include on report pages, specified as an integer from 1 to 4. This property is used only if the `IncludeSimulationSignalPlots` property is `true`.

`NumPlotColumnsPerPage` — Number of columns of plots to include on report pages
1 (default)

Number of columns of plots to include on report pages, specified as an integer from 1 to 4. This property is used only if the `IncludeSimulationSignalPlots` property is `true`.

`IncludeComparisonSignalPlots` — Include the comparison plots
`false` (default) | `true`

Choose to include the signal comparison plots defined under baseline criteria, equivalence criteria, or assessments using the `verify` operator in the test case, specified as a Boolean value, `true` or `false`.

`IncludeMATLABFigures` — Option to include figures
`false` (default) | `true`

Option to include the figures opened from a callback script, custom criteria, or by the model in the report, specified as `true` or `false`.

`IncludeErrorMessages` — Include error messages
`true` (default) | `false`

Choose to include error messages from the test case simulations, specified as a Boolean value, `true` or `false`.

`IncludeTestResults` — Include all or subset of test results
2 (default) | `0` | `1`

Option to include all or a subset of test results in the report. You can select passed and failed results, specified as the integer value `0`, select only passed results, specified as the value `1`, or select only failed results, specified as the value 2.

`LaunchReport` — Open report at completion
`true` (default) | `false`

Open the report when it is finished generating, specified as a Boolean value, `true` or to not open the report, `false`.

`CustomTemplateFile` — Path to document template
character vector

Name and path for a Microsoft® Word template file to use for report generation, specified as a character vector. This is an optional argument that is only available if you have a MATLAB Report Generator™ license.

`CustomReportClass` — Class name for customized report
character vector

Name of the class used for report customization, specified as a character vector. This is an optional argument that is only available if you have a MATLAB Report Generator license.

`IncludeCoverageResult` — Include coverage result metrics
`false` (default) | `true`

Choose to include coverage metrics that are collected at test execution, specified as a Boolean value, `true` or `false`. For more information about collecting coverage, see “Collect Coverage in Tests”.

`IncludeSimulationMetadata` — Include simulation metadata
`false` (default) | `true`

Choose to include simulation metadata for each test case or iteration, specified as a Boolean value, `true` or `false`. The metadata includes: Simulink version, model version, model author, date, model user ID, model path, machine name, solver name, solver type, fixed step size, simulation start time, simulation stop time, and platform.

See Also

`sltest.testmanager.ResultSet` | `sltest.testmanager.TestResultReport`

Topics
“Customize Test Results Reports”
“Create and Run Test Cases with Scripts”

Introduced in R2015a

sltest.testmanager.run

Run tests with Test Manager

Syntax

```
resultObj = sltest.testmanager.run
resultObj = sltest.testmanager.run(Name,Value)
```

Description

`resultObj = sltest.testmanager.run` runs all of the Simulink Test test files in the Test Manager, returning a `sltest.testmanager.ResultSet` object `resultObj`.

`resultObj = sltest.testmanager.run(Name,Value)` uses additional options specified by one or more `Name`, `Value` pair arguments.

Examples

Run a Test Case

You can run tests at a test-file, test-suite, or test-case level if they are loaded in the test manager.

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');

% Run the test case and return results data
ro = run(tc);
```

Input Arguments

Name-Value Pair Options

Example: `'Parallel',true,'Tags',{'safety'}`

`Parallel` — Run with parallel computing
false (default) | true

Specifies whether to run tests with Parallel Computing Toolbox™ or MATLAB Parallel Server™. Requires Parallel Computing Toolbox or MATLAB Parallel Server license, respectively.

Example: `'Parallel',true`

Tags — Run only tests with specified tags
cell array of character vectors

Specifies test tags for execution. For more information, see “Tags”.

Example: `'Tags',{'safety'}`

Example: `'Tags',{'safety','regression'}`

Output Arguments

`resultObj` — Results set object
object

Results set object to get results from, returned as a `sltest.testmanager.ResultSet` object.

Extended Capabilities

Automatic Parallel Support
Accelerate code by automatically running computation in parallel using Parallel Computing Toolbox™.

To run in parallel, set `'Parallel'` to `true`.

For more information, see “Run Tests Using Parallel Execution”.

See Also
`sltest.testmanager.load` | `simulate`

Topics
“Create and Run Test Cases with Scripts”
“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2015a

sltest.testmanager.setpref

Set Test Manager preferences

Syntax

```
settings = sltest.testmanager.setpref(group,preference,value)
settings = sltest.testmanager.setpref('MATLABReleases','ReleaseList',
releasePrefs)
settings = sltest.testmanager.setpref('MATLABReleases',release,releasePref)
settings =
sltest.testmanager.setpref('ShowSimulationLogs','IncludeOnCommandPrompt',
value)
```

Description

`settings = sltest.testmanager.setpref(group,preference,value)` sets Test Manager preferences in `group`, specified by `preference`, and `value`.

`settings = sltest.testmanager.setpref('MATLABReleases','ReleaseList', releasePrefs)` updates the specified releases in your preferences with the ones specified by `releasePrefs`. This preference lets you use releases other than the current release for testing.

This syntax replaces the existing list of added releases. Including a release path that is already in the release preferences returns an error. To include that release in the `releasePrefs`, first delete the existing release list.

`settings = sltest.testmanager.setpref('MATLABReleases',release,releasePref)` adds the specified `release` to the list of releases in Test Manager preferences. Set `releasePref` to `{[]}` to delete that release.

`settings = sltest.testmanager.setpref('ShowSimulationLogs','IncludeOnCommandPrompt', value)` shows the simulation logs at the MATLAB command prompt when `value` is `true`. The default value is `false`.

Examples

Set Test Suite Section Display Preferences

Change the display setting of two Test Manager preferences in test suite sections.

Get test suite display preferences.

```
settings = sltest.testmanager.getpref('TestSuiteDisplay')
```

```
settings =

  struct with fields:
```

```
        TestTag: 1
    Description: 1
    Requirement: 1
       Callback: 1
       Coverage: 1
```

Hide the `Description` and `Requirement` sections.

```
settings = sltest.testmanager.setpref...
('TestFileDisplay',{'Description','Requirement'},{false,false})

settings =

  struct with fields:

           TestTag: 1
       Description: 0
       Requirement: 0
          Callback: 1
          Coverage: 1
    TestFileOption: 1
```

Add and Delete MATLAB Release Preferences

You can add several releases at a time, delete the added releases, or add and delete a single release in your Test Manager MATLAB Release preferences.

Set your preferences to include several releases. Create a struct for each release.

```
r1 = struct('Name','18b',...
            'MATLABRoot','\\mycompany\R2012b\matlab',...
            'Selected',true);
r2 = struct('Name','19a',...
            'MATLABRoot','\\mycompany\R2014a\matlab',...
            'Selected',true);
r3 = struct('Name','20a',...
            'MATLABRoot','\\mycompany\R2015a\matlab',...
            'Selected',true);
```

Add the releases using `sltest.testmanager.setpref`.

```
sltest.testmanager.setpref('MATLABReleases','ReleaseList',{r1,r2,r3});
```

Add another release to the preferences.

```
r4 = struct('Name','19b',...
            'MATLABRoot','\\mycompany\R2013a\matlab',...
            'Selected',true);
sltest.testmanager.setpref('MATLABReleases','19b',{r4});
```

Delete a release from the preferences.

```
sltest.testmanager.setpref('MATLABReleases','18b',{[]});
```

Set Simulation Logs Display

Turn on displaying the simulation logs at the command prompt.

```
sltest.testmanager.setpref('ShowSimulationLogs',...
   'IncludeOnCommandPrompt',true);
```

Revert to not displaying simulation logs output at the command prompt.

```
sltest.testmanager.setpref('ShowSimulationLogs',...
   'IncludeOnCommandPrompt',false);
```

View the current simulation logs display setting.

```
sltest.testmanager.getpref('ShowSimulationLogs',...
   'IncludeOnCommandPrompt');
```

Input Arguments

`group` — Preference group
`'TestFileDisplay'` | `'TestSuiteDisplay'` | `'TestCaseDisplay'`

Preference group name, specified as one of these values:

- `'TestFileDisplay'` — File section display preferences
- `'TestSuiteDisplay'` — Test suite section display preferences
- `'TestCaseDisplay'` — Test case section display preferences
- `'MATLABReleases'` — MATLAB releases for testing preference

`preference` — Preference name
character vector | cell array of character vectors

Preference name, specified as a character vector. Use `settings = sltest.testmanager.getpref(group)` to get valid preferences for a particular `group`.

Example: `('TestSuiteDisplay','TagText')`

Example: `('ShowSimulationLogs','IncludeOnCommandPrompt')`

`value` — Preference value
logical | cell array of logical values

Preference value, specified as `true` to display the preference or `false` to hide it.

Example: `true`

Example: `{true,false}`

`release` — Release to add to or delete from preferences
character vector

Release to add to or delete from preferences, specified as a character vector.

Example: `'20a'`

`releasePrefs` — Release information
struct | cell array of structs

Release information, specified as a struct or cell array of structs. In the struct, include, in this order:

- `'Name',releaseName`
- `'MATLABRoot',Path`
- `'Selected',logical`

Example: `struct('Name','20a','MATLABRoot','\\mypath','Selected',true)`

`releasePref` — Release information
struct | `{[]}`

Release information, specified as a struct or as `{[]}`. Use `{[]}` to delete the release information from the preferences. In the struct, include:

- `'Name',releaseName`
- `'MATLABRoot',Path`
- `'Selected',Boolean`

Example: `struct('Name','20a','MATLABRoot','\\mypath','Selected',true)`

Output Arguments

`settings` — Test Manager preferences
struct

Preference settings, returned as a struct.

See Also

`sltest.testmanager.getpref`

Topics
“Specify Test Properties in the Test Manager”
“Run Tests in Multiple Releases of MATLAB”

Introduced in R2017a

sltest.testmanager.TestSpecReport

Generate report of test specifications

Syntax

```
sltest.testmanager.TestSpecReport(testObj,filePath,Name,Value)
```

Description

`sltest.testmanager.TestSpecReport(testObj,filePath,Name,Value)` generates a report of the test specifications for the specified `testObj` and saves the report to the specified `filePath` location.

Examples

Generate a Test Specification Report

Generate a PDF report that uses the default template. This example reports on test cases from the test file of the `AutopilotTestFile` model. The report specifies the test author and report title. It excludes custom criteria from the report and launches the report after it is generated. Other properties default to `true` and thus, their information is included in the report.

```
testmgrFile = 'AutopilotTestFile.mldatx';
sltest.testmanager.load(testmgrFile);

tfiles = sltest.testmanager.getTestFiles;
tcases = tfiles.getTestSuites.getTestCases;

sltest.testmanager.TestSpecReport(tcases,'testReport.pdf',...
    'Author','Test File Author',...
    'Title','Test Specification Details',...
    'IncludeCustomCriteria',false,...
    'LaunchReport',true);

sltest.testmanager.clear;
sltest.testmanager.clearResults;
```

Generate a Customized Test Specification Report

Create a custom test case template. After you edit the template as desired, use that template when generating the report. Examples of edits to the custom template include reordering the report sections and changing the report fonts. This example shows how to generate a customized TestCaseReporter. Generating a customized TestSuiteReporter template is similar and is used to generate both Test Suite and Test File report sections. Customizing templates requires MATLAB Report Generator and Simulink Report Generator licenses.

Create and Unzip the PDF Template File

```
sltest.testmanager.TestCaseReporter.createTemplate(...
   'MyCustomTemplate','pdf');
unzipTemplate('MyCustomTemplate.pdftx');
```

Edit the Template Files

Then, edit the template files in the MyCustomTemplate folder as desired.

Zip the Template Files

```
zipTemplate('MyCustomTemplate.pdftx');
```

Use Your Custom Template File For a Report

```
testmgrFile = 'AutopilotTestFile.mldatx';
sltest.testmanager.load(testmgrFile);

tfiles = sltest.testmanager.getTestFiles;
tcases = tfiles.getTestSuites.getTestCases;

sltest.testmanager.TestSpecReport(tcases,'testReport.pdf',...
   'Author','Test Author','Title','Test',...
   'LaunchReport',true,...
   'TestCaseReporterTemplate','MyCustomTemplate.pdftx');

sltest.testmanager.clear;
sltest.testmanager.clearResults;
```

Input Arguments

`testObj` — Test objects

array of `sltest.testmanager.TestFile` objects | array of `sltest.testmanager.TestSuite` objects | array of `sltest.testmanager.TestCase` objects

Test objects from which to generate the test specification report, specified as an array of `sltest.testmanager.TestFile`, `sltest.testmanager.TestSuite`, or `sltest.testmanager.TestCase` objects. You cannot include a different object types in the same array.

`filePath` — File name and path of the report

character vector

File name and path of the generated report, specified as a string or character array. The file path must have one of these file extensions:

- `pdf` — PDF report
- `docx` — Word report
- `zip` — HTML report in a .zip file

Example: "reports/test_specs/new_report.pdf"

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'IncludeCallbackScripts',false`

`Author` — Report author
empty string or character vector (default)

Name of the report author, specified as a string or character vector.

Example: `'Author','J. Smith'`

`Title` — Report title
`'Test Specification Report'` (default) | string | character vector

Title of the report, specified as a character vector.

`IncludeTestDetails` — Include test details
`true` (default) | `false`

Option to include test details in the report, specified as a logical. If `true`, the test details included in the report are test tags, releases, description, and requirements.

`IncludeTestFileOptions` — Include test file options
`true` (default) | `false`

Option to include test file options in the report, specified as a logical. If `true`, the test file options included in the report are:

- Whether to close open figures
- Whether to store MATLAB figures
- Whether to generate the report after execution
- Results report generation options
  - Report title
  - Author
  - Whether to include the MATLAB version
  - Types of test results to include (all, failed only, or passed only)
  - Other items to include in the report - test requirements, simulation metadata, error and log messages, plots of simulation output and baseline, plots of criteria and assessments, MATLAB figures, and coverage results
  - Output file format
  - Output file name
  - Custom report class

`IncludeCoverageSettings` — Include coverage settings
`true` (default) | `false`

Option to include coverage settings in the report, specified as a logical. If `true`, the coverage settings included in the report are coverage to collect, coverage filter file name, and coverage metrics.

Examples of coverage metrics included in the report include decisions, signal range, relational boundaries, saturation on integer overflow, and lookup tables. For more information about collecting coverage, see “Collect Coverage in Tests”.

`IncludeSystemUnderTest` — Include system under test
`true` (default) | `false`

Option to include the system under test in the report, specified as a logical. If `true`, the system under test information included in the report is:

- Model name and image
- Harness name and image
- Test sequence and assessment data (if they exist in the test harness)
- Simulation settings — simulation mode, start time (if overridden), stop time (if overridden), and initial state (if overridden)
- Target settings — target information for real-time test cases

`IncludeConfigSettingsOverrides` — Include configuration settings overrides
`true` (default) | `false`

Option to include configuration settings overrides, specified as a logical. If `true`, the report includes the settings that differ from the model configuration settings.

`IncludeCallbackScripts` — Include callback scripts
`true` (default) | `false`

Option to include callback scripts in the report, specified as a logical.

`IncludeParameterOverrides` — Include parameter overrides
`true` (default) | `false`

Option to include parameter overrides in the report, specified as a logical. If `true`, the report includes the name of the parameter set or workspace variable, the override value, the source of the variable, and the model element.

`IncludeExternalInputs` — Include external inputs
`true` (default) | `false`

Option to include external inputs in the report, specified as a logical. If `true`, the report includes the name, file path, and mapping status of the external inputs.

`IncludeLoggedSignals` — Include logged signals
`true` (default) | `false`

Option to include logged signals, specified as a logical. If `true`, the report includes the name, source, port index, and plot index for each logged signal.

`IncludeBaselineCriteria` — Include baseline criteria
`true` (default) | `false`

Option to include baseline criteria information in the report, specified as a logical. If `true`, the report includes the signal name, absolute tolerance, relative tolerance, leading tolerance, and lagging tolerance for the baseline test.

`IncludeEquivalenceCriteria` — Include equivalence criteria
`true` (default) | `false`

Option to include equivalence criteria information in the report, specified as a logical. If `true`, the report includes the signal name, absolute tolerance, relative tolerance, leading tolerance, and lagging tolerance for the equivalence test.

`IncludeIterations` — Include iterations
`true` (default) | `false`

Option to include iterations information in the report, specified as a logical. If `true`, the report includes the iteration name and the values of the external inputs, parameter set, and logged signal set for each iteration. It also includes the content of the **Iterations Script** section from the Test Manager.

`IncludeLogicalAndTemporalAssessments` — Include logical and temporal assessments
`true` (default) | `false`

Option to include logical and temporal assessments in the report, specified as a logical. If `true`, the report includes the Assessment Callbacks, Assessment Definitions, and Symbols from the Test Case.

`IncludeCustomCriteria` — Include custom criteria
`true` (default) | `false`

Option to include the custom pass/fail criteria script in the report, specified as a logical.

`LaunchReport` — Open generated report
`false` (default) | `true`

Option to open the report after it is generated, specified as a logical.

`TestCaseReporterTemplate` — Path to test case reporter template
`character vector`

Path to test case reporter template, specified as a character vector. The template path file name must use a `pdftx`, `html`, or `dotx` extension, for a PDF, HTML, or Word template, respectively. The specified template is used instead of the default `TestCaseReporter` template. Using non-default templates is available only if you have a Simulink Report Generator license.

`TestSuiteReporterTemplate` — Path to test suite reporter template
`character vector`

Path to test suite reporter template, specified as a character vector. The file name in the template path must use a `pdftx`, `html`, or `dotx` extension, for a PDF, HTML, or Word template, respectively. The `TestSuiteReporter` template is used for both test suites and test files. The specified template is used instead of the default `TestSuiteReporter` template. Using non-default templates is available only if you have a Simulink Report Generator license.

See Also

`sltest.testmanager.getTestFiles` | `sltest.testmanager.TestFile` | `sltest.testmanager.TestSuite` | `sltest.testmanager.TestCase`

Topics
“Generate Test Specification Reports”

“Customize Test Specification Reports”

Introduced in R2019b

sltest.testmanager.view

Launch the Simulink Test Manager

Syntax

```
sltest.testmanager.view
```

Description

`sltest.testmanager.view` launches the Simulink Test Manager interface. You can also use the function `sltestmgr` to launch the Test Manager.

Examples

Create Test Case and View in Test Manager

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Assign the system under test to test case
setProperty(tc,'Model','sldemo_absbrake');

% Open Test Manager to view and edit test case
sltest.testmanager.view;
```

See Also

`sltest.testmanager.load` | `sltest.testmanager.run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

sltest.testsequence.activateScenario

Package: `sltest.testsequence`

Set Test Sequence block scenario as active

Syntax

```
sltest.testsequence.activateScenario(blockPath,scenarioName)
```

Description

`sltest.testsequence.activateScenario(blockPath,scenarioName)` makes the `scenarioName` scenario in the specified Test Sequence block active so it runs during simulation. Only one scenario is active at a time. You can use `activateScenario` only if `sltest.testsequence.setScenarioControlSource` is sltest.testsequence.ScenarioControlSource.Block, which sets the active scenario control to a Test Sequence block instead of a variable in the workspace. Use `sltest.testsequence.getScenarioControlSource` to view the current scenario control source setting and `sltest.testsequence.setScenarioControlSource` to change it.

Examples

Activate Test Sequence Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Then, add another scenario named `Scenario_2` and activate `Scenario_2` so it runs when the model simulates. The control source is the default, sltest.testsequence.ScenarioControlSource.Block. Close the model without saving it.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.addScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_2');

sltest.testsequence.activateScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_2');

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioName` — Name of scenario
character vector | string

Name of the scenario, specified as a string or character vector.

Example: `'Name','Scenario_1'`

See Also

`sltest.testsequence.useScenario` | `setScenarioControlSource` | `sltest.testsequence.getActiveScenario` | `getAllScenarios`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.addScenario

Package: `sltest.testsequence`

Add new scenario to Test Sequence block

Syntax

```
sltest.testsequence.addScenario(blockPath,scenarioName)
```

Description

`sltest.testsequence.addScenario(blockPath,scenarioName)` adds a new scenario with the name specified by `scenarioName` to the Test Sequence block specified by `blockPath`. The specified Test Sequence block must be in scenario mode and the name of the new scenario cannot already exist in the block. The new scenario is added after the last scenario in the block.

Examples

Add New Test Sequence Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Then, add a new scenario named `new_Scenario`. Close the model without saving it.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.addScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'new_Scenario');

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioName` — Name of scenario

character vector | string

Name of the scenario, specified as a string or character vector.

Example: `'Name','Scenario_1'`

See Also

`sltest.testsequence.useScenario` | `deleteScenario`

Topics

“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.addStep

Add test sequence step

Syntax

```
sltest.testsequence.addStep(blockPath,stepPath,Name,Value)
```

Description

`sltest.testsequence.addStep(blockPath,stepPath,Name,Value)` adds a step named `stepPath` to a Test Sequence block specified by `blockPath`. Step properties are specified by `Name,Value` pairs.

Examples

Create a New Test Step

This example creates a test step in the Projector Fan Speed example test sequence under the parent step `SystemHeatingTest`.

Set paths and open the model.

```
Model = 'sltestProjectorFanSpeedExample';
Harness = 'FanSpeedTestHarness';
open_system(Model);
```

Open the test harness.

```
sltest.harness.open(Model,Harness);
```

Create a new local variable `h`.

```
sltest.testsequence.addSymbol('FanSpeedTestHarness/Test Sequence',...
'h','Data','Local');
```

Create a step `substep1` under the step `SystemHeatingTest` and assign the value `5` to `h`.

```
sltest.testsequence.addStep('FanSpeedTestHarness/Test Sequence',...
'SystemHeatingTest.substep1','Action','h = 5')
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Action','out = square(et)','IsWhenStep',false,'Description','Square wave.'` specifies a test step to produce a square wave.

`Action` — Test step actions

character vector

Test step action programming. To add a line, create the step actions using the `sprintf` function and the new line operator, `\n`.

Example: `'Action','out = square(et)'`

`IsWhenStep` — Specifies standard or When decomposition step

false (default) | true

Specifies whether the step is a standard transition type or a When decomposition transition.

Example: `'IsWhenStep',true`

`WhenCondition` — `When` decomposition step switch condition

character vector

Specifies the condition that activates a `When` decomposition child step. To activate the `When` step, enter a valid logical expression.

Example: `'WhenCondition','a >= 1'`

`Description` — Description for the test step

character vector

Test step description, specified as a character vector.

Example: `'Description','This step produces a high-frequency square wave.'`

See Also

`sltest.testsequence.addStepAfter` | `sltest.testsequence.addStepBefore` | `sltest.testsequence.addSymbol` | `sltest.testsequence.addTransition` | `sltest.testsequence.editStep` | `sltest.testsequence.findStep`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.addStepAfter

Add test sequence step after existing step

Syntax

```
sltest.testsequence.addStepAfter(blockPath,newStep,stepPath,Name,Value)
```

Description

`sltest.testsequence.addStepAfter(blockPath,newStep,stepPath,Name,Value)` adds a step to a Test Sequence block specified by `blockPath`. The new step is named `newStep` and is inserted after `stepPath`. Step properties are specified by `Name,Value`.

Examples

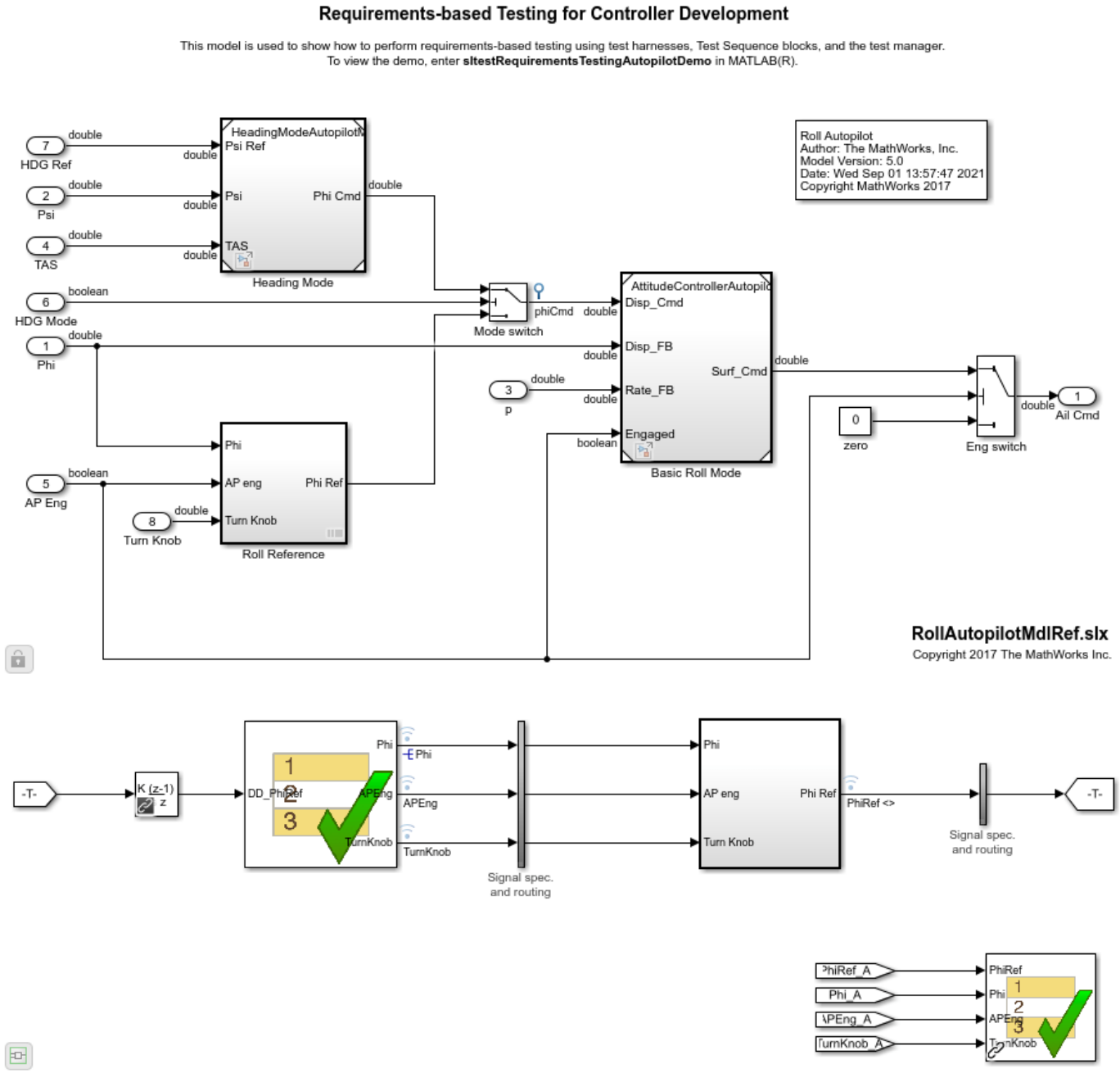
Create a New Test Step

This example creates a test step, `step1`, in a Test Sequence block after the step `SetLowPhi`, which is in the second level of hierarchy under the top-level step `APEngagement_AttitudeLevels`.

Open the Model and the Test Harness

```
rollModel = 'RollAutopilotMdlRef';
testHarness = 'RollReference_Requirement1_3';

open_system(rollModel);
sltest.harness.open([rollModel '/Roll Reference'],testHarness)
```



Create a New Local Variable Named h

```
sltest.testsequence.addSymbol...
   ('RollReference_Requirement1_3/Test Sequence',...
   'h','Data','Local');
```

Add a Step Named step2 and Set the Value of h to 5

```
sltest.testsequence.addStepAfter...
   ('RollReference_Requirement1_3/Test Sequence',...
   'AttitudeLevels.APEngage_LowRoll.step2',...
```

```
'AttitudeLevels.APEngage_LowRoll.SetLowPhi',...
'Action','h = 5;')
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`newStep` — New test step name or handle

character vector

Name of a new test step in the Test Sequence block, specified as a character vector. It is added after `stepPath` and must have the same parent step as `stepPath`.

Example: 'newStep'

Example: 'topStep.midStep.newStep'

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Action','out = square(et)','IsWhenStep',false,'Description','This step produces a square wave.'` specifies a test step to produce a square wave.

`Action` — Test step actions

character vector

The test step action programming. To add a line, create the step actions using the `sprintf` function and the new line operator `\n`.

Example: `'Action','out = square(et)'`

`IsWhenStep` — Specifies standard or When decomposition step

false (default) | true

Specifies whether the step is a standard transition type or a When decomposition transition.

Example: `'IsWhenStep',true`

`WhenCondition` — When decomposition step switch condition

character vector

Specifies the condition that activates a `When` decomposition child step. To activate the `When` step, enter a valid logical expression.

Example: `'WhenCondition','a >= 1'`

`Description` — Description for the test step
character vector

Test step description, specified as a character vector.

Example: `'Description','This step produces a high-frequency square wave.'`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.addStepBefore` | `sltest.testsequence.addSymbol` | `sltest.testsequence.addTransition` | `sltest.testsequence.editStep` | `sltest.testsequence.findStep`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.addStepBefore

Add test sequence step before existing step

Syntax

```
sltest.testsequence.addStepBefore(blockPath,newStep,stepPath,Name,Value)
```

Description

`sltest.testsequence.addStepBefore(blockPath,newStep,stepPath,Name,Value)` adds a step to a Test Sequence block specified by `blockPath`. The new step is named `newStep` and inserted immediately before the step named `stepPath`. Step properties are specified by `Name,Value`.

Examples

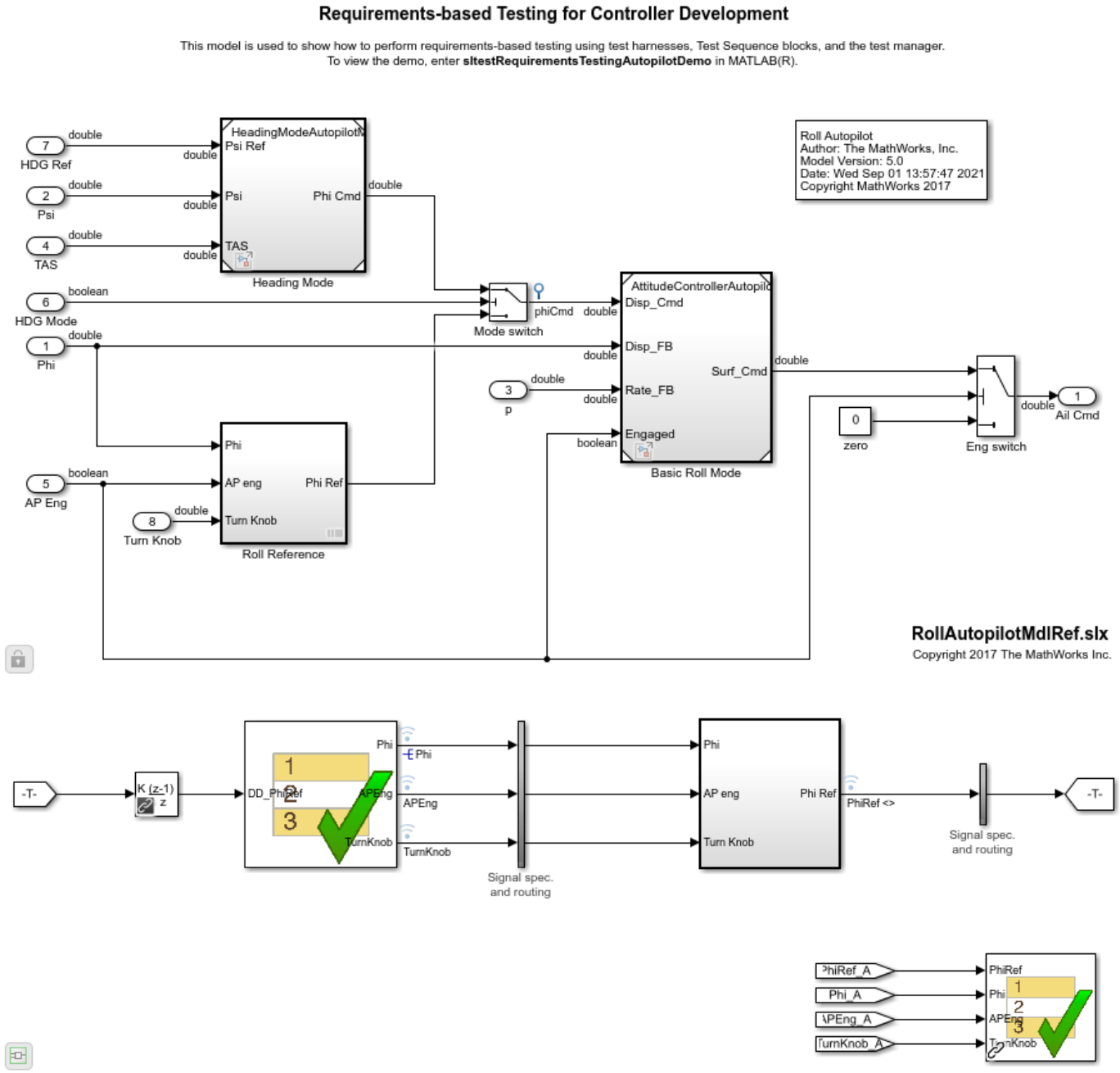
Create a New Test Step

This example creates a test step, `step1`, in a Test Sequence block before the step `SetLowPhi`, which is in the second level of hierarchy under the top-level step `APEngagement_AttitudeLevels`.

Open the Model and the Test Harness

```
rollModel = 'RollAutopilotMdlRef';
testHarness = 'RollReference_Requirement1_3';

open_system(rollModel);
sltest.harness.open([rollModel '/Roll Reference'],testHarness)
```



Create a New Local Variable Named h

```
sltest.testsequence.addSymbol...
   ('RollReference_Requirement1_3/Test Sequence',...
   'h','Data','Local');
```

Add a Step Named step1 and Set the Value of h to 5

```
sltest.testsequence.addStepBefore...
   ('RollReference_Requirement1_3/Test Sequence',...
   'AttitudeLevels.APEngage_LowRoll.step2',...
```

```
'AttitudeLevels.APEngage_LowRoll.SetLowPhi',...
'Action','h = 5;')
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`newStep` — New test step name or handle

character vector

Name of a new test step in the Test Sequence block, specified as a character vector. It is added before `stepPath` and must have the same parent step as `stepPath`.

Example: 'newStep'

Example: 'topStep.midStep.newStep'

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

Name-Value Pair Options

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Action','out = square(et)','IsWhenStep',false,'Description','This step produces a square wave.'` specifies a test step to produce a square wave.

`Action` — Test step actions

character vector

The test step action programming. To add a line, create the step actions using the `sprintf` function and the new line operator `\n`.

Example: `'Action','out = square(et)'`

`IsWhenStep` — Specifies standard or When decomposition step

false (default) | true

Specifies whether the step is a standard transition type or a When decomposition transition

Example: `'IsWhenStep',true`

`WhenCondition` — When decomposition step switch condition

character vector

Specifies the condition that activates a `When` decomposition child step. To activate the `When` step, enter a valid logical expression.

Example: `'WhenCondition','a >= 1'`

`Description` — Description for the test step
character vector

Test step description, specified as a character vector.

Example: `'Description','This step produces a high-frequency square wave.'`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.addStepAfter` | `sltest.testsequence.addSymbol` | `sltest.testsequence.addTransition` | `sltest.testsequence.editStep` | `sltest.testsequence.findStep`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.addSymbol

Add symbol to test sequence

Syntax

```
sltest.testsequence.addSymbol(blockPath,name,kind,scope)
```

Description

`sltest.testsequence.addSymbol(blockPath,name,kind,scope)` adds a symbol `name` with properties specified by `scope` and `kind` to a Test Sequence block specified by `blockPath`. The new symbol appears in the **Symbols** sidebar of the Test Sequence Editor. Symbols include data, messages, function calls, and triggers.

Examples

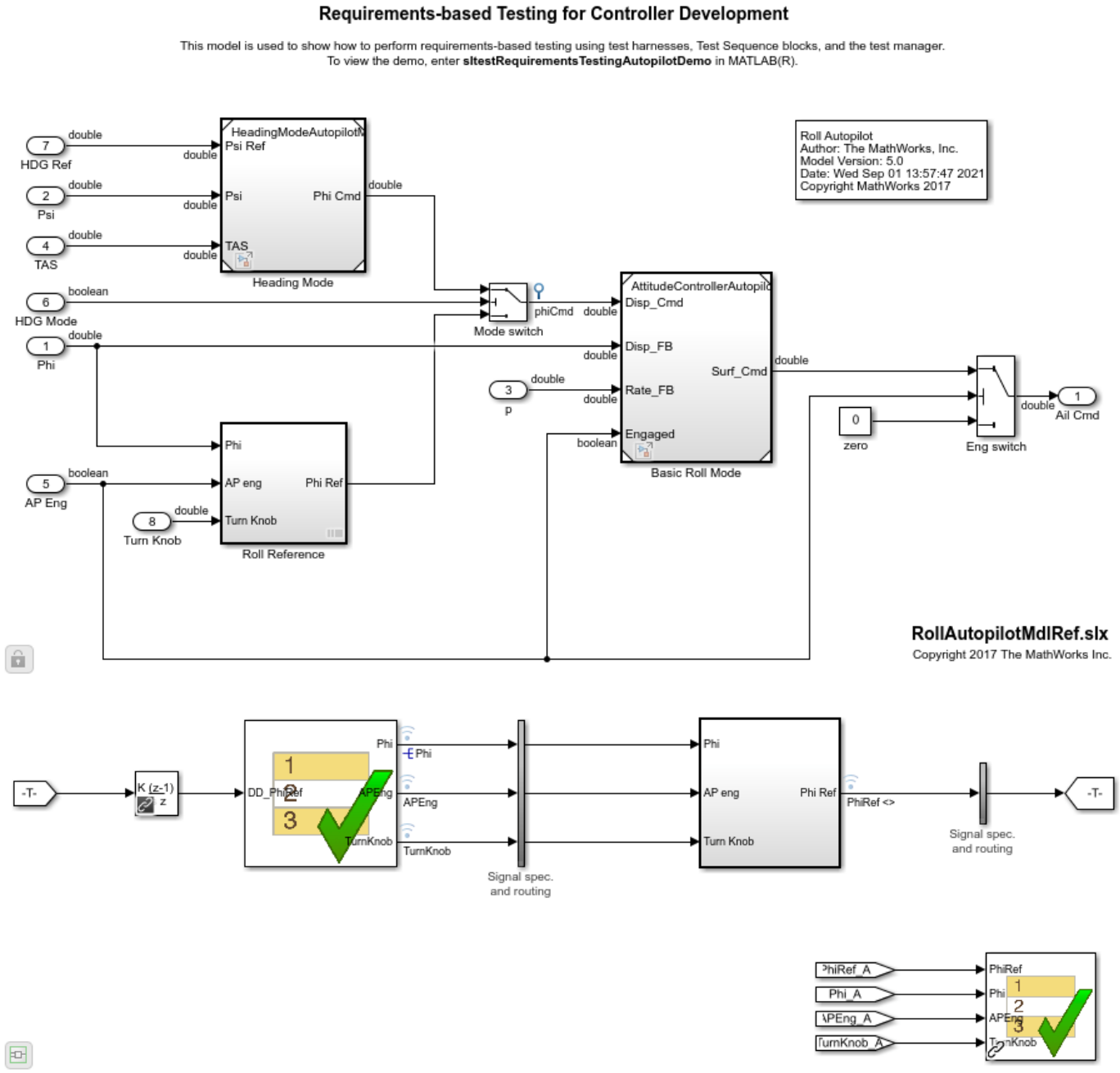
Create a New Data Symbol

This example creates a parameter theta in the Test Sequence block.

Open the Model and the Test Harness

```
rollModel = 'RollAutopilotMdlRef';
testHarness = 'RollReference_Requirement1_3';

open_system(rollModel);
sltest.harness.open([rollModel '/Roll Reference'],testHarness);
```



Add a New Parameter

```
sltest.testsequence.addSymbol...
   ('RollReference_Requirement1_3/Test Sequence',...
   'theta','Data','Parameter');
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`name` — Name of new symbol
character vector

Name of the new symbol, specified as a character vector. The symbol must not already exist in the Test Sequence block.

Example: `'theta'`

`kind` — Symbol type
`'Data'` | `'Message'` | `'Function Call'` | `'Trigger'`

Symbol type, specified as a character vector.

Example: `'Data'`

`scope` — Symbol scope
`'Input'` | `'Output'` | `'Local'` | `'Constant'` | `'Parameter'` | `'Data Store Memory'`

Symbol scope, specified as a character vector.

Example: `'Parameter'`

See Also

`sltest.testsequence.deleteSymbol` | `sltest.testsequence.editSymbol` | `sltest.testsequence.findSymbol` | `sltest.testsequence.readSymbol` | `sltest.testsequence.find`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.addTransition

Add new transition to test sequence step

Syntax

```
sltest.testsequence.addTransition(blockPath,fromStep,condition,toStep)
```

Description

`sltest.testsequence.addTransition(blockPath,fromStep,condition,toStep)` creates a test step transition in the Test Sequence block `blockPath`. The transition executes on `condition`, from the origin `fromStep`, to the destination `toStep`. `fromStep` and `toStep` must be at the same hierarchy level.

Examples

Add and Edit a Test Step Transition

This example adds a transition to a test step, then changes the transition's index, condition, and next step of the first transition in the step.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model);
```

2. Add a transition to the step `AttitudeLevels.APEngage.LowRoll`. The transition destination is the step `AttitudeLevels.APEngage_End`.

```
sltest.testsequence.addTransition('sltestRollRefTestExample/Test Sequence',...
'AttitudeLevels.APEngage_LowRoll','TurnKnob ~= 0',...
'AttitudeLevels.APEngagement_End')
```

3. Edit the transition index, condition, and next step of the first transition.

```
sltest.testsequence.editTransition('sltestRollRefTestExample/Test Sequence',...
'AttitudeLevels.APEngage_LowRoll',1,'Index',2,...
'NextStep','AttitudeLevels.APEngage_HighRoll',...
'Condition','duration(DD_PhiRef == 0,sec) >= 5')
```

4. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`fromStep` — Origination step path
character vector

Path of an existing step in the Test Sequence block, specified as a character vector, at which the transition originates. The path must include the step name and step hierarchy, using `.` to separate hierarchy levels. This step must be at same level as `toStep`.

Example: `'topStep.midStep.step1'`

`condition` — Condition on which the transition executes
character vector

The condition on which the transition executes, specified as a character vector. Though specified as a character vector, it must be a valid logical expression for the transition to execute.

Example: `'theta == 0 && a == 1'`

`toStep` — Destination step path
character vector

Path of an existing step in the Test Sequence block, specified as a character vector, which becomes active step after the transition executes. The path must include the step name and step hierarchy, using `.` to separate hierarchy levels. This step must be at same level as `fromStep`.

Example: `'topStep.midStep.step2'`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.addSymbol` | `sltest.testsequence.deleteTransition` | `sltest.testsequence.editTransition` | `sltest.testsequence.readTransition` | `sltest.testsequence.find`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.deleteScenario

Package: `sltest.testsequence`

Delete scenario from Test Sequence block

Syntax

```
sltest.testsequence.deleteScenario(blockPath,scenarioName)
```

Description

`sltest.testsequence.deleteScenario(blockPath,scenarioName)` removes the scenario specified by `scenarioName` from the Test Sequence block specified by `blockPath`. All steps in the deleted scenario are also deleted. Each scenario in a Test Sequence block is identified by a scenario name and an index. When you delete a scenario, the indices of the following scenarios update. For example, if you delete the second scenario, the index of the third scenario changes from 3 to 2.

Examples

Delete Test Sequence Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Add a new scenario named `Scenario_2`, and then delete the scenario.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');
sltest.testsequence.addScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_2');

sltest.testsequence.deleteScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_2');

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioName` — Name of scenario
character vector | string

Name of the scenario, specified as a string or character vector.

Example: `'Name','Scenario_1'`

See Also

`addScenario` | `getAllScenarios` | `sltest.testsequence.useScenario`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.deleteStep

Delete test sequence step

Syntax

```
sltest.testsequence.deleteStep(blockPath,stepPath)
```

Description

`sltest.testsequence.deleteStep(blockPath,stepPath)` deletes a test step specified by `stepPath` from a Test Sequence block specified by `blockPath`. Sub-steps of `stepPath` are also deleted.

Examples

Delete a Test Step Programmatically

This example shows how to delete a test step programmatically from a Test Sequence block.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model);
```

2. Delete the step `Stop` from the Test Sequence block.

```
sltest.testsequence.deleteStep('sltestRollRefTestExample/Test Sequence','Stop');
```

3. Close the model

```
close_system(Model,0);
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.deleteSymbol` | `sltest.testsequence.deleteTransition`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.deleteSymbol

Delete test sequence block symbol

Syntax

```
sltest.testsequence.deleteSymbol(blockPath,symbolName)
```

Description

`sltest.testsequence.deleteSymbol(blockPath,symbolName)` deletes `symbolName` from a Test Sequence block specified by `blockPath`.

Examples

Delete a Test Sequence Symbol Programmatically

This example shows how to delete a data symbol programmatically from a Test Sequence block. The data symbol `DurationLimit` is a constant.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model);
```

2. Delete the constant `DurationLimit` from the Test Sequence block.

```
sltest.testsequence.deleteSymbol('sltestRollRefTestExample/Test Sequence',...
    'DurationLimit');
```

3. Close the model.

```
close_system(Model,0);
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`symbolName` — Symbol name

character vector

Name of the symbol to delete in the Test Sequence block, specified as a character vector.

Example: `'testOutput'`

See Also

`sltest.testsequence.addSymbol` | `sltest.testsequence.deleteStep` | `sltest.testsequence.deleteTransition`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.deleteTransition

Delete test sequence transition

Syntax

```
sltest.testsequence.deleteTransition(blockPath,stepPath,index)
```

Description

`sltest.testsequence.deleteTransition(blockPath,stepPath,index)` deletes the transition at the given numerical index from the test step specified by `blockPath` and `stepPath`.

Examples

Delete Transition From Test Sequence

This example deletes a transition from the test sequence.

Load the Model

```
model = 'sltestRollRefTestExample';
load_system(model);
```

Delete the Transition and Close the Model

Delete the transition from the test step `SetKnobAndPhi` under the parent step `TurnKnobAndAttitude`.

```
sltest.testsequence.deleteTransition...
   ('sltestRollRefTestExample/Test Sequence',...
   'TurnKnobAndAttitude.SetKnobAndPhi',1)

close_system(model,0);
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

`index` — Transition index
integer

Integer specifying the transition in the test step to be edited. Corresponds to the integer displayed in the `Transition` cell of the Test Sequence Editor.

Example: 3

See Also

`sltest.testsequence.addTransition` | `sltest.testsequence.deleteStep` | `sltest.testsequence.deleteSymbol`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.editScenario

Package: `sltest.testsequence`

Edit Test Sequence block test scenario properties

Syntax

```
sltest.testsequence.editScenario(blockPath,scenarioName,'Name',newName)
```

Description

`sltest.testsequence.editScenario(blockPath,scenarioName,'Name',newName)` changes the name of the scenario specified by `scenarioName` in the Test Sequence block specified by `blockPath` to the specified `newName`. To edit the properties of steps within a scenario, see `sltest.testsequence.editStep`.

Examples

Edit Test Sequence Scenario Name

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Then, change the name of the scenario named `Scenario_1` to `FirstScenario`.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

% Set block to use scenarios
sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

% Rename scenario
sltest.testsequence.editScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1','Name','FirstScenario');

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioName` — Name of scenario

character vector | string

Name of the scenario, specified as a string or character vector.

Example: `'Name','Scenario_1'`

`newName` — New name for scenario
character vector | string

New name for the scenario, specified as a string or character vector.

Example: `'Name','FirstScenario'`

See Also

`sltest.testsequence.editStep` | `addScenario` | `deleteScenario`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.editStep

Edit test sequence step

Syntax

```
sltest.testsequence.editStep(blockPath,stepPath,Name,Value)
```

Description

`sltest.testsequence.editStep(blockPath,stepPath,Name,Value)` edits the properties of an existing step specified by `stepPath` in a Test Sequence block specified by `blockPath`. Changes to the properties are specified by `Name,Value`.

Examples

Add and Edit a Test Step

This example adds a test step then edits the step actions of the new step.

Open the model and test harness.

```
open_system('sltestTestSequenceWhenExample')
sltest.harness.open('sltestTestSequenceWhenExample/SimpleTracker',...
'SimpleTrackerHarness')
```

Add a test step named `SquareAndVeryQuick`.

```
sltest.testsequence.addStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick')
```

Edit the step actions.

```
action = sprintf('mode = uint8(3);...
   \nout = square(et);\n%% New step action')
```

```
action =

mode = uint8(3);
out = square(et);
% New step action
```

```
sltest.testsequence.editStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick','Action',action,'Description',...
'This step outputs a high-frequency square wave.')
```

Add two substeps to the new step.

```
sltest.testsequence.addStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick.Step1')
sltest.testsequence.addStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick.Step2')
```

Change the parent step to a When decomposition.

```
sltest.testsequence.editStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick','IsWhenStep',true)
```

Add a When condition to the substep `Step1`.

```
sltest.testsequence.editStep('SimpleTrackerHarness/Test Sequence',...
'Square.SquareAndVeryQuick.Step1','WhenCondition','a >= 1')
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Action','out = square(et)','IsWhenStep',false,'Description','This step produces a square wave.'` specifies a test step to produce a square wave.

`Name` — Test step name

character vector

The new name for the test step, specified as a character vector.

Example: `'Name','HoldOutput'`

`Action` — Test step action

character vector

The test step action programming. To add a line, create the step actions using the `sprintf` function and the new line operator `\n`.

Example: `'Action','out = square(et)'`

`IsWhenStep` — Specifies standard or `When` decomposition step

false (default) | true

Specifies whether the step is a standard transition type or a `When` decomposition transition

Example: `'IsWhenStep',true`

`WhenCondition` — When decomposition step switch condition
character vector

Character vector specifying the condition that activates a `When` decomposition child step. This must be a valid logical expression for the `When` step to activate.

Example: `'WhenCondition','a >= 1'`

`Description` — Description for the test step
character vector

Test step description, specified as a character vector.

Example: `'Description','This step produces a high-frequency square wave.'`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.deleteStep` | `sltest.testsequence.editSymbol` | `sltest.testsequence.editTransition` | `sltest.testsequence.findStep`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2016a

sltest.testsequence.editSymbol

Edit symbol in Test Sequence block

Syntax

`sltest.testsequence.editSymbol(blockPath,name,Name,Value)`

Description

`sltest.testsequence.editSymbol(blockPath,name,Name,Value)` edits a symbol `name` with properties specified by `Name,Value` in a Test Sequence block specified by `blockPath`. Symbols include data, function calls, messages, and triggers.

Examples

Find, read, and edit a Test Sequence block data symbol

This example edits constant `DurationLimit` in the Test Sequence block, changing it to a local variable of `single` data type.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Search for data symbols containing the word `duration`.

```
data_names = sltest.testsequence.findSymbol...
    ('sltestRollRefTestExample/Test Sequence','Name','[Dd]uration',...
    'RegExp','on','Kind','Data')
```

```
data_names = 1x1 cell array
    {'DurationLimit'}
```

3. Read the properties of the `DurationLimit` constant.

```
dlProperties = sltest.testsequence.readSymbol...
    ('sltestRollRefTestExample/Test Sequence',data_names{1})
```

```
dlProperties = struct with fields:
            Kind: 'Data'
           Scope: 'Constant'
        DataType: 'double'
     Description: ''
        Document: ''
    InitialValue: '5'
            Name: 'DurationLimit'
            Size: ''
             Tag: []
```

4. Change `DurationLimit` to a local variable of `single` data type.

```
sltest.testsequence.editSymbol('sltestRollRefTestExample/Test Sequence',...
    data_names{1},'Scope','Local','DataType','single')
```

5. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`name` — Symbol name

character vector

Name of the symbol, specified as a character vector. For the symbol that controls the active scenario, you can change only its name using the 'Name' name-value pair.

Example: `'theta'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Find valid name-value pairs by applying `sltest.testsequence.readSymbol` to the existing symbol.

Example: `'DataType','single','Scope','Constant'`

See Also

`sltest.testsequence.addStepAfter` | `sltest.testsequence.addStepBefore` | `sltest.testsequence.addStep` | `sltest.testsequence.addTransition` | `sltest.testsequence.editStep` | `sltest.testsequence.find`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.editTransition

Edit test sequence step transition

Syntax

```
sltest.testsequence.editTransition(blockPath,stepPath,index,Name,Value)
```

Description

`sltest.testsequence.editTransition(blockPath,stepPath,index,Name,Value)` edits transition `index` in `stepPath` of the Test Sequence block `blockPath`. Transition properties are specified by `Name,Value`.

Examples

Add and Edit a Test Step Transition

This example adds a transition to a test step, then changes the transition's index, condition, and next step of the first transition in the step.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model);
```

2. Add a transition to the step `AttitudeLevels.APEngage.LowRoll`. The transition destination is the step `AttitudeLevels.APEngage_End`.

```
sltest.testsequence.addTransition('sltestRollRefTestExample/Test Sequence',...
'AttitudeLevels.APEngage_LowRoll','TurnKnob ~= 0',...
'AttitudeLevels.APEngagement_End')
```

3. Edit the transition index, condition, and next step of the first transition.

```
sltest.testsequence.editTransition('sltestRollRefTestExample/Test Sequence',...
'AttitudeLevels.APEngage_LowRoll',1,'Index',2,...
'NextStep','AttitudeLevels.APEngage_HighRoll',...
'Condition','duration(DD_PhiRef == 0,sec) >= 5')
```

4. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level
character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

`index` — Transition index
integer

Integer specifying the transition in the test step to be edited. Corresponds to the integer displayed in the `Transition` cell of the Test Sequence Editor.

Example: `3`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Condition','error == 1','NextStep','Stop','Index', 3`

`Condition` — Condition on which the transition executes
character vector

The condition on which the transition executes, specified as a character vector. To execute the transition, enter a valid logical expression.

Example: `'theta == 0 && a == 1'`

`NextStep` — Destination step of the transition
character vector

The name of the destination step of the transition, which is next in the sequence if the transition condition is satisfied.

Example: `'RampAngle'`

`Index` — Transition index
integer

Integer specifying the new transition index to be applied

Example: `'Index',2`

See Also

`sltest.testsequence.addStep` | `sltest.testsequence.addTransition` | `sltest.testsequence.deleteTransition` | `sltest.testsequence.readTransition`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.find

Find Test Sequence blocks

Syntax

```
blocks = sltest.testsequence.find
```

Description

`blocks = sltest.testsequence.find` returns a cell array `blocks` listing Test Sequence blocks in open models.

Examples

Find Open Test Sequence Blocks

This example opens a test harness and finds the paths to the two Test Sequence blocks contained in the test harness.

Open the model and test harness.

```
open_system('sltestTestSequenceWhenExample')
sltest.harness.open('sltestTestSequenceWhenExample/SimpleTracker',...
'SimpleTrackerHarness')
```

Find the Test Sequence blocks. One of the blocks is used specifically for Test Assessment.

```
blocks = sltest.testsequence.find
```

```
blocks =

  1×2 cell array

  Column 1

    'SimpleTrackerHarn…'

  Column 2

    'SimpleTrackerHarn…'
```

See Also

`sltest.testsequence.findStep` | `sltest.testsequence.findSymbol` | `sltest.testsequence.getProperty` | `sltest.testsequence.readStep` | `sltest.testsequence.readSymbol` | `sltest.testsequence.readTransition`

Introduced in R2016a

sltest.testsequence.findStep

Find test sequence steps

Syntax

```
steps = sltest.testsequence.findStep(Name,Value)
```

Description

`steps = sltest.testsequence.findStep(Name,Value)` returns a cell array `steps` listing Test Sequence steps that match properties specified by `Name,Value` pairs.

Examples

Find a test step in a Test Sequence block

This example finds a test step in a Test Sequence block.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Find test sequence steps that contain the case-insensitive string `apeng`.

```
steps = sltest.testsequence.findStep('sltestRollRefTestExample/Test Sequence',...
    'Name','[Aa][Pp][Ee]ng','RegExp','on')
```

```
steps = 1x10 cell
  Columns 1 through 3

    {'AttitudeLevels...'}    {'AttitudeLevels...'}    {'AttitudeLevels...'}

  Columns 4 through 6

    {'AttitudeLevels...'}    {'AttitudeLevels...'}    {'AttitudeLevels...'}

  Columns 7 through 9

    {'AttitudeLevels...'}    {'AttitudeLevels...'}    {'AttitudeLevels...'}

  Column 10

    {'AttitudeLevels...'}
```

```
steps(3)
```

```
ans = 1x1 cell array
    {'AttitudeLevels.APEngage_LowRoll.EngageAP_Low'}
```

3. Close the model.

```
close_system(Model,0)
```

Input Arguments

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Name','[Aa][Pp][Ee]ng','RegExp','on'`

`Name` — Step name
character vector

The name of the test steps to search

Example: `'Name','Engage'`

Example: `'Name','[Aa][Pp][Ee]ng'`

`CaseSensitive` — Specify case-sensitive search
`'on'` | `'off'`

Specifies case

Example: `'CaseSensitive','on'`

RegExp — Specify regular expression search
`'on'` | `'off'`

Specify whether to search the step names using `Name` as a regular expression

Example: `'RegExp','on'`

Output Arguments

`steps` — Test sequence steps
cell array

Cell array of test steps matching search criteria

Example: `1×10 cell array`

See Also

`sltest.testsequence.editStep` | `sltest.testsequence.find` | `sltest.testsequence.findSymbol` | `sltest.testsequence.readStep` | `sltest.testsequence.readSymbol` | `sltest.testsequence.readTransition`

Introduced in R2017a

sltest.testsequence.findSymbol

Find Test Sequence block symbols

Syntax

```
symbols = sltest.testsequence.findSymbol(blockPath,Name,Value)
```

Description

`symbols = sltest.testsequence.findSymbol(blockPath,Name,Value)` returns `symbols` in the Test Sequence block `blockPath` matching properties specified by `Name,Value` pairs. Symbols include data, messages, function calls, and triggers.

Examples

Find, read, and edit a Test Sequence block data symbol

This example edits constant `DurationLimit` in the Test Sequence block, changing it to a local variable of `single` data type.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Search for data symbols containing the word `duration`.

```
data_names = sltest.testsequence.findSymbol...
    ('sltestRollRefTestExample/Test Sequence','Name','[Dd]uration',...
    'RegExp','on','Kind','Data')
```

```
data_names = 1x1 cell array
    {'DurationLimit'}
```

3. Read the properties of the `DurationLimit` constant.

```
dlProperties = sltest.testsequence.readSymbol...
    ('sltestRollRefTestExample/Test Sequence',data_names{1})
```

```
dlProperties = struct with fields:
            Kind: 'Data'
           Scope: 'Constant'
        DataType: 'double'
     Description: ''
        Document: ''
    InitialValue: '5'
            Name: 'DurationLimit'
            Size: ''
             Tag: []
```

4. Change `DurationLimit` to a local variable of `single` data type.

```
sltest.testsequence.editSymbol('sltestRollRefTestExample/Test Sequence',...
    data_names{1},'Scope','Local','DataType','single')
```

5. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Kind','Message','Scope','Output'`

Example: `'Kind','Data','Name','[Aa]ngle','RegExp','on'`

`Kind` — Data symbol type

`'Data'` | `'Message'` | `'Function Call'` | `'Trigger'`

The scope defines how the data symbol operates in the block. It is specified as a character vector.

Example: `'Data'`

`Scope` — Data symbol scope

`'Input'` | `'Output'` | `'Local'` | `'Constant'` | `'Parameter'` | `'Data Store Memory'`

Data symbol scope, specified as a character vector.

Example: `'Parameter'`

`Name` — Symbol name

character vector

The name of the test symbols to search

Example: `'Name','Engage'`

Example: `'Name','[Dd]uration'`

`CaseSensitive` — Specify case-sensitive search

`'on'` | `'off'`

Specifies case

Example: `'CaseSensitive','on'`

RegExp — Specify regular expression search
`'on'` | `'off'`

Specify whether to search the step names using `Name` as a regular expression

Example: `'RegExp','on'`

Output Arguments

`symbols` — Block symbols
cell array

Cell array of Test Sequence block symbols matching search criteria

Example: cell

See Also

`sltest.testsequence.deleteSymbol` | `sltest.testsequence.editSymbol` | `sltest.testsequence.find` | `sltest.testsequence.findStep` | `sltest.testsequence.readSymbol`

Topics
“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.getActiveScenario

Package: `sltest.testsequence`

Get Test Sequence block active scenario

Syntax

```
active_scenario = sltest.testsequence.getActiveScenario(blockPath)
```

Description

`active_scenario = sltest.testsequence.getActiveScenario(blockPath)` returns the name of the active scenario for the Test Sequence block specified by `blockPath`. The active scenario is the scenario that runs during model simulation.

Examples

Get Active Test Sequence Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Add another scenario named `new_Scenario` and activate it. Then, get the name of the currently active scenario. You can use `getActiveScenario` only if you have set `sltest.testsequence.setScenarioControlSource` to `sltest.testsequence.ScenarioControlSource.Block`, which sets the active scenario control to a Test Sequence block instead of a variable in the workspace.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.addScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'new_Scenario');

sltest.testsequence.activateScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'new_Scenario');

active_scenario = sltest.testsequence.getActiveScenario...
   ('sltestRollRefTestExample/Test Sequence')
```

```
active_scenario =

    'new_Scenario'
```

Close the model without saving it.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Output Arguments

`active_scenario` — Active Test Sequence block scenario name

character vector

Active Test Sequence block scenario name, returned as a character vector.

See Also

`sltest.testsequence.useScenario` | `setScenarioControlSource` | `activateScenario` | `getAllScenarios`

Topics

“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.getAllScenarios

Package: `sltest.testsequence`

Get names of all Test Sequence block scenarios

Syntax

```
all_scenarios = sltest.testsequence.getAllScenarios(blockPath)
```

Description

`all_scenarios = sltest.testsequence.getAllScenarios(blockPath)` returns the names of all scenarios in a Test Sequence block specified by `blockPath`.

Examples

Get All Test Sequence Scenarios

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Add another scenario named `new_Scenario`. Then, get the names of all scenarios in the Test Sequence block.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.addScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'new_Scenario');

all_scenarios = sltest.testsequence.getAllScenarios...
   ('sltestRollRefTestExample/Test Sequence')
```

```
all_scenarios =

  1×2 cell array

    {'Scenario_1'}    {'new_Scenario'}
```

Close the model without saving it.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Output Arguments

`all_scenarios` — Names of all scenarios in Test Sequence block
cell array

Names of all scenarios in Test Sequence block, returned as a cell array.

See Also

`addScenario` | `sltest.testsequence.useScenario`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.getProperty

Get Test Sequence block properties

Syntax

```
blockInfo = sltest.testsequence.getProperty(blockPath)
blockInfo = sltest.testsequence.getProperty(blockPath,propertyName)
```

Description

`blockInfo = sltest.testsequence.getProperty(blockPath)` returns a `blockInfo` structure containing properties of the Test Sequence block specified by `blockPath`.

`blockInfo = sltest.testsequence.getProperty(blockPath,propertyName)` returns `blockInfo`, containing the value of `propertyName`.

Examples

Programmatically Return and Set Test Sequence Block Properties

This example gets and sets properties for a Test Sequence block using the programmatic interface.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Get properties of the Test Sequence block.

```
blockInfo = sltest.testsequence.getProperty([Model '/Test Sequence'])
```

```
blockInfo = struct with fields:
                         Name: 'Test Sequence'
                 UpdateMethod: 'INHERITED'
                   SampleTime: '-1'
                  Description: ''
                     Document: ''
                          Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                 InputFimath: 'fimath(......'
             EmlDefaultFimath: 'Same as MATLAB Default'
          EnableActiveStepData: 0
          ActiveStepDataSymbol: ''
            ActiveStepDataType: 'Enum'
             ScenarioParameter: ''
                     Semantics: 'StateflowCompatible'
```

3. Get the Test Sequence block update method.

```
blockUpdateMethod = sltest.testsequence.getProperty(...
    [Model '/Test Sequence'],'UpdateMethod')

blockUpdateMethod =
'INHERITED'
```

4. Change the Test Sequence block update method and sample time.

```
sltest.testsequence.setProperty([Model '/Test Sequence'],...
    'UpdateMethod','Discrete','SampleTime','0.1')
```

5. Enable active step data and set the data type to `String`. Use this data type if you have duplicate step names in a single test sequence or across scenarios in the Test Sequence block.

```
sltest.testsequence.setProperty([Model '/Test Sequence'],...
    'EnableActiveStepData',1,'ActiveStepDataType','String');
```

6. Check the changes.

```
blockInfo = sltest.testsequence.getProperty([Model '/Test Sequence'])

blockInfo = struct with fields:
                         Name: 'Test Sequence'
                 UpdateMethod: 'DISCRETE'
                   SampleTime: '0.1'
                  Description: ''
                     Document: ''
                          Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                  InputFimath: 'fimath(......'
              EmlDefaultFimath: 'Same as MATLAB Default'
          EnableActiveStepData: 1
          ActiveStepDataSymbol: 'Active_Step'
            ActiveStepDataType: 'String'
             ScenarioParameter: ''
                     Semantics: 'StateflowCompatible'
```

7. Close the model.

```
close_system(Model,0)
```

Getting the Active Step Enumeration Name

The

The `ActiveStepEnumName` is a property of the `ActiveStepDataSymbol`, which is a property of the Test Sequence block. To obtain the enumeration name of the active step, use this code:

```
ts = sltest.testsequence.getProperty(...
     'model/Test Sequence');
actstep = sltest.testsequence.readSymbol(...
```

```
     'model/Test Sequence',ts.ActiveStepDataSymbol);
enum_name = actstep.ActiveStepEnumName
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`propertyName` — Test Sequence block property name

`'Name'` | `'UpdateMethod'` | `'SampleTime'` | `'Description'` | `'Document'` | `'Tag'` | `'SupportVariableSizing'` | `'SaturateOnIntegerOverflow'` | `'InputFimath'` | `'FimathForFiConstructors'` | `'EnableActiveStepData'` | `'ActiveStepDataSymbol'` | `'ActiveStepDataType'` | `'ScenarioParameter'` | `'Semantics'`

Name of a particular Test Sequence block property for which to get a value.

Example: `'Description'`

Output Arguments

`blockInfo` — Block properties or property value

`struct` | character vector | logical

Output of block properties, or the value of a particular block property

Example: `struct with fields`

Example: `char array`

Example: `logical`

See Also

`sltest.testsequence.find` | `sltest.testsequence.readStep` | `sltest.testsequence.readSymbol` | `sltest.testsequence.readTransition` | `sltest.testsequence.setProperty`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.getScenarioControlSource

Package: `sltest.testsequence`

Get source that controls Test Sequence active scenario

Syntax

```
scenarioCtrlSource = sltest.testsequence.getScenarioControlSource(blockPath)
```

Description

`scenarioCtrlSource = sltest.testsequence.getScenarioControlSource(blockPath)` returns the source that controls the active scenario for the Test Sequence block specified by `blockPath`.

Examples

Get Source that Controls Active Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Set the control source to the workspace. Then, get the name of the source that controls the active scenario.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');
sltest.testsequence.setScenarioControlSource...
   ('sltestRollRefTestExample/Test Sequence',...
    sltest.testsequence.ScenarioControlSource.Workspace);

scenarioControlSource = ...
   sltest.testsequence.getScenarioControlSource...
   ('sltestRollRefTestExample/Test Sequence')
```

```
scenarioCtrlSource =

  ScenarioControlSource enumeration

    Workspace
```

Close the model without saving it.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Output Arguments

`scenarioCtrlSource` — Active scenario control source
sltest.testsequence.ScenarioControlSource.Block |
sltest.testsequence.ScenarioControlSource.Workspace

Active scenario control source, returned as either of these enumerated values:

- `sltest.testsequence.ScenarioControlSource.Block` — The active scenario is controlled by setting it in the Test Sequence block.
- `sltest.testsequence.ScenarioControlSource.Workspace` — The active scenario is controlled by a workspace variable that specifies the index of the active scenario. The variable can be in the base workspace, model workspace, or data dictionary.

See Also

`sltest.testsequence.useScenario` | `setScenarioControlSource`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.isUsingScenarios

Package: `sltest.testsequence`

Determine whether Test Sequence block uses scenarios

Syntax

```
TF = sltest.testsequence.isUsingScenarios(blockPath)
```

Description

`TF = sltest.testsequence.isUsingScenarios(blockPath)` returns whether the Test Sequence block specified by `blockPath` uses scenarios.

Examples

Check Whether a Test Sequence Block Uses Scenarios

Check whether the Test Sequence block in the `sltestRollRefTestExample` model uses scenarios. In this case, the block has not been set to use scenarios, so `isUsingScenarios` returns `false`.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

use_scen = sltest.testsequence.isUsingScenarios...
   ('sltestRollRefTestExample/Test Sequence')
```

```
use_scen =

  logical

   1
```

Close the model without saving it.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

See Also

`sltest.testsequence.useScenario`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.newBlock

Create Test Sequence block

Syntax

```
blockID = sltest.testsequence.newBlock(blockPath)
```

Description

`blockID = sltest.testsequence.newBlock(blockPath)` adds a Test Sequence block specified by `blockPath`, returning the handle `blockID`.

Examples

Create a Test Sequence Block and Get Block Properties

This example shows how to create a Test Sequence block programmatically, and get properties for the block, which can be used in `Name`, `Value` pairs for `sltest.testsequence.setProperty`.

1. Create a model and a Test Sequence block.

```
new_system('tsb_model');
sltest.testsequence.newBlock('tsb_model/Test Sequence');
```

2. Get properties of the Test Sequence block.

```
block_properties = sltest.testsequence.getProperty...
    ('tsb_model/Test Sequence')
```

```
block_properties = struct with fields:
                         Name: 'Test Sequence'
                 UpdateMethod: 'INHERITED'
                   SampleTime: '-1'
                  Description: ''
                     Document: ''
                          Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                 InputFimath: 'fimath(......'
            EmlDefaultFimath: 'Same as MATLAB Default'
         EnableActiveStepData: 0
         ActiveStepDataSymbol: ''
           ActiveStepDataType: 'String'
            ScenarioParameter: ''
                    Semantics: 'StateflowCompatible'
```

3. Close the model.

```
close_system('tsb_model',0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Output Arguments

`blockID` — Handle to the block

double

Block handle, returned as a double.

Example: `190.0021`

See Also

`sltest.testsequence.find` | `sltest.testsequence.getProperty` | `sltest.testsequence.setProperty`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.readStep

Read Test Sequence block steps

Syntax

```
stepInfo = sltest.testsequence.readStep(blockPath,stepPath)
stepInfo = sltest.testsequence.readStep(blockPath,stepPath,Property)
```

Description

`stepInfo = sltest.testsequence.readStep(blockPath,stepPath)` returns a struct `stepInfo` of properties for the test step `stepPath` in the Test Sequence block `blockPath`.

`stepInfo = sltest.testsequence.readStep(blockPath,stepPath,Property)` returns the value `stepInfo` of the `Property` for the test step.

Examples

Read Test Step and Transition Properties

This example reads properties of a test step and a transition in a Test Sequence block.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Read the properties of the test step `SetMedPhi`, which is a sub-step of `AttitudeLevels.APEngage_MedRoll`.

```
stepInfo = sltest.testsequence.readStep([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll.SetMedPhi')
```

```
stepInfo = struct with fields:
              Name: 'AttitudeLevels.APEngage_MedRoll.SetMedPhi'
            Action: 'Phi = 11.5;...'
         IsWhenStep: 0
      IsWhenSubStep: 0
        Description: ''
              Index: 1
    TransitionCount: 1
```

3. Read the action of the same step.

```
stepAction = sltest.testsequence.readStep([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll.SetMedPhi','Action')
```

```
stepAction =
    'Phi = 11.5;
     APEng = false;'
```

4. Read the transition properties for the parent step.

```
xInfo = sltest.testsequence.readTransition([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll',1)
```

```
xInfo = struct with fields:
         Step: 'AttitudeLevels.APEngage_MedRoll'
        Index: 1
    Condition: 'duration(DD_PhiRef == 0,sec) >= DurationLimit'
     NextStep: 'AttitudeLevels.APEngage_HighRoll'
```

5. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

`Property` — Step property

`'Name'` | `'Action'` | `'IsWhenStep'` | `'IsWhenSubStep'` | `'Description'` | `'TransitionCount'`

Property of the test step, specified as a character vector.

Example: `'TransitionCount'`

Output Arguments

`stepInfo` — Test step properties

struct | character vector | logical | numeric

Properties of the test step.

Example: `struct`

See Also

`sltest.testsequence.deleteStep` | `sltest.testsequence.editStep` | `sltest.testsequence.find` | `sltest.testsequence.findStep` | `sltest.testsequence.readSymbol` | `sltest.testsequence.readTransition`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.readSymbol

Read Test Sequence block symbol properties

Syntax

```
symbolInfo = sltest.testsequence.readSymbol(blockPath,symbol)
symbolInfo = sltest.testsequence.readSymbol(blockPath,symbol,Property)
```

Description

`symbolInfo = sltest.testsequence.readSymbol(blockPath,symbol)` returns a struct `symbolInfo` of properties for `symbol` in the Test Sequence block specified by `blockPath`.

`symbolInfo = sltest.testsequence.readSymbol(blockPath,symbol,Property)` returns the value `symbolInfo` of the `Property` for `symbol`.

Examples

Find, read, and edit a Test Sequence block data symbol

This example edits constant `DurationLimit` in the Test Sequence block, changing it to a local variable of `single` data type.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Search for data symbols containing the word `duration`.

```
data_names = sltest.testsequence.findSymbol...
    ('sltestRollRefTestExample/Test Sequence','Name','[Dd]uration',...
    'RegExp','on','Kind','Data')
```

```
data_names = 1x1 cell array
    {'DurationLimit'}
```

3. Read the properties of the `DurationLimit` constant.

```
dlProperties = sltest.testsequence.readSymbol...
    ('sltestRollRefTestExample/Test Sequence',data_names{1})
```

```
dlProperties = struct with fields:
            Kind: 'Data'
           Scope: 'Constant'
        DataType: 'double'
     Description: ''
        Document: ''
    InitialValue: '5'
            Name: 'DurationLimit'
```

```
            Size: ''
             Tag: []
```

4. Change `DurationLimit` to a local variable of `single` data type.

```
sltest.testsequence.editSymbol('sltestRollRefTestExample/Test Sequence',...
    data_names{1},'Scope','Local','DataType','single')
```

5. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`symbol` — Symbol name

character vector

Test Sequence block symbol name, specified as a character vector. Symbols include data, messages, function calls, and triggers used as inputs, outputs, local variables, constants, parameters, or data store memory in the Test Sequence block.

Example: `'DurationLimit'`

`Property` — Symbol property

character vector

Test Sequence block symbol property, specified as a character vector. To find valid properties for a particular symbol, read properties of the symbol using `sltest.testsequence.readSymbol(blockPath,symbol)`.

Example: `'Kind'`

Example: `'Scope'`

Example: `'DataType''Description'`

Output Arguments

`symbolInfo` — Test Sequence block symbol properties

struct | character vector | logical | numeric

Properties of the Test Sequence block symbol.

Example: `struct`

See Also

`sltest.testsequence.addSymbol` | `sltest.testsequence.deleteSymbol` | `sltest.testsequence.findSymbol` | `sltest.testsequence.readStep` | `sltest.testsequence.readTransition`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.readTransition

Read properties of test sequence transition

Syntax

```
transitionInfo = sltest.testsequence.readTransition(blockPath,stepPath,index)
transitionInfo = sltest.testsequence.readTransition(blockPath,stepPath,index,
Property)
```

Description

`transitionInfo = sltest.testsequence.readTransition(blockPath,stepPath,index)` returns a struct `transitionInfo` of properties for the transition `index`, in the test step `stepPath` of the Test Sequence block `blockPath`.

`transitionInfo = sltest.testsequence.readTransition(blockPath,stepPath,index, Property)` returns the value `transitionInfo` of the `Property` for the transition.

Examples

Read Test Step and Transition Properties

This example reads properties of a test step and a transition in a Test Sequence block.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Read the properties of the test step `SetMedPhi`, which is a sub-step of `AttitudeLevels.APEngage_MedRoll`.

```
stepInfo = sltest.testsequence.readStep([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll.SetMedPhi')
```

```
stepInfo = struct with fields:
              Name: 'AttitudeLevels.APEngage_MedRoll.SetMedPhi'
            Action: 'Phi = 11.5;...'
        IsWhenStep: 0
     IsWhenSubStep: 0
       Description: ''
             Index: 1
   TransitionCount: 1
```

3. Read the action of the same step.

```
stepAction = sltest.testsequence.readStep([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll.SetMedPhi','Action')
```

```
stepAction =
    'Phi = 11.5;
```

```
     APEng = false;'
```

4. Read the transition properties for the parent step.

```
xInfo = sltest.testsequence.readTransition([Model,'/Test Sequence'],...
    'AttitudeLevels.APEngage_MedRoll',1)
```

```
xInfo = struct with fields:
         Step: 'AttitudeLevels.APEngage_MedRoll'
        Index: 1
    Condition: 'duration(DD_PhiRef == 0,sec) >= DurationLimit'
     NextStep: 'AttitudeLevels.APEngage_HighRoll'
```

5. Close the model.

```
close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`stepPath` — Test step name and hierarchy level

character vector

Path of the step in the Test Sequence block, specified as a character vector. The path includes the step location in the Test Sequence hierarchy, using `.` to separate hierarchy levels. If the Test Sequence block is using scenarios, add the scenario name that contains the step to the beginning of the step path, for example, `Scenario_2.SystemHeatingTest.InitializeHeating`.

Example: `'SystemHeatingTest.InitializeHeating'`

`index` — Transition index

integer

Integer specifying the transition in the test step to be edited. Corresponds to the integer displayed in the `Transition` cell of the Test Sequence Editor.

Example: 3

`Property` — Transition property

character vector

Transition property, specified as a character vector. To find valid properties for a particular symbol, read properties of the symbol using `sltest.testsequence.readTransition(blockPath,stepPath,index)`.

Example: `'Step'`

Example: `'Index'`

Example: `'Condition'`

Example: `'NextStep'`

Output Arguments

`transitionInfo` — Transition properties

struct | character vector | numeric

Properties of the test step transition.

Example: `struct`

See Also

`sltest.testsequence.addTransition` | `sltest.testsequence.deleteTransition` | `sltest.testsequence.editTransition` | `sltest.testsequence.findStep` | `sltest.testsequence.readStep` | `sltest.testsequence.readSymbol`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.setProperty

Set Test Sequence block properties

Syntax

`sltest.testsequence.setProperty(blockPath,Name,Value)`

Description

`sltest.testsequence.setProperty(blockPath,Name,Value)` sets properties of the Test Sequence block specified by `blockPath` according to one or more `Name`, `Value` pairs. Obtain valid properties using `sltest.testsequence.getProperty`.

Note All properties, except `ActiveStepDataSymbol` and `ScenarioParameter`, are writable. You cannot change the value of `ActiveStepDataSymbol` or `ScenarioParameter` using `sltest.testsequence.setProperty`. You can, however, rename the symbols using `sltest.testsequence.editSymbol`.

Examples

Create a Test Sequence Block and Get Block Properties

This example shows how to create a Test Sequence block programmatically, and get properties for the block, which can be used in `Name`, `Value` pairs for `sltest.testsequence.setProperty`.

1. Create a model and a Test Sequence block.

```
new_system('tsb_model');
sltest.testsequence.newBlock('tsb_model/Test Sequence');
```

2. Get properties of the Test Sequence block.

```
block_properties = sltest.testsequence.getProperty...
    ('tsb_model/Test Sequence')
```

```
block_properties = struct with fields:
                        Name: 'Test Sequence'
                UpdateMethod: 'INHERITED'
                  SampleTime: '-1'
                 Description: ''
                    Document: ''
                         Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                 InputFimath: 'fimath(......'
            EmlDefaultFimath: 'Same as MATLAB Default'
         EnableActiveStepData: 0
         ActiveStepDataSymbol: ''
           ActiveStepDataType: 'String'
```

```
            ScenarioParameter: ''
                    Semantics: 'StateflowCompatible'
```

3. Close the model.

```
close_system('tsb_model',0)
```

Programmatically Return and Set Test Sequence Block Properties

This example gets and sets properties for a Test Sequence block using the programmatic interface.

1. Load the model.

```
Model = 'sltestRollRefTestExample';
load_system(Model)
```

2. Get properties of the Test Sequence block.

```
blockInfo = sltest.testsequence.getProperty([Model '/Test Sequence'])
```

```
blockInfo = struct with fields:
                           Name: 'Test Sequence'
                 UpdateMethod: 'INHERITED'
                   SampleTime: '-1'
                  Description: ''
                     Document: ''
                          Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                  InputFimath: 'fimath(......'
              EmlDefaultFimath: 'Same as MATLAB Default'
          EnableActiveStepData: 0
          ActiveStepDataSymbol: ''
            ActiveStepDataType: 'Enum'
             ScenarioParameter: ''
                     Semantics: 'StateflowCompatible'
```

3. Get the Test Sequence block update method.

```
blockUpdateMethod = sltest.testsequence.getProperty(...
    [Model '/Test Sequence'],'UpdateMethod')
```

```
blockUpdateMethod =
'INHERITED'
```

4. Change the Test Sequence block update method and sample time.

```
sltest.testsequence.setProperty([Model '/Test Sequence'],...
    'UpdateMethod','Discrete','SampleTime','0.1')
```

5. Enable active step data and set the data type to `String`. Use this data type if you have duplicate step names in a single test sequence or across scenarios in the Test Sequence block.

```
sltest.testsequence.setProperty([Model '/Test Sequence'],...
    'EnableActiveStepData',1,'ActiveStepDataType','String');
```

6. Check the changes.

```
blockInfo = sltest.testsequence.getProperty([Model '/Test Sequence'])
```

```
blockInfo = struct with fields:
                          Name: 'Test Sequence'
                  UpdateMethod: 'DISCRETE'
                    SampleTime: '0.1'
                   Description: ''
                      Document: ''
                           Tag: []
        SupportVariableSizing: 1
    SaturateOnIntegerOverflow: 1
                  InputFimath: 'fimath(......'
              EmlDefaultFimath: 'Same as MATLAB Default'
           EnableActiveStepData: 1
           ActiveStepDataSymbol: 'Active_Step'
             ActiveStepDataType: 'String'
              ScenarioParameter: ''
                      Semantics: 'StateflowCompatible'
```

7. Close the model.

```
close_system(Model,0)
```

Setting the Active Step Enumeration Name

The

The `ActiveStepEnumName` is a property of the `ActiveStepDataSymbol`, which is a property of the Test Sequence block. To set the enumeration name of the active step to `NewEnumName`, use this code:

```
ts = sltest.testsequence.getProperty(...
     'model/Test Sequence');
sltest.testsequence.editSymbol(...
     'model/Test Sequence',...
     ts.ActiveStepDataSymbol,...
     'ActiveStepEnumName','NewEnumName')
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Description','Temperature cycle','EnableActiveStepData',true`

Valid name-value pairs are block-specific. Obtain properties for the block using `sltest.testsequence.getProperty`.

See Also

`sltest.testsequence.find` | `sltest.testsequence.getProperty` | `sltest.testsequence.newBlock` | `sltest.testsequence.editSymbol`

Topics

“Programmatically Create a Test Sequence”

Introduced in R2017a

sltest.testsequence.setScenarioControlSource

Package: `sltest.testsequence`

Set source controlling Test Sequence active scenario

Syntax

```
sltest.testsequence.setScenarioControlSource(blockPath,scenarioControlSource)
```

Description

`sltest.testsequence.setScenarioControlSource(blockPath,scenarioControlSource)` sets the source, specified by `scenarioControlSource`, that controls the active scenario for the Test Sequence block specified by `blockPath`.

Examples

Set Source that Controls Active Scenario

Set the Test Sequence block in the `sltestRollRefTestExample` model to use scenarios. Set the source that controls the active scenario for the Test Sequence block in the `sltestRollRefTestModel` to the workspace. Close the model without saving it.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.activateScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

sltest.testsequence.setScenarioControlSource...
   ('sltestRollRefTestExample/Test Sequence',...
    sltest.testsequence.ScenarioControlSource.Workspace);

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioControlSource` — Active scenario control source
sltest.testsequence.ScenarioControlSource.Block (default) | sltest.testsequence.ScenarioControlSource.Workspace

Active scenario control source, specified as either of these enumerated values:

- sltest.testsequence.ScenarioControlSource.Block — The active scenario is controlled by setting it in the Test Sequence block.
- sltest.testsequence.ScenarioControlSource.Workspace — The active scenario is controlled by a workspace variable that specifies the index of the active scenario. The variable can be in the base workspace, model workspace, or data dictionary.

See Also

`getScenarioControlSource` | `sltest.testsequence.useScenario`

Topics
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltest.testsequence.useScenario

Package: `sltest.testsequence`

Convert Test Sequence block to scenario mode

Syntax

```
sltest.testsequence.useScenario(blockPath,scenarioName)
```

Description

`sltest.testsequence.useScenario(blockPath,scenarioName)` converts the Test Sequence block, specified by `blockPath`, to use scenarios. Scenarios are tabs in the Test Sequence editor that enable you to define and run separate test sequences in a single Test Sequence block. After conversion, all existing steps in the block are moved to a scenario tab named `scenarioName`. If you convert a Test Sequence block to use scenarios, you cannot revert the block to non-scenario mode, even if it contains only one scenario.

Examples

Enable Scenarios in Test Sequence Block

Change the Test Sequence block in the `sltestRollRefTestModel` to use scenarios and name the first scenario `Scenario_1`. Then, close the model without saving it.

```
Model = 'sltestRollRefTestExample';
load_system(Model);

sltest.testsequence.useScenario...
   ('sltestRollRefTestExample/Test Sequence',...
   'Scenario_1');

close_system(Model,0)
```

Input Arguments

`blockPath` — Test Sequence block path

string | character vector

Path to a Test Sequence block, including the block name, specified as a string or character vector.

Example: `'FanSpeedTestHarness/Test Sequence'`

`scenarioName` — Name of scenario

character vector | string

Name of the scenario, specified as a string or character vector.

Example: `'Name','Scenario_1'`

See Also

`activateScenario` | `addScenario` | `setScenarioControlSource` | `isUsingScenarios`

Topics

“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2020b

sltestiteration

Create test iteration

Syntax

```
iterObj = sltestiteration
```

Description

`iterObj = sltestiteration` returns a test iteration object, `sltest.testmanager.TestIteration`. You can use the function in the MATLAB command window, or you can use it in the context of a scripted iteration under the **Iterations** section of a test case. For more information on creating test iterations, see “Test Iterations”.

Examples

Iterate Over Signal Editor Scenarios

This example is a script that must be entered in the Scripted Iterations script text box under the **Iterations** section of a test case. Also, the system under test for this example is a model that contains Signal Editor scenarios.

```
% Determine the number of possible iterations
numSteps = length(sltest_signalEditorScenarios);

% Create each iteration
for k = 1 : numSteps
    % Set up a new iteration object
    testItr = sltestiteration;

    % Set iteration settings
    setTestParam(testItr,'SignalEditorScenario',...
      sltest_signalEditorScenarios{k});

    % Add the iteration to run in this test case
    % You can pass in an optional iteration name
    addIteration(sltest_testCase,testItr);
end
```

Output Arguments

`iterObj` — Test iteration

`sltest.testmanager.TestIteration` object

Test iteration, returned as a `sltest.testmanager.TestIteration` object.

See Also

`sltest.testmanager.TestIteration` | Signal Editor

Topics
“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

Classes

sltest.Assessment

Access assessment from set

Description

An `sltest.Assessment` object is an individual assessment result from an `sltest.AssessmentSet` object.

Creation

Create an `sltest.Assessment` object using `result = get(as,index)` where `as` is an `sltest.AssessmentSet` object.

Properties

`BlockPath` — Path to assessment
fully specified Simulink block path

Path to block containing the assessment. For a Test Sequence block, the sub path is a path to the test step containing the assessment. See `Simulink.SimulationData.BlockPath`.

Example: `Simulink.SimulationData.BlockPath`

`Name` — Name of assessment
character vector

Name of the assessment, specified as a character vector. For a `verify()` statement, results in the Test Manager are identified by the name.

Example: `'Simulink:verify_low'`

`Values` — Assessment timeseries output
timeseries

Output of the assessment, specified as a timeseries.

Example: `Values: [1×1 timeseries]`

`Result` — Assessment result
character vector

Result of the assessment.

Example: `'Fail'`

Object Functions

disp	Display results of sltest.AssessmentSet or sltest.Assessment
find	Find assessments in sltest.AssessmentSet or sltest.Assessment object
plot	Plot simulation output data in the Simulation Data Inspector

Examples

Get Assessments from a Simulation

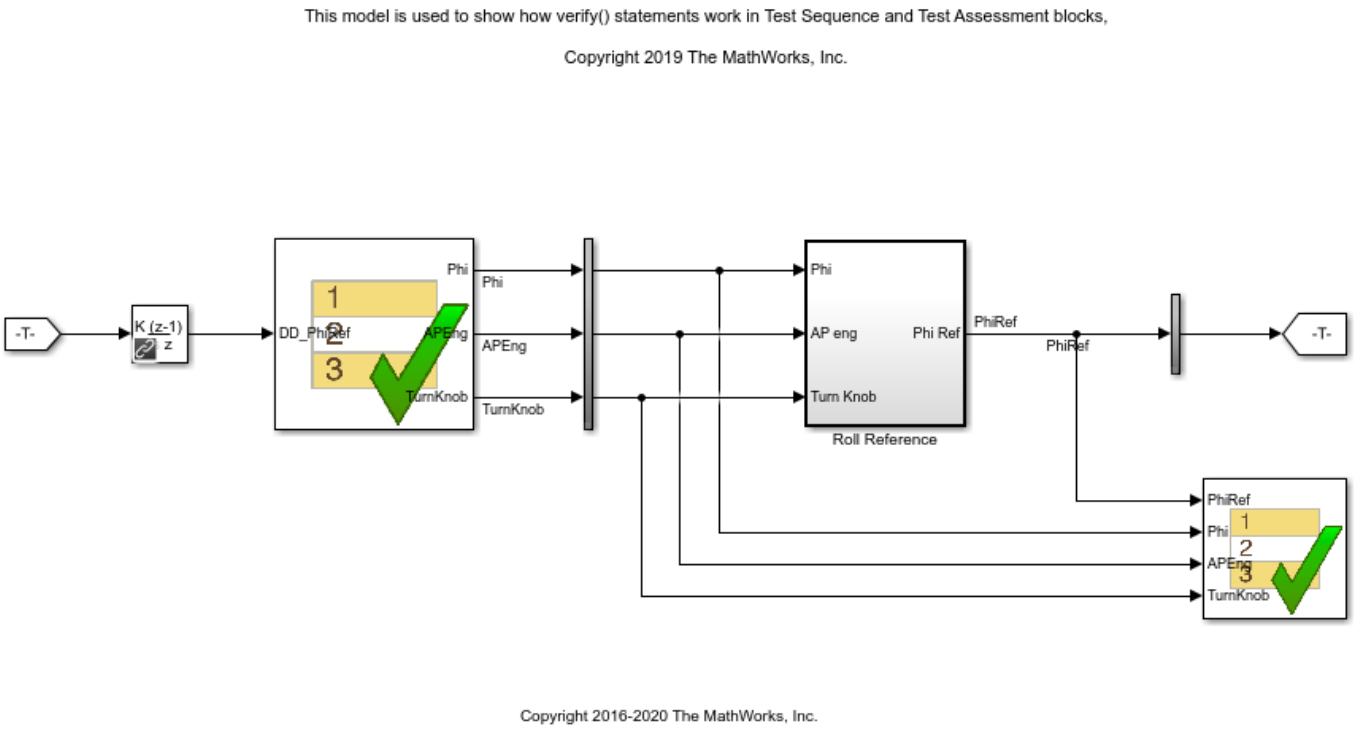
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

See Also

`sltest.getAssessments` | `sltest.AssessmentSet`

Introduced in R2016b

sltest.AssessmentSet

Access a set of assessments from a simulation

Description

The function `as = sltest.getAssessments('model')` creates an `sltest.AssessmentSet` object `as` containing the assessments for `model`. Individual assessment results are obtained using `result = get(as,index)`. `getSummary(as)` returns an overview of the assessment set. `disp` returns an overview of individual assessment results.

Creation

Create an `sltest.AssessmentSet` object using `sltest.getAssessments`.

Object Functions

disp	Display results of sltest.AssessmentSet or sltest.Assessment
find	Find assessments in sltest.AssessmentSet or sltest.Assessment object
get	Get assessment of sltest.AssessmentSet
getSummary	Get summary of sltest.AssessmentSet

Examples

Get Assessments from a Simulation

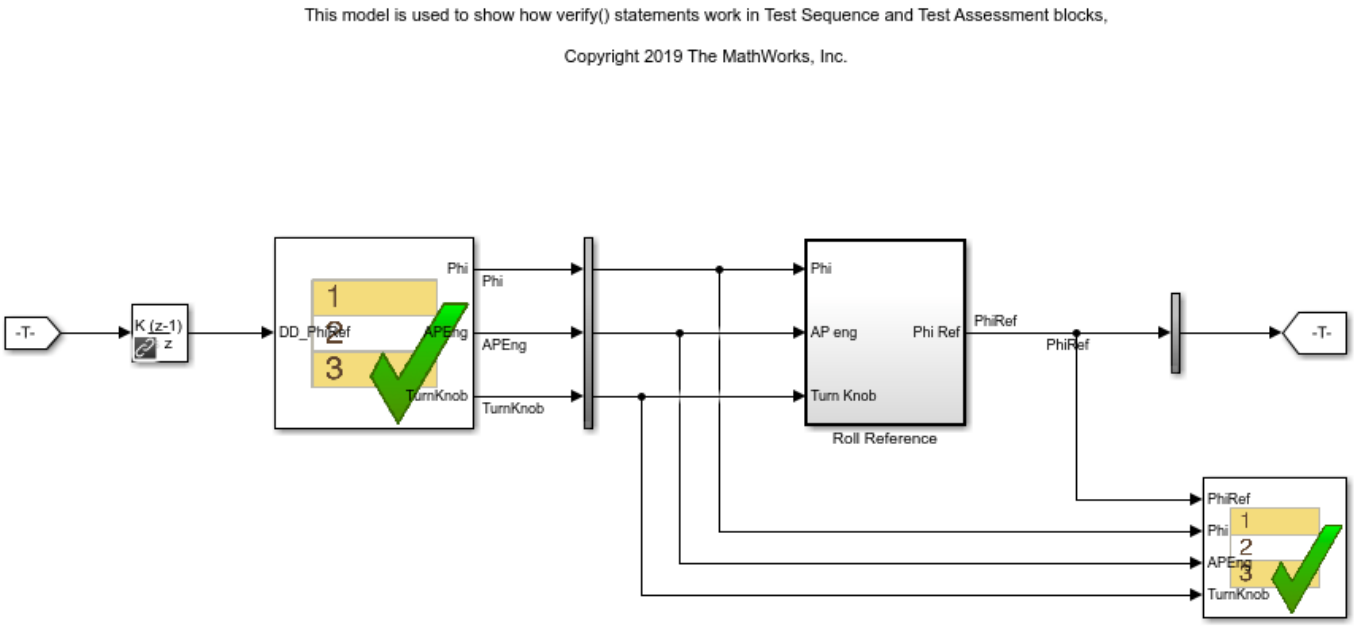
This example shows how to simulate a model with `verify` statements and obtain assessment results via the programmatic interface.

Get the Assessment Set and One Assessment Result

1. Open the model.

```
open_system('sltestRollRefTestExample.slx')
```

```
% Turn the command line warning off for verify() statements
warning off Stateflow:Runtime:TestVerificationFailed
```



2. Run the model.

```
s = sim('sltestRollRefTestExample');
```

3. Get the assessment set.

```
as = sltest.getAssessments('sltestRollRefTestExample');
```

4. Get assessment 3 from the assessment set.

```
as3 = get(as,3);
```

Display Results of the Assessment Set and Assessment Result

1. Get summary of the assessment set.

```
asSummary = getSummary(as)
```

```
asSummary =

  struct with fields:

      Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail
```

2. Display the result of assessment 3.

```
disp(as3)
```

```
  sltest.Assessment
  Package: sltest

  Properties:
         Name: 'Simulink:verify_high'
    BlockPath: [1x1 Simulink.SimulationData.BlockPath]
       Values: [1x1 timeseries]
       Result: Fail
```

3. Find untested or failed results in the assessment set.

```
asFailUntested = find(as,'Result',slTestResult.Fail,'-or',...
    'Result',slTestResult.Untested)
```

```
asFailUntested =

  sltest.AssessmentSet
  Summary:
       Total: 4
    Untested: 3
      Passed: 0
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    2 : Untested 'Simulink:verify_high'
    3 : Untested 'Simulink:verifyTKLow'
    4 : Untested 'Simulink:verifyTKNormal'

  Failed Assessments (first 10):
    1 : Fail 'Simulink:verify_high'
```

4. Find assessments under the Test Assessment block, using a regular expression.

```
assessBlock = find(as,'-regexp','BlockPath','.[Aa]ssess')
```

```
assessBlock =

  sltest.AssessmentSet
  Summary:
       Total: 6
    Untested: 3
      Passed: 2
      Failed: 1
      Result: Fail


  Untested Assessments (first 10):
    4 : Untested 'Simulink:verify_high'
    5 : Untested 'Simulink:verifyTKLow'
    6 : Untested 'Simulink:verifyTKNormal'

  Passed Assessments (first 10):
```

```
    1 : Pass 'Simulink:verify_normal'
    2 : Pass 'Simulink:verify_low'

  Failed Assessments (first 10):
    3 : Fail 'Simulink:verify_high'
```

Re-enable warnings

```
warning on Stateflow:Runtime:TestVerificationFailed
```

See Also

`sltest.getAssessments` | `sltest.Assessment`

Introduced in R2016b

sltest.io.SimulinkTestSpreadsheet class

Package: `sltest.io`

Read spreadsheet in format used by Simulink Test

Description

`sltest.io.SimulinkTestSpreadsheet` inherits from the `Simulink.io.FileType` base class. It reads spreadsheets formatted in a format used as input to Simulink Test. To import spreadsheets, use this class.

```
classdef SimulinkTestSpreadsheet < Simulink.io.FileType
```

Note The same methods, operators, functions, and examples for `Simulink.io.FileType` apply to `sltest.io.SimulinkTestSpreadsheet`.

The `sltest.io.SimulinkTestSpreadsheet` class is a `handle` class.

Class Attributes

`Abstract`	`false`
`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Properties

`FileName` — File name

character array

File name of the spreadsheet file that contains the signals to import for use as test inputs, specified as a character array.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`

See Also

`Simulink.io.FileType` | `Simulink.io.SignalBuilderSpreadsheet`

Topics

“Microsoft Excel Import, Export, and Logging Format”
“Import Custom File Type”
“Create Custom File Type for Import to Signal Editor”

Introduced in R2021a

sltest.plugins.ModelCoveragePlugin class

Package: `sltest.plugins`

Collect model coverage using the MATLAB Unit Test framework

Description

The `sltest.plugins.ModelCoveragePlugin` creates coverage reports and allows setting coverage metrics for running Simulink Test and MATLAB-based Simulink test cases with the MATLAB Unit Test framework. Set desired `sltest.plugins.ModelCoveragePlugin` property values, and add the instance of the `sltest.plugins.ModelCoveragePlugin` to the test runner. For MATLAB-based Simulink tests, calls to the `simulate` method collect coverage during the test run. These coverage results are available in the Test Manager results. If you have a license for Parallel Computing Toolbox, you can use the `ModelCoveragePlugin` with parallel test execution.

Creation

`mcp = sltest.plugins.ModelCoveragePlugin(Properties)` creates a model coverage plugin object `mcp` with specified properties.

You can also import the plugin, then use the class name to create an instance of the plugin:

```
import sltest.plugins.ModelCoveragePlugin
mcp = ModelCoveragePlugin(Properties)
```

Properties

`RecordModelReferenceCoverage` — Specify coverage collection for referenced models

false | true

Property that disables or enables coverage collection for models referenced by Model blocks.

Example: `'RecordModelReferenceCoverage',true`

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`

`Collecting` — Specify coverage collection options

`CoverageMetrics` object

Property that specifies coverage collection options with a `sltest.plugins.coverage.CoverageMetrics` object.

Example: `'Collecting',covSettings`

Example: `'Collecting',CoverageMetrics('MCDC',true,'Decision',false,'Condition',false)`

Attributes:

SetAccess	public
GetAccess	public

`Producing` — Specify model coverage report options
`ModelCoverageReport` object

Property that specifies coverage report options with an `sltest.plugins.coverage.ModelCoverageReport`.

Example: `'Producing',mcr`

Example: `'Producing',ModelCoverageReport('reports/coverage/modelcoverage')`

Attributes:

SetAccess	public
GetAccess	public

Examples

Collect Model Coverage with MATLAB® Unit Test

This example shows how to use MATLAB® Unit Test to collect coverage for tests run on a Simulink® model.

You run the tests in the `AutopilotTestFile.mldatx` test file while collecting modified condition/decision (MCDC) coverage.

1. Import the test runner and the plugins for the example.

```
import matlab.unittest.TestRunner
import sltest.plugins.ModelCoveragePlugin
import sltest.plugins.coverage.CoverageMetrics
```

2. Create the model coverage plugin object and the coverage metrics object. In this example, you use MCDC coverage and record coverage for referenced models.

```
mcdcMet = CoverageMetrics('Decision',false,'Condition',false,'MCDC',true);

covSettings = ModelCoveragePlugin('RecordModelReferenceCoverage',true,...
    'Collecting',mcdcMet);
```

3. Create a MATLAB® Unit Test test suite from the test file.

```
tf = sltest.testmanager.TestFile('AutopilotTestFile.mldatx');
APSuite = testsuite(tf.FilePath);
```

4. Create the test runner without any plugins, then add the coverage plugin to the runner.

```
APRun = TestRunner.withNoPlugins();
addPlugin(APRun,covSettings);
```

5. Run the suite.

```
% Turn off the command line warnings.
warning off Stateflow:cdr:VerifyDangerousComparison
```

```
warning off Stateflow:Runtime:TestVerificationFailed

APResult = run(APRun,APSuite)

Coverage Report for RollAutopilotMdlRef/Roll Reference
    C:\TEMP\Bdoc21b_1757077_3096\ib2EDA31\28\tp18502197_bb34_45ad_9dca_7a21786ed875.html

APResult =
  TestResult with properties:

          Name: 'AutopilotTestFile > Basic Design Test Cases/Requirement 1.3 Test'
        Passed: 0
        Failed: 1
    Incomplete: 0
      Duration: 6.6250
       Details: [1x1 struct]

Totals:
   0 Passed, 1 Failed, 0 Incomplete.
   6.625 seconds testing time.
```

6. You can open the link in the command-line output to view the coverage report.

Cleanup. Clear results and re-enable warnings.

```
warning on Stateflow:cdr:VerifyDangerousComparison
warning on Stateflow:Runtime:TestVerificationFailed

sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

`sltest.plugins.coverage.CoverageMetrics` |
`sltest.plugins.coverage.ModelCoverageReport` |
`sltest.plugins.MATLABTestCaseIntegrationPlugin` |
`sltest.plugins.ToTestManagerLog`

Topics

“Test Models Using MATLAB Unit Test”
“Collect Coverage Using MATLAB-Based Simulink Tests”
“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2018a

sltest.plugins.MATLABTestCaseIntegrationPlugin class

Package: `sltest.plugins`

Add simulation and test results for MATLAB-based Simulink tests to Test Manager

Description

The `sltest.plugins.MATLABTestCaseIntegrationPlugin` adds simulation and test results to the Test Manager test case results for MATLAB-based Simulink tests. A MATLAB-based Simulink test is a MATLAB code (`.m`) file that is derived from the `sltest.TestCase` class. When you add this plugin to a `TestRunner` object and run the simulation, these results are added to the Test Manager:

- Test results are created for each test suite element of an `sltest.TestCase` class when you run the test case at the MATLAB command line.
- By default, criteria results are added for suite element failures from the `fatalAssertSignalsMatch`, `assertSignalsMatch`, `assumeSignalsMatch`, and `verifySignalsMatch` qualification methods. A comparison run for these failures is added under the corresponding test case result. For passing comparison runs, add the `matlab.unittest.plugins.DiagnosticsOutputPlugin` with passing diagnostics enabled to the `TestRunner`.

Simulation results, which are created using the `simulate` method, are added to the corresponding test case results.

The `sltest.plugins.MATLABTestCaseIntegrationPlugin` class is a `handle` class.

Creation

To use the `MATLABTestCaseIntegrationPlugin`, add it to the `TestRunner` object:

```
import sltest.plugins.MATLABTestCaseIntegrationPlugin
testRunner.addPlugin...
   (sltest.plugins.MATLABTestCaseIntegrationPlugin());
```

Examples

Prepare a MATLAB-Based Simulink Test for Integration to the Test Manager

1. Import the needed plugins and the test runner.

   ```
   import matlab.unittest.TestRunner
   import matlab.unittest.plugins.DiagnosticsOutputPlugin
   import sltest.plugins.MATLABTestCaseIntegrationPlugin
   import sltest.plugins.ToTestManagerLog
   ```
2. Create a `TestSuite` array and basic `TestRunner` object for a test script file, such as one named `mySltestTestCaseFile.m`.

```
suite  = testsuite('mySltestTestCaseFile.m');
runner = TestRunner.withNoPlugins;
```

3. Add a `MATLABTestCaseIntegrationPlugin` to the `TestRunner` object.

```
runner.addPlugin(MATLABTestCaseIntegrationPlugin);
```

4. Run the suite to add the failing diagnostics and simulation results to the Test Manager.

```
results = runner.run(suite);
```

5. Add the passing diagnostics to the **Logs** section of the test results in the Test Manager.

```
runner.addPlugin(DiagnosticsOutputPlugin(ToTestManagerLog(),...
    'IncludingPassingDiagnostics',true));
```

6. Rerun the suite to add the diagnostics and simulation results to the Test Manager.

```
results = runner.run(suite);
```

See Also

`sltest.TestCase` | `assumeSignalsMatch` | `assertSignalsMatch` | `fatalAssertSignalsMatch` | `verifySignalsMatch` | `simulate` | `matlab.unittest.plugins.DiagnosticsOutputPlugin` | `sltest.plugins.ModelCoveragePlugin` | `sltest.plugins.ToTestManagerLog`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2020b

sltest.plugins.ToTestManagerLog class

Package: `sltest.plugins`

Output stream to write text to Test Manager result Logs for MATLAB-based Simulink tests

Description

The `sltest.plugins.ToTestManagerLog` creates and writes a text output stream of log information to the **Logs** section of test results in the Test Manager for the current `TestCaseResult`. Use this plugin with the `matlab.unittest.plugins.DiagnosticsOutputPlugin`. The `ToTestManagerLog` plugin generates output only for MATLAB-based Simulink tests, which are derived from `sltest.TestCase` objects.

The `sltest.plugins.ToTestManagerLog` class is a `handle` class.

Creation

Use `matlab.sltest.plugins.ToTestMangerLog()` with the `matlab.unittest.plugins.DiagnosticsOutputPlugin` to write the diagnostics output to the Test Manager logs. For example,

```
runner.addPlugin(DiagnosticsOutputPlugin...
   (ToTestManagerLog());
```

Examples

Write MATLAB-Based Simulink Test Log Information to the Test Manager

1. Import the needed plugins and the test runner.

   ```
   import matlab.unittest.TestRunner
   import matlab.unittest.plugins.DiagnosticsOutputPlugin
   import sltest.plugins.MATLABTestCaseIntegrationPlugin
   import sltest.plugins.ToTestManagerLog
   ```

2. Create a `TestSuite` array and basic `TestRunner` object for a test script file, such as one named `mySltestTestCaseFile.m`.

   ```
   suite = testsuite('mySltestTestCaseFile.m');
   runner = TestRunner.withNoPlugins;
   ```

3. Add a `MATLABTestCaseIntegrationPlugin` to the `TestRunner` object.

   ```
   runner.addPlugin(MATLABTestCaseIntegrationPlugin);
   ```

4. Run the test suite to add the failing diagnostics and simulation results to the Test Manager.

   ```
   results = runner.run(suite);
   ```

5. Add the passing diagnostics to the **Logs** section of the test results in the Test Manager.

```
runner.addPlugin(DiagnosticsOutputPlugin(ToTestManagerLog(),...
   'IncludingPassingDiagnostics',true));
```

6 Rerun the suite to add the diagnostics and simulation results to the Test Manager.

```
results = runner.run(suite);
```

See Also

`sltest.TestCase` | `matlab.unittest.plugins.DiagnosticsOutputPlugin` | `sltest.plugins.ModelCoveragePlugin` | `sltest.plugins.MATLABTestCaseIntegrationPlugin`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2020b

sltest.plugins.TestManagerResultsPlugin class

Package: `sltest.plugins`

Generate enhanced test results with the MATLAB Unit Test framework

Description

Use the `sltest.plugins.TestManagerResultsPlugin` class to include Test Manager results when using the MATLAB Unit Test framework to run Simulink Test files. Test Case and Test Iteration results appear in the **Details** field of each `TestResult` object.

To publish Test Manager results, configure your test file for reporting and add the `TestReportPlugin` and `TestManagerResultsPlugin` classes to the `TestRunner` object. Test Case and Test Iteration results appear in the **Details** section of the MATLAB Test Report. For more information, see “Test a Model for Continuous Integration Systems”.

Creation

`tmr = sltest.plugins.TestManagerResultsPlugin` creates a plugin object `tmr` that directs the `TestRunner` to produce an enhanced test result.

You can also import the plugin, and then use the class name to create the object:

```
import sltest.plugins.TestManagerResultsPlugin
tmr = TestManagerResultsPlugin
```

Input Arguments

Name-Value Pair Options

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'ExportToFile','myfile'`

`ExportToFile` — Save results in Simulink Test MLDATX results file
character vector

Optional file to save results in Simulink Test MLDATX format, specified as the comma-separate pair consisting of `'ExportToFile'` and the file name.

You can open the MLDATX results file in the Test Manager by clicking the **Import** button on the toolbar.

Example: `'ExportToFile','myfile'`

Example: `'ExportToFile','myfile.mldatx'`

Examples

Include Test Manager Results in MATLAB Unit Test Results

This example shows how to include Test Manager Results in a `TestResult` object produced through the MATLAB Unit Test framework.

The test case creates a square wave input to a controller subsystem and sweeps through 25 iterations of parameters `a` and `b`. The test compares the `alpha` output to a baseline with a tolerance of `0.0046`. Output that exceeds this tolerance fails the test.

1. Set the path to the test file.

```
testfile = 'f14ParameterSweepTest.mldatx';
```

2. Create the `TestSuite` object.

```
import matlab.unittest.TestSuite
suite = testsuite(testfile);
```

3. Create the `TestRunner` object.

```
import matlab.unittest.TestRunner
runner = TestRunner.withNoPlugins;
```

4. Add the `TestManagerResultsPlugin` to the `TestRunner.`

```
tmr = sltest.plugins.TestManagerResultsPlugin;
addPlugin(runner,tmr)
```

5. Run the test.

```
results = run(runner,suite);
```

6. View results of 19th iteration, a test failure.

```
failure = results(19)
```

```
failure =
  TestResult with properties:

          Name: 'f14ParameterSweepTest > New Test Suite 1/Iterations Parameter Sweep(ScriptedIte
        Passed: 0
        Failed: 1
    Incomplete: 0
      Duration: 1.2492
       Details: [1×1 struct]

Totals:
   0 Passed, 1 Failed (rerun), 0 Incomplete.
   1.2492 seconds testing time.
```

In the `Details` field of the `TestResult` object, test Iteration results appear as a `SimulinkTestManagerResults` object. The `SimulinkTestManagerResults` object contains information such as the type of test case, the cause of the failure, and the values of the parameters that led to the failure.

```
failure.Details.SimulinkTestManagerResults.TestCaseType
```

```
ans =
'Baseline Test'

failure.Details.SimulinkTestManagerResults.CauseOfFailure

ans =
'Failed criteria: Baseline'

failure.Details.SimulinkTestManagerResults.IterationSettings.variableParameters(1)

ans = struct with fields:
      parameterName: 'a'
             source: 'base workspace'
              value: 2.6000
       displayValue: '2.6'
    simulationIndex: 1


failure.Details.SimulinkTestManagerResults.IterationSettings.variableParameters(2)

ans = struct with fields:
      parameterName: 'b'
             source: 'base workspace'
              value: 66
       displayValue: '66'
    simulationIndex: 1
```

See Also

`matlab.unittest.plugins.TestReportPlugin`

Topics

“Test Models Using MATLAB Unit Test”
“Export Test Results”
“Output Results for Continuous Integration Systems”

Introduced in R2018b

sltest.plugins.coverage.CoverageMetrics class

Package: `sltest.plugins.coverage`

Specify coverage metrics for tests run with MATLAB Unit Test framework

Description

Use the `sltest.plugins.coverage.CoverageMetrics` class to specify coverage metrics. Pass the coverage metrics object to the model coverage plugin object.

The `sltest.plugins.coverage.CoverageMetrics` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`cmo = sltest.plugins.coverage.CoverageMetrics(Properties)` creates a coverage metrics object with specified properties.

You can also import the plugin, then use the class name to create the object:

```
import sltest.plugins.coverage.CoverageMetrics
cmo = CoverageMetrics(Properties)
```

Properties

`Decision` — Decision coverage

true (default) | false

Enable or disable decision coverage collection.

Example: `'Decision',true`

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`

`Condition` — Condition coverage

false (default) | true

Enable or disable condition coverage collection.

Example: `'Condition',true`

Attributes:

SetAccess	public
GetAccess	public

MCDC — MCDC coverage

false (default) | true

Enable or disable modified condition / decision coverage collection.

Example: `'MCDC',true`

Attributes:

SetAccess	public
GetAccess	public

LookupTable — Lookup table coverage

false (default) | true

Enable or disable lookup table coverage collection.

Example: `'LookupTable',true`

Attributes:

SetAccess	public
GetAccess	public

SignalRange — Signal range coverage

false (default) | true

Enable or disable signal range coverage collection.

Example: `'SignalRange',true`

Attributes:

SetAccess	public
GetAccess	public

SignalSize — Signal size coverage

false (default) | true

Enable or disable signal size coverage collection.

Example: `'SignalSize',true`

Attributes:

SetAccess	public
GetAccess	public

SimulinkDesignVerifier — Simulink Design Verifier block coverage

false (default) | true

Enable or disable Simulink Design Verifier block coverage collection.

Example: `'SimulinkDesignVerifier',true`

Attributes:

SetAccess	public
GetAccess	public

`SaturationOnIntegerOverflow` — Block saturation on integer overflow

false (default) | true

Enable or disable recording the number of times the block saturates on integer overflow.

Example: `'SaturationOnIntegerOverflow',true`

Attributes:

SetAccess	public
GetAccess	public

`RelationalBoundary` — Relational boundary coverage

false (default) | true

Enable or disable relational boundary coverage.

Example: `'RelationalBoundary',true`

Attributes:

SetAccess	public
GetAccess	public

Examples

Collect Model Coverage with MATLAB® Unit Test

This example shows how to use MATLAB® Unit Test to collect coverage for tests run on a Simulink® model.

You run the tests in the `AutopilotTestFile.mldatx` test file while collecting modified condition/decision (MCDC) coverage.

1. Import the test runner and the plugins for the example.

```
import matlab.unittest.TestRunner
import sltest.plugins.ModelCoveragePlugin
import sltest.plugins.coverage.CoverageMetrics
```

2. Create the model coverage plugin object and the coverage metrics object. In this example, you use MCDC coverage and record coverage for referenced models.

```
mcdcMet = CoverageMetrics('Decision',false,'Condition',false,'MCDC',true);

covSettings = ModelCoveragePlugin('RecordModelReferenceCoverage',true,...
    'Collecting',mcdcMet);
```

3. Create a MATLAB® Unit Test test suite from the test file.

```
tf = sltest.testmanager.TestFile('AutopilotTestFile.mldatx');
APSuite = testsuite(tf.FilePath);
```

4. Create the test runner without any plugins, then add the coverage plugin to the runner.

```
APRun = TestRunner.withNoPlugins();
addPlugin(APRun,covSettings);
```

5. Run the suite.

```
% Turn off the command line warnings.
warning off Stateflow:cdr:VerifyDangerousComparison
warning off Stateflow:Runtime:TestVerificationFailed

APResult = run(APRun,APSuite)

Coverage Report for RollAutopilotMdlRef/Roll Reference
    C:\TEMP\Bdoc21b_1757077_3096\ib2EDA31\28\tp18502197_bb34_45ad_9dca_7a21786ed875.html

APResult =
  TestResult with properties:

          Name: 'AutopilotTestFile > Basic Design Test Cases/Requirement 1.3 Test'
        Passed: 0
        Failed: 1
    Incomplete: 0
      Duration: 6.6250
       Details: [1x1 struct]

Totals:
   0 Passed, 1 Failed, 0 Incomplete.
   6.625 seconds testing time.
```

6. You can open the link in the command-line output to view the coverage report.

Cleanup. Clear results and re-enable warnings.

```
warning on Stateflow:cdr:VerifyDangerousComparison
warning on Stateflow:Runtime:TestVerificationFailed

sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

`sltest.plugins.ModelCoveragePlugin` | `sltest.plugins.coverage.ModelCoverageReport`

Topics

“Test Models Using MATLAB Unit Test”
“Types of Model Coverage” (Simulink Coverage)
“Model Objects That Receive Coverage” (Simulink Coverage)

Introduced in R2018a

sltest.plugins.coverage.ModelCoverageReport class

Package: `sltest.plugins.coverage`
Superclasses: `matlab.mixin.Heterogeneous`

Specify model coverage report details for tests run with MATLAB Unit Test

Description

Use the `sltest.plugins.coverage.ModelCoverageReport` class to specify coverage report details and file location for tests run with the MATLAB Unit Test framework. If you have a license for Parallel Computing Toolbox, you can use the `ModelCoverageReport` with parallel test execution.

The `sltest.plugins.coverage.ModelCoverageReport` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`mcr = sltest.plugins.coverage.ModelCoverageReport(path)` creates a model coverage report created after the test runs. The input `path` specifies where the report is saved.

You can also import the plugin, then use the class name to create the object:

```
import sltest.plugins.coverage.ModelCoverageReport
mcr = ModelCoverageReport(path)
```

Use `ModelCoveragePlugin` to specify report properties before you run the test:

1. Create a `ModelCoverageReport`.
2. Create a `ModelCoveragePlugin`, and specify the `ModelCoverageReport` by using the `Producing` property.
3. Add the `ModelCoveragePlugin` to the `TestRunner`.
4. Run the test.

Examples

Set Model Coverage Report Properties for MATLAB Unit Test

This example shows how to specify model coverage report properties when running a Simulink® Test™ test file with MATLAB® Unit Test.

To run the example, set the current folder to a writable folder.

1. Import classes for the example.

```
import matlab.unittest.TestSuite
import matlab.unittest.TestRunner
import sltest.plugins.ModelCoveragePlugin
import sltest.plugins.coverage.ModelCoverageReport
```

2. Create a test suite and test runner.

Create a MATLAB Unit Test suite from `AutopilotTestFile`. Also create a test runner.

```
ste = testsuite('AutopilotTestFile.mldatx');
trn = TestRunner.withNoPlugins;
```

3. Specify the report location.

Create a subfolder in the current folder, and create a `ModelCoverageReport` object specifying the new folder.

```
mkdir('./exReports/coverage');
path = './exReports/coverage';
mcr = ModelCoverageReport(path)
```

```
mcr =
  ModelCoverageReport with no properties.
```

4. Create a Model Coverage Plugin.

Use the `Producing` property to specify the `ModelCoverageReport` when creating the plugin.

```
mc = ModelCoveragePlugin('Producing',mcr)
```

```
mc =
  ModelCoveragePlugin with properties:

    RecordModelReferenceCoverage: '<default>'
                 MetricsSettings: '<default>'
```

5. Add the coverage plugin to the test runner, and run the test.

```
addPlugin(trn,mc);

% Turn off the command line warnings.
warning off Stateflow:cdr:VerifyDangerousComparison
warning off Stateflow:Runtime:TestVerificationFailed

run(trn,ste)
```

```
Coverage Report for RollAutopilotMdlRef/Roll Reference
    .\exReports\coverage\tp9244aab6_bb39_4a85_838c_5a6daa2ba708.html

ans =
  TestResult with properties:

            Name: 'AutopilotTestFile > Basic Design Test Cases/Requirement 1.3 Test'
          Passed: 0
          Failed: 1
```

```
    Incomplete: 0
      Duration: 14.6698
       Details: [1x1 struct]

Totals:
   0 Passed, 1 Failed, 0 Incomplete.
   14.6698 seconds testing time.
```

Cleanup. Remove temporary folder and clear variables. Enable warnings.

```
warning on Stateflow:cdr:VerifyDangerousComparison
warning on Stateflow:Runtime:TestVerificationFailed

rmdir('./exReports','s');
clear('ste','trn','fldr','path','mcr','mc');
```

See Also

`sltest.plugins.coverage.CoverageMetrics` | `sltest.plugins.ModelCoveragePlugin`

Topics

"Test Models Using MATLAB Unit Test"

Introduced in R2018b

sltest.TestCase class

Package: `sltest`

Test case class for MATLAB-based Simulink tests integrated with Test Manager

Description

The `sltest.TestCase` class enables authoring MATLAB-based Simulink tests. You define a MATLAB-based Simulink test in a `.m` file that inherits from `sltest.TestCase`. Since `sltest.TestCase` is a `matlab.unittest.TestCase`, the `matlab.unittest.TestCase` methods and behaviors are available when authoring a MATLAB-based Simulink test.

The `sltest.TestCase` class is a `handle` class.

Class Attributes

`Abstract`	`true`

For information on class attributes, see “Class Attributes”.

Creation

To create a test that you can load, run, and analyze its results in the Test Manager, create a class definition file that inherits from `sltest.TestCase`. The file contains methods that define the test case.

For debugging at the command line without having to run an `sltest.TestCase` test, use the `forInteractiveUse` static method to create a `TestCase`.

Methods

Public Methods

In addition to the listed methods, the `sltest.TestCase` class can use the methods of the `matlab.unittest.TestCase` class.

loadSystem	Load model for MATLAB-based Simulink test
simulate	Simulate model or Simulink.SimulationInput for MATLAB-based Simulink test
createSimulationInput	Create simulation input object
createTemporaryFolder	Create temporary folder
sltest.TestCase.forInteractiveUse	Create test case for interactive use
assumeSignalsMatch	Assume two data sets are equivalent
assertSignalsMatch	Assert two data sets are equivalent
fatalAssertSignalsMatch	Fatally assert two data sets are equivalent
verifySignalsMatch	Verify two sets of data are equivalent

Examples

Test Case File Enabled for Use in the Test Manager

This `myBaselineTest.m` class definition file defines a test case that compares a set of baseline values and values produced from a simulation using the `simulate` method. See "Using MATLAB-Based Simulink Tests in the Test Manager" for the full example that includes the baseline data file and other files and commands required to run this test and then load it into the Test Manager.

The first line of the file shows the inheritance from `sltest.TestCase`. The method section, which has a Test attribute, contains the `testOne` test case. The test case loads a model, sets some variable values, simulates the harness, and tests whether the simulation and baseline signals match.

```
classdef myBaselineTest < sltest.TestCase
   methods (Test)
      function testOne(testCase)
         testCase.loadSystem('sltest_ratelim');

         in = testCase.createSimulationInput('sltest_ratelim',...
            'WithHarness','sltest_ratelim_Harness1');
         in = in.setVariable('t_gain',[0;2],...
            'Workspace','sltest_ratelim');
         in = in.setVariable('u_gain',[-0.02;-4.02],...
            'Workspace','sltest_ratelim');

         simOut = testCase.simulate(in);
         testCase.verifySignalsMatch(simOut,'baseline1.mat');
      end
   end
end
```

See Also

`matlab.unittest.TestCase` | `sltest.plugins.ModelCoveragePlugin` | `sltest.plugins.MATLABTestCaseIntegrationPlugin` | `sltest.plugins.ToTestManagerLog`

Topics

"Test Models Using MATLAB-Based Simulink Tests"
"Using MATLAB-Based Simulink Tests in the Test Manager"
"Collect Coverage Using MATLAB-Based Simulink Tests"

Introduced in R2020b

sltest.harness.SimulationInput class

Package: `sltest.harness`

Create test harness simulation input for MATLAB-based Simulink tests

Description

Use objects of the `sltest.harness.SimulationInput` to specify the changes applied to a test harness during simulation. After simulation, the harness is restored to its state before simulation. This object is used with MATLAB-based Simulink tests. `sltest.harness.SimulationInput` is a subclass of `Simulink.SimulationInput`.

The `sltest.harness.SimulationInput` class is a `handle` class.

Class Attributes

`Sealed`	`true`
`RestrictsSubclassing`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`in = sltest.harness.SimulationInput(owner,name)` creates and returns a `SimulationInput` object and sets the HarnessOwner property to `owner` and the HarnessName property to `name`.

Alternatively, use the `createSimulationInput` method of `sltest.TestCase` to create a `sltest.harness.SimulationInput` object.

Properties

`HarnessOwner` — Model or component that owns the harness

string | character vector | model handle | component handle

Model or component that owns the harness, specified as a string, character vector, or a model or component handle.

`HarnessName` — Name of the test harness

string | character vector

Name of the test harness for which to a create simulation input object, specified as a string or character vector.

In addition to `HarnessName` and `HarnessOwner` properties, `sltest.harness.SimulationInput` has the properties of `Simulink.SimulationInput`.

Methods

Public Methods

`sltest.harness.SimulationInput` has the same methods as `Simulink.SimulationInput`.

setModelParameter	Set model parameters to be used for a specific simulation through SimulationInput object, in
setBlockParameter	Set block parameters to be used for a specific simulation through SimulationInput object, in
setInitialState	Set initial state to be used for a specific simulation through SimulationInput object, in
setExternalInput	Set external inputs for a simulation through SimulationInput object, in
setVariable	Set variables for a simulation through SimulationInput object, in
setPreSimFcn	Specify a MATLAB function to run before start of each simulation through SimulationInput object, in
setPostSimFcn	Specify a MATLAB function to run after each simulation is complete through SimulationInput object, in
applyToModel	Apply changes to the model specified through a SimulationInput object, in
validate	Validate the contents of the SimulationInput object, in
loadVariablesFromMATFile	Load variables from MAT-file into a Simulink.SimulationInput object, in

Examples

Define Baseline Test in an M-File

This `myBaselineTest.m` class definition file defines a test case that compares a set of baseline values and values produced from a simulation. This example uses a `SimulationInput` object to set harness variable values. See “Using MATLAB-Based Simulink Tests in the Test Manager” for the full example that includes the baseline data file and other files and commands required to run this test.

The first line of the file shows the inheritance from `sltest.TestCase`. The method function section, which has a Test attribute, contains the `testOne` test case. The test case loads a model, creates a input object, sets some variable values, simulates the harness, and verifies whether the simulation and baseline signals match.

```
classdef myBaselineTest < sltest.TestCase
   methods (Test)
      function testOne(testCase)
         testCase.loadSystem('sltest_ratelim');
         in = sltest.harness.SimulationInput('sltest_ratelim',...
            'sltest_ratelim_Harness1');
         in = in.setVariable('t_gain',[0;2],
            'Workspace','sltest_ratelim');
         in = in.setVariable('u_gain',[-0.02;-4.02],
            'Workspace','sltest_ratelim');
         simOut = testCase.simulate(in);
         testCase.verifySignalsMatch(simOut,'baseline1.mat');
      end
   end
end
```

Then, at the command line, create a test suite, a test runner to run the test, add coverage, and push the test results to the Test Manager. Open the Test Manager to view the results.

```
suite = testsuite('myBaselineTest');
runner = testrunner("textoutput");
runner.addModelCoverage;
runner.addSimulinkTestResults;
runner.run(suite);
```

See Also

Simulink.SimulationInput | createSimulationInput | sltest.TestCase | addModelCoverage | addSimulinkTestResults

Introduced in R2012a

sltest.CodeImporter class

Import C or C++ code into Simulink for testing

Description

Use objects of the `sltest.CodeImporter` class to import a C library or a subset of a library into Simulink for modeling and testing. When you import the code, a Simulink library and a test file are created. Each C-compatible function maps to a C Caller block in the library and each C Caller block, by default, has an attached internal test harness. The created MLDATX test file contains test cases for each imported function. For unit tests, you can only import C code. Additionally, for unit tests, a sandbox is created to isolate the imported C code.

Note If your code library contains C++ class methods, only the C++ methods that are wrapped in valid C function wrappers are imported into Simulink using the `CodeImporter`.

Alternatively, you can use a wizard to set up and import your code into Simulink. In the Test Manager, use **New > Test for C/C++ Code** to open the wizard.

The `sltest.CodeImporter` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`codeimport_obj = sltest.CodeImporter` creates a Simulink Test code importer object with `untitled` as the Simulink library file name and creates four additional objects, which you access using the SandboxSettings, “ParseInfo” on page 2-0 , and “CustomCode” on page 2-0 , and Options properties.

`codeimport_obj = sltest.CodeImporter(libraryfile)` creates a code importer object and uses the specified `libraryfile` as the name of the created Simulink library. It sets the LibraryFileName property to `libraryfile`.

Properties

TestType — Type of test

`"UnitTest"` (default) | `"IntegrationTest"`

Type of test, specified as a string or character vector. To test a subset of your custom code library in isolation, use `"UnitTest"`. The code for a unit test might not be complete and might have undefined

symbols. The `CodeImporter` automatically creates stubs for the undefined symbols. When you specify `"UnitTest"`, a sandbox is also created. To test your entire code library, use `"IntegrationTest"`.

Example: `codeimport_obj.TestType = "IntegrationTest"`

Attributes:

GetAccess	public
SetAccess	public

SandboxSettings — Sandbox configuration for unit tests

`SandboxSettings` object

Sandbox configuration for unit tests, specified as a `SandboxSettings` object. This property applies only if `TestType` is `UnitTest`. If `TestType` is `IntegrationTest`, sandbox settings are ignored. A default `SandboxSettings` object is created when you create a code importer object. Before using the `createSandbox` method, you can change the default property values. For information on changing the sandbox mode, copying source files to the sandbox folder, and removing pragmas and variable definition header properties, see `sltest.CodeImporter.SandboxSettings`.

Example: `codeimport_obj.SandboxSettings.CopySourceFiles = true`

Attributes:

GetAccess	public
SetAccess	private

LibraryFileName — Name of created Simulink library file and related artifacts

string | character vector

Name of the created Simulink library file and related artifacts, specified as a string or character vector. The related artifacts include the data dictionary, sandbox folder, and test file. For example, if `LibraryFileName` is `"myCodeTest"`

If you do not specify a library file name, it defaults to `untitled`.

Example: `codeimport_obj.LibraryFileName = "myCodeTest"`

Attributes:

GetAccess	public
SetAccess	public

OutputFolder — Folder for created library and related artifacts files

" " (empty string) (default) | string | character vector

Folder for the created library and related artifacts files, specified as a string or character vector. The default is an empty string, which is interpreted as the current working folder. You can alternatively specify the `OutputFolder` using MATLAB path commands, enclosed in `$`, such as `$pwd$`, which is the current working folder.

Example: `codeimport_obj.OutputFolder = "C:/myMATLABFiles/CodeImports"`

Example: `codeimport_obj.OutputFolder = "$pwd"`

Attributes:

GetAccess	public
SetAccess	public

`CustomCode` — C or C++ code files and associated properties to import

`CustomCode` object

C or C++ code files and their associated properties to import, specified as a `CustomCode` object. Use this property to change code importing options, such as source and header files, folder paths, libraries, and compiler and linker flags. For information, see `Simulink.CodeImporter.CustomCode`.

Attributes:

GetAccess	public
SetAccess	private

`Options` — Additional import options

`Simulink.CodeImporter.Options` object

Additional import options, specified as a `Simulink.CodeImporter.Options` object. Use this object to change the default values for the size of an argument passed by a pointer to a function, creating a test harness when importing code, or changing the Simulink library browser name. For information, see `Simulink.CodeImporter.Options`.

Attributes:

GetAccess	public
SetAccess	private

`ParseInfo` — Code parsing information

`ParseInfo` object

The `ParseInfo` object properties have empty values before you call the `parse` method. After parsing, `ParseInfo` includes whether the code successfully parsed, and information about the available functions, entry functions, and types in the code. For information, see `Simulink.CodeImporter.ParseInfo`.

Attributes:

GetAccess	public
SetAccess	private

Methods

Public Methods

In addition to the `createSandbox` method, the `sltest.CodeImporter` class can use the `addToProject`, `parse`, `import`, and `view` methods of the `Simulink.CodeImporter` class.

createSandbox	Create sandbox for C code unit testing
Simulink.CodeImporter.addToProject	Add custom code and imported artifacts to MATLAB project
Simulink.CodeImporter.import	Import custom code, functions, and types into Simulink
Simulink.CodeImporter.parse	Analyze custom code for functions, types, global variables, and their dependencies

Simulink.CodeImporter.view	Launch Simulink Code Importer wizard

Examples

C Code Unit Testing

This example assumes that you have existing C code files to test and you do not want to test your entire C code library.

1. Create an `sltest.CodeImporter` object and specify `myCodeTest` as the Simulink library file name.

   ```
   codeimport_obj = sltest.CodeImporter("myCodeTest");
   ```
2. Assign the source files to the `CustomCode` property.

   ```
   codeimport_obj.CustomCode.SourceFiles = {"myCode1.c"};
   ```
3. Create the sandbox. The `createSandbox` method creates stub files automatically for any undefined symbols.

   ```
   codeimport_obj.createSandbox;
   ```

   After you create the sandbox, you can inspect the created stubs and, if desired, manually stub the symbols using the files in the `manualstub` subfolder of the `sandbox` folder. Then, repeat the `createSandbox` command to update the sandbox.
4. Parse the generated sandbox

   ```
   codeimport_obj.parse;
   ```
5. Import the code to a Simulink library model. The `import` method creates a test file by default.

   ```
   codeimport_obj.import;
   ```
6. Open the Test Manager. Then, open the created `myCodeTest.mldatx` test file, and run the created test cases.

C or C++ Code Library Testing

This example assumes you have an existing C or C++ code library to test and that all C++ methods are in C wrapper functions.

1. Create an `sltest.CodeImporter` object and specify `myCodeLibTest` as the Simulink library name. Set the `TestType` to `IntegrationTest`.

   ```
   codeimport_obj = sltest.CodeImporter("myCodeLibTest");
   codeimport_obj.TestType = "IntegrationTest";
   ```
2. Create a `CustomCode` object that specifies the header files. Use `custcode.<propertyname> = <value>` syntax to specify other types of files and properties. Then, assign the `CustomCode` object to the `CustomCode` property.

   ```
   codeimport_obj.CustomCode.SourceFiles = {"myCode1.c", "myCode2.c"};
   codeimport_obj.InterfaceHeaders = {"myCode_a.h","myCode_b.h"};
   ```
3. Parse the specified code.

   ```
   codeimport_obj.parse;
   ```
4. Import the code to a Simulink library model. The `import` method creates a test file by default.

```
codeimport_obj.import;
```

5 Open the Test Manager. Then, open the created `myCodeLibTest.mldatx` test file, and run the created test cases.

See Also

`sltest.CodeImporter.SandboxSettings` | `createSandbox` | `Simulink.CodeImporter` | `Simulink.CodeImporter.ParseInfo` | `Simulink.CodeImporter.Options` | `Simulink.CodeImporter.CustomCode`

Topics

“Conduct Unit Testing on Imported Custom Code by Using the Wizard”
“Import Custom Code for Unit Testing Using API Commands”

Introduced in R2021a

sltest.CodeImporter.SandboxSettings class

Package: `sltest.CodeImporter`

Sandbox settings for C code testing

Description

Use an object of the `sltest.CodeImporter.SandboxSettings` class to configure a sandbox for C code unit testing. Creating an `sltest.CodeImporter` object also creates a `SandboxSettings` object with default values. `SandboxSettings` objects do not apply when the `TestType` setting of the `sltest.CodeImporter` object is `IntegrationTest`.

Properties

`Mode` — Sandbox generation mode

`"GenerateAggregatedHeader"` (default) | `"GeneratePreprocessedSource"` | `"UseOriginalCode"`

Sandbox generation mode, specified as one of these values:

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`

`CopySourceFiles` — Whether to copy source files into the sandbox

`true` or `1` (default) | `false` or `0`

Whether to copy specified source files into the sandbox, specified as a numeric or logical `1` (`true`) or `0` (`false`). When `CopySourceFiles` is `1` or `true`,

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`

`RemoveAllPragma` — Whether to remove pragmas from code files

`false` or `0` (default) | `true` or `1`

Whether to remove pragmas from code files, specified as a numeric or logical `1` (`true`) or `0` (`false`). When `RemoveAllPragma` is `true` or `1`,

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`

`RemoveVariableDefinitionInHeader` — Whether to remove global definitions

`false` or `0` (default) | `true` or `1`

Whether to remove all global variable definitions in the generated header file and replace them with extern declarations, specified as a numeric or logical `1` (`true`) or `0` (`false`). `RemoveVariableDefinitionInHeader` applies only to `GenerateAggregatedHeader` mode. When `RemoveVariableDefinitionInHeader` is `true` or `1`,

Note If a source or header file that contains a global variable definition is included multiple times in the source file you are importing, set `RemoveVariableDefinitionHeader` to `true` or `1`. The corresponding setting in the wizard is **Remove variable definition in header file**.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`

Examples

Change Sandbox Settings

Change the sandbox mode and variable definition header settings.

```
codeimport_obj = sltest.CodeImporter('myCodeTest');
codeimport_obj.CustomCode.SourceFiles = {'myCode1.c','myCode2.c'};

codeimport_obj.SandboxSettings.Mode = "GeneratePreprocessedSource";
codeimport_obj.SandboxSettings.RemoveVariableDefinitionInHeader = true;
```

See Also

`createSandbox` | `sltest.CodeImporter`

Topics

“Conduct Unit Testing on Imported Custom Code by Using the Wizard”
“Import Custom Code for Unit Testing Using API Commands”

Introduced in R2021a

sltest.testmanager.BaselineCriteria class

Package: `sltest.testmanager`

Add or modify baseline criteria

Description

An instance of `sltest.testmanager.BaselineCriteria` is a set of signals in a test case that determines the pass-fail criteria in a baseline test case.

The `sltest.testmanager.BaselineCriteria` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = sltest.testmanager.TestCase.addBaselineCriteria` creates a `sltest.testmanager.BaselineCriteria` object for a test case object.

Properties

`Name` — Name of baseline criteria

character vector

Name of the baseline criteria, returned as a character vector.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `character vector`

`AbsTol` — Absolute tolerance

scalar

Absolute tolerance for the baseline criteria set, specified as a scalar.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `scalar`

`Active` — Enabled indicator

`0 | 1`

Indicates if the baseline criteria is enabled, `0` if it is not enabled, and `1` if it is enabled.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `logical`

`FilePath` — File path

character vector

File path of the baseline criteria set, returned as a character vector.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `character vector`

`RelTol` — Relative tolerance

scalar

Relative tolerance for the baseline criteria set, specified as a scalar.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types:

`LeadingTol` — Leading tolerance

scalar

Leading time tolerance for the baseline criteria set, specified as a scalar.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types:

`LaggingTol` — Lagging time tolerance
scalar

Lagging time tolerance for the baseline criteria set, specified as a scalar.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types:

`ExcelSpecifications` — Sheet and range information for Excel baseline file
1-by-N array

Sheet and range information for Microsoft Excel baseline file, returned as a 1-by-N array, where each row has a `Sheet` and `Range` value. Specify `Range` as shown in the table.

Ways to specify Range	Description
`'Corner1:Corner2'` Rectangular Range	Specify the range using the syntax `'Corner1:Corner2'`, where *`Corner1`* and *`Corner2`* are two opposing corners that define the region. For example, `'D2:H4'` represents the 3-by-5 rectangular region between the two corners `D2` and `H4` on the worksheet. The `'Range'` name-value pair argument is not case-sensitive, and uses Excel A1 reference style (see Excel help). **Example:** `'Range','Corner1:Corner2'`
`''` Unspecified or Empty	If unspecified, the importing function automatically detects the used range. **Example:** `'Range',''` **Note:** *Used Range* refers to the rectangular portion of the spreadsheet that actually contains data. The importing function automatically detects the used range by trimming leading and trailing rows and columns that do not contain data. Text that is only white space is considered data and is captured within the used range.
`'Row1:Row2'` Row Range	You can identify the range by specifying the beginning and ending rows using Excel row designators. Then `readtable` automatically detects the used column range within the designated rows. For instance, the importing function interprets the range specification `'1:7'` as an instruction to read all columns in the used range in rows 1 through 7 (inclusive). **Example:** `'Range','1:7'`

Ways to specify Range	Description
'Column1:Column2' Column Range	You can identify the range by specifying the beginning and ending columns using Excel column designators. Then `readtable` automatically detects the used row range within the designated columns. For instance, the importing function interprets the range specification `'A:F'` as an instruction to read all rows in the used range in columns A through F (inclusive). **Example:** `'Range','A:F'`
'NamedRange' Excel Named Range	In Excel, you can create names to identify ranges in the spreadsheet. For instance, you can select a rectangular portion of the spreadsheet and call it `'myTable'`. If such named ranges exist in a spreadsheet, then the importing function can read that range using its name. **Example:** `'Range','myTable'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `array`

Methods

Public Methods

addExcelSpecification	Add a Microsoft Excel sheet to baseline criteria or test case inputs
getSignalCriteria	Get signal criteria
remove	Remove baseline criteria

Examples

Add Baseline Criteria and Change Tolerance

This example captures a baseline for a test and changes the absolute tolerance from `0` to `9`.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);
```

```
% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Set the baseline criteria tolerance for a signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;
```

See Also

`sltest.testmanager.TestCase` | `sltest.testmanager.SignalCriteria`

Topics

“Set Signal Tolerances”
“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.ComparisonRunResult class

Package: `sltest.testmanager`

Access result of a comparison test

Description

You can access the results of a data comparison (such as a baseline or equivalence test) with instances of `sltest.testmanager.ComparisonRunResult`.

Creation

`getComparisonResult(t)` creates instances of `sltest.testmanager.ComparisonRunResult`, where `t` is a test results object.

Properties

`Outcome` — Comparison result

`sltest.testmanager.ComparisonSignalOutcomes` object

Pass or fail result of the run comparison, specified as a `sltest.testmanager.ComparisonSignalOutcomes` object.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`

Methods

Public Methods

getComparisonSignalResults	Get test signal comparison result from comparison run result

Examples

Get Comparison Results of a Baseline Test

This example shows how to programmatically get the comparison results of the second iteration of a baseline test case.

1. Get the path to the test file, then run the test file.

```
extf = 'sltestTestCaseRealTimeReuseExample.mldatx';
tf = sltest.testmanager.TestFile(extf);
ro = run(tf);
```

2. Get the test iteration results.

```
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
```

```
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

3. Get the comparison run result of iteration 2.

```
cr2 = getComparisonResult(tir(2))
```

```
cr2 =

  ComparisonRunResult with properties:

    Outcome: Passed
```

4. Get the comparison signal result of the run result.

```
cr2sig = getComparisonSignalResults(cr2)
```

```
cr2sig =

  1×2 ComparisonSignalResult array with properties:

    Outcome
    Baseline
    ComparedTo
    Difference
```

5. Clear the results and the Test Manager.

```
sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

Introduced in R2017b

sltest.testmanager.ComparisonSignalResult class

Package: `sltest.testmanager`

Access signal comparison results from a baseline or equivalence result

Description

You can access the results of a data comparison (such as a baseline or equivalence test) with instances of `sltest.testmanager.ComparisonSignalResult`.

Creation

`getComparisonSignalResults(cr)` creates instances of `sltest.testmanager.ComparisonSignalResult`, where `cr` is a `sltest.testmanager.ComparisonRunResult` object.

Properties

`Outcome` — Comparison result
`sltest.testmanager.ComparisonSignalOutcomes` object

Pass or fail result of the run comparison, specified as a `sltest.testmanager.ComparisonSignalOutcomes` object.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`

`Baseline` — Baseline signal
`Simulink.sdi.Signal` object

Baseline signal, specified as a `Simulink.sdi.Signal` object.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`

`ComparedTo` — Output signal
`Simulink.sdi.Signal` object

Output signal, specified as a `Simulink.sdi.Signal` object.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`

`Difference` — Baseline - output delta
`Simulink.sdi.Signal` object

Difference signal between baseline and output, specified as a `Simulink.sdi.Signal` object.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`

Methods

Public Methods

getComparisonSignalResults Get test signal comparison result from comparison run result

Examples

Get Comparison Results of a Baseline Test

This example shows how to programmatically get the comparison results of the second iteration of a baseline test case.

1. Get the path to the test file, then run the test file.

```
extf = 'sltestTestCaseRealTimeReuseExample.mldatx';
tf = sltest.testmanager.TestFile(extf);
ro = run(tf);
```

2. Get the test iteration results.

```
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

3. Get the comparison run result of iteration 2.

```
cr2 = getComparisonResult(tir(2))
```

```
cr2 =

  ComparisonRunResult with properties:

    Outcome: Passed
```

4. Get the comparison signal result of the run result.

```
cr2sig = getComparisonSignalResults(cr2)
```

```
cr2sig =

  1×2 ComparisonSignalResult array with properties:

    Outcome
    Baseline
    ComparedTo
```

```
    Difference
```

5. Clear the results and the Test Manager.

```
sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

Introduced in R2017b

sltest.testmanager.CoverageSettings class

Package: `sltest.testmanager`

Modify coverage settings

Description

Instances of `sltest.testmanager.CoverageSettings` let you set the values in the **Coverage Settings** section in a test file, test suite, or test case.

The `sltest.testmanager.CoverageSettings` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

The `getCoverageSettings` methods for test file, test suite, and test case objects return an `sltest.testmanager.CoverageSettings` object, which lets you access the coverage collection and metric settings.

Properties

`RecordCoverage` — Enable coverage collection

`false` (default) | `true`

Specify if the coverage collection is on or off, `false` for off and `true` for on.

Coverage collection is enabled or disabled in the Test Manager **Coverage Settings**. The corresponding UI option is **Record coverage for system under test**.

Example: `'Decision',true`

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`MdlRefCoverage` — Collect coverage for referenced models

`false` (default) | `true`

Coverage collection for referenced models is enabled or disabled in the Test Manager **Coverage Settings**. The corresponding UI option is **Record coverage for referenced models**.

Example: `'Decision',true`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`MetricSettings` — Coverage metric setting selection

string

Selection of coverage settings that are enabled or disabled, specified as a string. For the set of possible strings, see the parameter info for `CovMetricSettings` in **Coverage metric settings** and `sltest.plugins.coverage.CoverageMetrics`. Coverage metric settings can be modified only at the test file level.

Coverage metrics are enabled or disabled in the Test Manager by selecting the check boxes in the **Coverage Settings** section.

Example: `"dw"`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`CoverageFilterFilename` — Coverage filter to use for coverage analysis

string array

The file name of a coverage filter file or files on the MATLAB path, specified as a string array. The file names specify the coverage filters that override filter files specified in the model configuration settings. An empty value, `""`, attaches no coverage filter. For more information on coverage filters, see “Coverage Filtering” (Simulink Coverage). The coverage filter setting propagates down from test files to test suites and test cases, and its results are displayed at the Result Set level.

Specify the coverage filter file name in the Test Manager, in the **Coverage filter filename** table of the **Coverage Settings** section.

Example: `"covfilter.cvf"`

Example: `["covfilter.cvf1";"covfilter2.cvf"]`

Example: `""`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Examples

Enable MCDC and Signal Range Coverage Metrics and Specify a Coverage Filter

```
% Get coverage settings object from the test file
cov = getCoverageSettings(testfile);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = "mr";

% Specify a coverage filter
cov.CoverageFilterFilename = "covfilter.cvf";
```

See Also

`sltest.testmanager.TestFile` | `sltest.testmanager.TestSuite` | `sltest.testmanager.TestCase` | `sltest.plugins.coverage.CoverageMetrics`

Topics

“Collect Coverage in Tests”

“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.CustomCriteria class

Package: `sltest.testmanager`

Add or modify custom criteria

Description

An instance of `sltest.testmanager.CustomCriteria` is a test case custom criteria that evaluates the simulation output, returning a pass or fail result.

The `sltest.testmanager.CustomCriteria` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = getCustomCriteria(tc)` creates an `sltest.testmanager.CustomCriteria` object for a test case object `tc`.

Properties

`Enabled` — Enable or disable custom criteria

false (default) | true

Property that enables or disables the custom criteria for evaluation, specified as a logical.

Example: true

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Callback` — Criteria script

character array

Property that defines the custom criteria script, specified as a character array.

Example: `test.verifyEqual(lastPhi,0,['Final: ',num2str(lastPhi),'.'])`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Examples

Get and Set Custom Criteria in Test Case

Create a test case object from the test suite `ts`.

```
tc = ts.getTestCaseByName('Requirement 1.3 Test');
```

Get the custom criteria from the test case `tc`.

```
tcCriteria = getCustomCriteria(tc);
```

Set the custom criteria script.

```
tcCriteria.Callback = 'test.verifyEqual(lastPhi,0);'
```

Enable the custom criteria.

```
tcCriteria.Enabled = true;
```

See Also

`getCustomCriteria`

Topics

“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

sltest.testmanager.CustomCriteriaResult class

Package: `sltest.testmanager`

View custom criteria test result

Description

An instance of `sltest.testmanager.CustomCriteriaResult` is a test result of the evaluation of custom criteria.

The `sltest.testmanager.CustomCriteriaResult` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = getCustomCriteriaResult(tcr)` creates an `sltest.testmanager.CustomCriteriaResult` object for a test case result object `tcr`.

`obj = getCustomCriteriaResult(tir)` creates an `sltest.testmanager.CustomCriteriaResult` object for a test iteration result object `tir`.

Properties

`Outcome` — Result of custom criteria evaluation

`sltest.testmanager.TestResultOutcomes` object.

Custom criteria result, returned as an `sltest.testmanager.TestResultOutcomes` object.

Example: Passed

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`DiagnosticRecord` — Criteria script

`sltest.testmanager.DiagnosticRecord` object.

Diagnostic record of the custom criteria result, returned as an `sltest.testmanager.DiagnosticRecord` object.

Example: `DiagnosticRecord`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Examples

Get Custom Criteria Result from Test Case Result

Run the test case `tc`, creating a result set `tcResultSet`.

```
tcResultSet = run(tc);
```

Get the test case result from the result set.

```
tcResult = getTestCaseResults(tcResultSet);
```

Get the custom criteria result from the test case result.

```
ccResult = getCustomCriteriaResult(tcResult);
```

See Also

`getCustomCriteria`

Topics

“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

sltest.testmanager.DiagnosticRecord class

Package: `sltest.testmanager`

View custom criteria diagnostic information

Description

An instance of `sltest.testmanager.DiagnosticRecord` displays diagnostic information returned from custom criteria analysis.

The `sltest.testmanager.DiagnosticRecord` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = getCustomCriteriaResult(tcResult)` creates an `sltest.testmanager.CustomCriteriaResult` object, which has a property `DiagnosticRecord`. `DiagnosticRecord` is an `sltest.testmanager.DiagnosticRecord` object for the test case result object `tcResult`.

Properties

`Outcome` — Record outcome of diagnostic

`sltest.testmanager.TestResultOutcomes` object.

Outcome of diagnostic, returned as an `sltest.testmanager.TestResultOutcomes` object.

Example: Passed

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`TestDiagnosticResult` — Record test diagnostic results

cell array

Diagnostic record of the custom criteria result, returned as a cell array.

Example: `'Final: 0.'`

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`FrameworkDiagnosticResult` — Record framework diagnostic results

cell array

Framework diagnostic record of the custom criteria result, returned as a cell array.

Example: `'verifyEqual passed.…'`

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Event` — Record event name

character vector

Name of the recorded event, returned as a character vector.

Example: `VerificationPassed`

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Report` — Record diagnostic information

character vector

Report of the diagnostic result, returned as a character vector.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Exception` — Capture error information

`Mexception` object

If the custom criteria returns an error, it constructs an `Mexception` object containing information about the error.

Example: `MException`

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

Examples

Get Custom Criteria Result from Test Case Result

Run the test case `tc`, creating a result set `tcResultSet`.

```
tcResultSet = run(tc);
```

Get the test case result from the result set.

```
tcResult = getTestCaseResults(tcResultSet);
```

Get the custom criteria result from the test case result.

```
ccResult = getCustomCriteriaResult(tcResult);
```

Display the diagnostic result

```
ccResult.DiagnosticRecord
```

```
ans =

  DiagnosticRecord with properties:

                     Outcome: Passed
          TestDiagnosticResult: {'Final: 0.'}
    FrameworkDiagnosticResult: {'verifyEqual passed.…'}
                       Event: 'VerificationPassed'
                      Report: '============================…'
```

See Also

`getCustomCriteria`

Topics

“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

sltest.testmanager.EquivalenceCriteria class

Package: `sltest.testmanager`

Add or modify equivalence criteria

Description

Instances of `sltest.testmanager.EquivalenceCriteria` is a set of signals in a test case that determines the pass-fail criteria in an equivalence test case.

The `sltest.testmanager.EquivalenceCriteria` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`obj = sltest.testmanager.TestCase.captureEquivalenceCriteria` creates a `sltest.testmanager.EquivalenceCriteria` object for a test case object.

Properties

Enabled — Enabled indicator

`0` | `1`

Indicates if the equivalence criteria is enabled, `0` if it is not enabled, and `1` if it is enabled.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `logical`

Methods

Public Methods

getSignalCriteria	Get signal criteria
remove	Remove equivalence criteria

Examples

Add Equivalence Criteria to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Capture equivalence criteria
eq = captureEquivalenceCriteria(tc);
```

See Also

`sltest.testmanager.TestCase`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.LoggedSignal class

Package: `sltest.testmanager`

Create or modify logged signals for use as simulation outputs

Description

An instance of `sltest.testmanager.LoggedSignal` stores a logged signal for use in a `sltest.testmanager.LoggedSignalSet` object. You can use the logged signal for data comparison with baseline criteria, equivalence criteria, custom criteria, or in iterations.

Creation

Description

`obj = addLoggedSignal(lgset,BlockPath,PortIndex)` creates and adds a `LoggedSignal` object to a `LoggedSignalSet` object. You must open or load the model to add signals from the model.

`obj = addDataStoreSignal(lgset,BlockPath)` creates and adds an `sltest.testmanager.LoggedSignal` object to a set when the `LoggedSignal` object derives from a data store or `Simulink.Signal` object. You must open or load the model to add a `LoggedSignal` from the model.

`objs = getLoggedSignals(lgset)` creates and returns a vector of the `LoggedSignal` objects that are stored in a `LoggedSignalSet`.

Input Arguments

`lgset` — Logged signal set
`sltest.testmanager.LoggedSignalSet` object

Object that can contain one or more `LoggedSignal` objects.

`BlockPath` — Block path object
`Simulink.BlockPath` object | character vector

`Simulink.BlockPath` object that uniquely identifies the block that outputs the signal.

`PortIndex` — Output port index
integer

Index of the output port for the block designated by `BlockPath`, starting from `1`.

Properties

`Name` — Signal name
character vector

Name of the signal. This property is read-only.

`BlockPath` — Block path object
`Simulink.BlockPath` object | character vector

`Simulink.BlockPath` object that uniquely identifies the block that outputs the signal. This property is read-only.

`PortIndex` — Output port index
integer

Index of the output port for the block designated by `BlockPath`, starting from `1`. This property is read-only.

`Source` — Block path information
character vector

Name of the block path for the object. If the signal corresponds to a `Simulink.Signal` object, the field displays `'base workspace'` or `'model workspace'` to describe the location of the object. This property is read-only.

`Active` — On/off flag
boolean

Indicates whether the signal is logged during test case execution.

`PlotIndices` — Signal subplot indices
character array

Indices for subplot location.

Methods

Public Methods
remove Remove a logged signal

Examples

Add Signals to a Test Case

Open a model and create a signal set.

```
% Open model for this example
openExample('sldemo_absbrake')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
lgset = tc.addLoggedSignalSet;
```

Select the `Vehicle Speed` block and enter `gcb`. Use the returned path to create a `Simulink.BlockPath` object.

```
% Add signals to set
bPath = Simulink.BlockPath('sldemo_absbrake/Vehicle speed');
sig1 = lgset.addLoggedSignal(bPath,1);
sig2 = lgset.addLoggedSignal(bPath,2);

setProperty(tc,'Model','sldemo_absbrake');

% Save test file
saveToFile(tf);
```

See Also

`Simulink.BlockPath` | `addLoggedSignal` | `getLoggedSignals` | `sltest.testmanager.LoggedSignalSet` | `addDataStoreSignal`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

sltest.testmanager.LoggedSignalSet class

Package: `sltest.testmanager`

Create or modify a set of logged signals

Description

An instance of `sltest.testmanager.LoggedSignalSet` stores a set of `sltest.testmanager.LoggedSignal` objects. You can use the logged signals for data comparison with baseline criteria, equivalence criteria, custom criteria, or in iterations.

Creation

Description

`obj = addLoggedSignalSet(tc,Name,Value)` creates and adds a `LoggedSignalSet` object to an `sltest.testmanager.TestCase` object.

`objs = getLoggedSignalSets(tc,Name,Value)` creates and returns a vector of the `LoggedSignalSet` objects that are stored in a test case object.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Name of the test case object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

`Name` — Name of the signal set

character vector

Name of the logged signal set.

Example: `obj = addLoggedSignalSet(tc,'Name','mylgset');`

`SimulationIndex` — Simulation index

1 (default) | 2

When the test case is an equivalence test, this index specifies the simulation that contains the signal set.

Example: `obj = getLoggedSignalSets(tc_equiv,'SimulationIndex',2);`

Properties

`Name` — Name of the signal set
character vector

Name of the signal set.

`Active` — On/off flag
1 (default) | 0

Indicates whether the signals contained in the set are used during test case execution.

Methods

Public Methods

addDataStoreSignal	Add a data store or Simulink.Signal object to a set
addLoggedSignal	Add a logged signal to a set
getLoggedSignals	Return logged signals contained in a set
remove	Remove a logged signal set

Examples

Add a Signal Set to a Test Case

Open a model and create a signal set.

```
% Open model for this example
openExample('sldemo_absbrake')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
lgset = tc.addLoggedSignalSet;
```

See Also

`sltest.testmanager.EquivalenceCriteria` | `addLoggedSignalSet` | `getLoggedSignalSets` | `sltest.testmanager.LoggedSignal`

Topics
“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

sltest.testmanager.Options class

Package: `sltest.testmanager`

Return and specify test file options

Description

Get instances of `sltest.testmanager.Options` to view test file options, including report generation options. For test files, you can also set options. View options using:

- `getOptions (TestCase)`
- `getOptions (TestSuite)`
- `getOptions (TestFile)`

The `sltest.testmanager.Options` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = getOptions(test)` returns the test file options object associated with the test case, suite, or file.

Input Arguments

`test` — Test case, suite, or file

`sltest.testmanager.TestCase` object | `sltest.testmanager.TestSuite` object | `sltest.testmanager.TestFile` object

Test case, suite, or file, specified as an `sltest.testmanager.TestCase`, `sltest.testmanager.TestSuite`, or `sltest.testmanager.TestFile` object.

Properties

`Author` — Report author

character vector

Author of the report, specified as a character vector.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`CloseFigures` — Option to close figures at end of test
`true` (default) | `false`

Option to close figures at the end of the test, specified as `true` to close the figures and `false` to leave them open.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`CustomReportClass` — Custom report generation class
character vector

Custom report generation class, specified as a character vector. For information, see “Customize Test Results Reports”.

`CustomTemplateFile` — Path name of report generation custom template file
character vector

Path name of report generation custom template file, specified as a character vector. For information, see “Customize Test Results Reports”.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`GenerateReport` — Option to generate a report at end of test
`false` (default) | `true`

Option to generate a report at the end of the test, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeComparisonSignalPlots` — Option to include simulation output and baseline plots in reports
`true` (default) | `false`

Option to include simulation output and baseline plots in report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeCoverageResult` — Option to include coverage results in reports
`false` (default) | `true`

Option to include coverage results in reports, specified as `true` or `false`.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`IncludeErrorMessage` — Option to include error and log messages in reports
`true` (default) | `false`

Option to include error and log messages in reports, specified as `true` or `false`.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`IncludeMATLABFigures` — Option to include figures generated from MATLAB code in reports
`false` (default) | `true`

Option to include figures generated from MATLAB code in reports, specified as `true` or `false`. Specify the MATLAB code as custom criteria on the test case or as a callback on the test case, suite, or file. You must also set `SaveFigures` to `true` for this setting to apply.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`IncludeMLVersion` — Option to include MATLAB version in report
`true` (default) | `false`

Option to include the MATLAB version you are running in the report, specified as `true` or `false`.

`IncludeSimulationMetadata` — Option to include simulation metadata in reports
`false` (default) | `true`

Option to include simulation metadata in reports, specified as `true` or `false`.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`IncludeSimulationSignalPlots` — Option to include criteria and assessment plots in reports
`false` (default) | `true`

Option to include criteria and assessment plots in reports, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`NumPlotRowsPerPage` — Number of rows of plots to include on report pages
2 (default)

Number of rows of plots to include on report pages, specified as an integer from 1 to 4. This property is used only if the `IncludeSimulationSignalPlots` property is `true`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`NumPlotColumnsPerPage` — Number of columns of plots to include on report pages
1 (default)

Number of columns of plots to include on report pages, specified as an integer from 1 to 4. This property is used only if the `IncludeSimulationSignalPlots` property is `true`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeTestRequirement` — Option to include test requirements in reports
`true` (default) | `false`

Option to include test requirements in reports, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeTestResults` — Test results to include in the report
`'failed'` (default) | `'passed'` | `'all'` | enumerated `sltest.testmanager.TestResultsIncludedInReport` value

Test results to include in the report, specified as `'failed'`, `'passed'`, or `'all'`. You can alternatively use an enumerated value:

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

ReportFormat — Output format for report

'pdf' (default) | 'zip' | 'doc' | enumerated sltest.testmanager.ReportFileFormat value

Output format for report, specified as 'pdf', 'zip', or 'docx'. You can alternatively use an enumerated value:

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

ReportPath — Path name of file to save report to

character vector

Path name of file to save report to, specified as a character vector.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

SaveFigures — Option to save MATLAB figures with test results

false (default) | true

Option to save MATLAB figures with test results, specified as true or false. If you want to include figures in results or reports, set this option to true.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Title — Title of report

character vector

Title of the report, specified as a character vector.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Examples

Get and Set Test File Options

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Get the test file options
opt = getOptions(tf);

% Set the title for the report, save figures, and include
% 3 rows of plots per page. Columns per page default to 2.
opt.Title = 'ABC Co. Test Results';
opt.SaveFigures = true;
opt.IncludeSimulationSignalPlots = true;
opt.NumPlotRowsPerPage = 3;
```

See Also

`getOptions (TestSuite)` | `getOptions (TestCase)` | `getOptions (TestFile)`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

sltest.testmanager.ParameterOverride class

Package: `sltest.testmanager`

Add or modify parameter override

Description

Instances of `sltest.testmanager.ParameterOverride` are parameters overrides contained in a parameter set within a test case that can override model parameters.

The `sltest.testmanager.ParameterOverride` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = sltest.testmanager.ParameterSet.addParameterOverride` creates a `sltest.testmanager.ParameterOverride` object for a parameter set object.

Properties

`Name` — Parameter override name

character vector

Name of the parameter override, specified as a character vector.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Value` — Override value

scalar | vector | string

Value of the parameter override, specified as a scalar or vector value. If the value is a string, it is evaluated as a MATLAB expression when the test executes.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Enabled — Enabled indicator

0 | 1

Indicates if the parameter override is enabled, 0 if it is not enabled, or 1 if it is enabled.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Source — Parameter override source

character vector

Source of the parameter override, returned as a character vector. Two examples of sources are the base workspace and a Model block. The parameter is read-only.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

Workspace — Workspace of the parameter

string | character vector

Workspace of the parameter to override, specified as a string or character vector.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

Methods

Public Methods

remove Remove parameter override

Examples

Add Parameter Override to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');
```

```
% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

See Also

`sltest.testmanager.TestCase` | `sltest.testmanager.ParameterSet`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.ParameterSet class

Package: `sltest.testmanager`

Add or modify parameter set

Description

Instances of `sltest.testmanager.ParameterSet` are sets of parameters in a test case that can override model parameters.

The `sltest.testmanager.ParameterSet` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`obj = sltest.testmanager.TestCase.addParameterSet` creates a `sltest.testmanager.ParameterSet` object for a test case object.

Properties

`Name` — Parameter set name

string

Name of the parameter set, specified as a string. If the parameter set was created from a MAT file, the name is derived from the MAT file name and is read-only.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`FilePath` — File path

character vector

File path of the parameter set if parameters were added from a file, returned as a character vector.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Active` — Active overrides indicator

`0` | `1`

Indicates whether to use the overrides in the parameter set during test execution. If `Active` is `0`, the overrides are not used. If `Active` is `1`, the overrides are used.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`ExcelSpecifications` — Sheet and range information for Excel file

1-by-N array

Sheet and range information for Microsoft Excel file, returned as a 1-by-N array, where each row has a `Sheet` and `Range` value. Specify `Range` as shown in the table.

Ways to specify Range	Description
`'Corner1:Corner2'` Rectangular Range	Specify the range using the syntax `'Corner1:Corner2'`, where *`Corner1`* and *`Corner2`* are two opposing corners that define the region. For example, `'D2:H4'` represents the 3-by-5 rectangular region between the two corners `D2` and `H4` on the worksheet. The `'Range'` name-value pair argument is not case-sensitive, and uses Excel A1 reference style (see Excel help). **Example:** `'Range','Corner1:Corner2'`
`''` Unspecified or Empty	If unspecified, the importing function automatically detects the used range. **Example:** `'Range',''` **Note:** *Used Range* refers to the rectangular portion of the spreadsheet that actually contains data. The importing function automatically detects the used range by trimming leading and trailing rows and columns that do not contain data. Text that is only white space is considered data and is captured within the used range.
`'Row1:Row2'` Row Range	You can identify the range by specifying the beginning and ending rows using Excel row designators. Then `readtable` automatically detects the used column range within the designated rows. For instance, the importing function interprets the range specification `'1:7'` as an instruction to read all columns in the used range in rows 1 through 7 (inclusive). **Example:** `'Range','1:7'`

Ways to specify Range	Description
'Column1:Column2' Column Range	You can identify the range by specifying the beginning and ending columns using Excel column designators. Then `readtable` automatically detects the used row range within the designated columns. For instance, the importing function interprets the range specification `'A:F'` as an instruction to read all rows in the used range in columns A through F (inclusive). **Example:** `'Range','A:F'`
'NamedRange' Excel Named Range	In Excel, you can create names to identify ranges in the spreadsheet. For instance, you can select a rectangular portion of the spreadsheet and call it `'myTable'`. If such named ranges exist in a spreadsheet, then the importing function can read that range using its name. **Example:** `'Range','myTable'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `array`

Methods

Public Methods

addParameterOverride	Add parameter override to parameter set
export	Export parameter set to Excel spreadsheet
getParameterOverrides	Get parameter overrides
remove	Remove parameter set

Examples

Add Parameter Override to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Test a new model parameter by overriding it in the test case
% parameter set
```

```
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

See Also

`sltest.testmanager.TestCase`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.ResultSet class

Package: `sltest.testmanager`

Access results set data

Description

Instances of `sltest.testmanager.ResultSet` enable you to access the results from test execution performed by the Test Manager.

The `sltest.testmanager.ResultSet` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

The function `sltest.testmanager.run` creates a `sltest.testmanager.ResultSet` object.

Properties

`CoverageResults` — Coverage analysis results

row vector of `cvdata` objects

Coverage analysis results, returned as a row vector of aggregated `cvdata` objects across all simulations. For information on `cvdata` objects, see `cvdata`.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Duration` — Length of time the test ran, in seconds

duration

Length of time the test ran, in seconds, returned as a duration.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Release` — Release in which the test was run

character vector

Release in which the test was run, returned as a character vector.

Attributes:

```
SetAccess                                   private
GetAccess                                   public
```

NumDisabled — Number of disabled tests

integer

Number of test cases that were disabled in the results set.

Attributes:

```
SetAccess                                       public
GetAccess                                       public
Dependent                                       true
NonCopyable                                     true
```

NumFailed — Number of failed tests

integer

Number of failed tests contained in the results set.

Attributes:

```
SetAccess                                       public
GetAccess                                       public
Dependent                                       true
NonCopyable                                     true
```

NumPassed — Number of passed tests

integer

Number of passed tests contained in the results set.

Attributes:

```
SetAccess                                       public
GetAccess                                       public
Dependent                                       true
NonCopyable                                     true
```

NumTestCaseResults — Number of test case result children

integer

Number of test case results that are direct children of the results set object.

Attributes:

```
SetAccess                                       public
GetAccess                                       public
Dependent                                       true
NonCopyable                                     true
```

NumTestSuiteResults — Number of test suite result children

integer

Number of test suite results that are direct children of the results set object.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`NumTestFileResults` — Number of test file result children

integer

Number of test file results that are direct children of the results set object.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`NumTotal` — Total number of tests

integer

Total number of tests in the results set.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`Outcome` — Test outcome

`Passed` | `Failed`

Test outcome, returned as `Passed` or `Failed`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`StartTime` — Time the test began to run

datetime

Time the test began to run, returned as a datetime.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`StopTime` — Time the test completed

datetime

Time the test completed, returned as a datetime.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`UserData` — Custom data stored with result set

any data type

Custom data stored with the result set, specified as any type of data. Use this field to add custom information about the results, such as the settings used to obtain the results.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Methods

Public Methods

getTestCaseResults	Get test case results object
getTestSuiteResults	Get test suite results object
getTestFileResults	Get test suite results object
getCoverageResults	Get coverage results
remove	Remove result set

Examples

Get Test Result Set Data

Get results from running a test file with `sltest.testmanager.run`.

```
result = sltest.testmanager.run;
testCaseResultArray = result.getTestCaseResults;
testSuiteResultArray = result.getTestSuiteResults;
```

See Also

`sltest.testmanager.TestFileResult` | `sltest.testmanager.TestSuiteResult` | `sltest.testmanager.TestCaseResult` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

sltest.testmanager.SignalCriteria class

Package: `sltest.testmanager`

Add or modify signal criteria

Description

An instance of `sltest.testmanager.SignalCriteria` is an individual signal in a criteria set in a test case that determines the pass-fail criteria.

The `sltest.testmanager.SignalCriteria` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`obj = getAllSignalCriteria` creates a `sltest.testmanager.SignalCriteria` object for a baseline or equivalence test case object.

Properties

`AbsTol` — Absolute tolerance
scalar

Absolute tolerance at a signal level, specified as a scalar. Set this value on the signal to override the value set in the baseline or equivalence criteria set.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `scalar`

`BlockPath` — Signal block path
character vector

Signal block path, returned as a character vector. This property is read-only.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

`DataSource` — Signal data source

character vector

Signal data source, returned as a character vector. This property is read-only.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

`Enabled` — Enabled indicator

`0` | `1`

Indicates if the signal criteria is enabled, `0` if it is not enabled, and `1` if it is enabled.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `logical`

`InterpMethod` — Interpolation method

`'zoh'` | `'linear'`

The method of interpolation used to align signal data, specified as `'zoh'` or `'linear'`. The method can be one of the following:

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `char`

`LaggingTol` — Lagging time tolerance

scalar

Lagging time tolerance at a signal level, specified as a scalar. Set this value on the signal to override the value set in the baseline or equivalence criteria set. `LaggingTol` is in seconds.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `scalar`

`LeadingTol` — Leading time tolerance

scalar

Leading time tolerance at a signal level, specified as a scalar. Set this value on the signal to override the value set in the baseline or equivalence criteria set. `LeadingTol` is in seconds.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `scalar`

`Name` — Signal name

character vector

Signal name, returned as a character vector.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`RelTol` — Relative tolerance

scalar

Relative tolerance at a signal level, specified as a scalar. Set this value on the signal to override the value set in the baseline or equivalence criteria set.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `scalar`

SID — Signal identifier

character vector

Signal identifier, returned as a character vector.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

SyncMethod — Time synchronization method

`'union'` | `'intersection'`

The method of time synchronization used when a signal is compared to another signal, specified as `'union'` or `'intersection'`. The method can be one of the following:

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `char`

Methods

Public Methods

remove Remove signal criteria

Examples

Set Absolute Tolerance in Baseline Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');
```

```
% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;
```

See Also

`sltest.testmanager.TestCase` | `sltest.testmanager.BaselineCriteria` | `sltest.testmanager.EquivalenceCriteria`

Topics

“Create and Run Test Cases with Scripts”
“Set Signal Tolerances”

Introduced in R2015b

sltest.testmanager.TestCase class

Package: `sltest.testmanager`

Create or modify test case

Description

Instances of `sltest.testmanager.TestCase` are test case objects.

If you want to modify the test case settings that define how the test case executes, use the methods `setProperty` and `getProperty`.

For MATLAB-based Simulink tests, test methods defined in the class file correspond to test cases. See "Test Models Using MATLAB-Based Simulink Tests" for more information.

The `sltest.testmanager.TestCase` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see "Class Attributes".

Creation

Description

`obj = sltest.testmanager.TestCase(parent,testtype,name)` creates a `sltest.testmanager.TestCase` object as a child of the specified `Parent`. The `TestType` defaults to `baseline` and the test case is automatically assigned a default `Name`.

`obj = sltest.testmanager.TestCase(parent,testtype,name)` creates a `sltest.testmanager.TestCase` object with the specified TestType and test case Name..

Properties

`Parent` — Parent test suite

`sltest.testmanager.TestSuite` object

Test suite that is the parent of the specified test case, specified as an `sltest.testmanager.TestSuite` object.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `sltest.testmanager.TestSuite`

TestType — Test case type
'baseline' (default) | 'equivalence' | 'simulation'

The test case type, specified as 'baseline', 'equivalence', or 'simulation'.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: char

Name — Test case name
character vector

Name of the test case, specified as a character vector. If you do not specify a name, a unique name is created.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: char

Description — Test case description
character vector

Test case description text, returned as a character vector.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: char

Enabled — Test execution indicator
true or 1 | false or 0

Indicates if the test case will execute, specified as a logical value true or 1, or false or 0.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: logical

`ReasonForDisabling` — Disabled description

character vector

Description text for why the test file was disabled, specified as a character vector. This property is visible only when the `Enabled` property is set to `false`.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`Requirements` — Test file requirements

structure array

Requirements that are attached at the test-file level, returned as a structure.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `struct`

`RunOnTarget` — Target indicator

cell array

Indicates if the test case simulation runs on a target, returned as a cell array of logical values. For more information on real-time testing, see “Test Models in Real Time”

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `logical`

`Tags` — Tags for categorizing

character vector | string array

Tags to use for categorizing, specified as a character vector or string array.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char` | `string`

`TestFile` — Parent test file
`sltest.testmanager.TestFile` object

Test file that is the parent of the test case, returned as an `sltest.testmanager.TestFile` object.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `sltest.testmanager.TestFile`

`TestPath` — Test hierarchy
character vector

Test file, test suite, and test case hierarchy, returned as a character vector.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

Methods

Public Methods

addBaselineCriteria	Add baseline criteria to test case
addInput	Add input file to test case
addIteration	Add test iteration to test case
addLoggedSignalSet	Add logged signal set to a test case
addParameterSet	Add parameter set
captureBaselineCriteria	Capture baseline criteria and add to test case
captureEquivalenceCriteria	Capture equivalence criteria and add to test case
convertTestType	Convert test from one type to another
copySimulationSettings	Copy simulation setting in equivalence test case
createInputDataFile	Create file as basis for test case input signal data
deleteIterations	Delete test iterations that belong to test case
getAssessmentsCallback	Get test case assessments callback
getBaselineCriteria	Get baseline criteria
getCoverageSettings	Get coverage settings
getCustomCriteria	Get custom criteria that belong to test case
getEquivalenceCriteria	Get equivalence criteria from test case
getInputs	Get test case inputs
getIterations	Get test iterations that belong to test case
getLoggedSignalSets	Get logged signal set from a test case
getOptions	Get test file options
getParameterSets	Get test case parameter sets
getProperty	Get test case property

getTestCaseResults	Get test case results history
remove	Remove test case
run	Run test case
setAssessmentsCallback	Set test case assessment callback
setProperty	Set test case property

Examples

Create New Test File, Test Suite, and Test Case

```
% Create test file
testfile = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
testsuite = sltest.testmanager.TestSuite(testfile,'My Test Suite');

% Create test case
testcase = sltest.testmanager.TestCase(testsuite,'equivalence',...
               'Equivalence Test Case')

testcase =

  TestCase with properties:

           Name: 'Equivalence Test Case'
       TestFile: [1x1 sltest.testmanager.TestFile]
       TestPath: 'test_file > My Test Suite > Equivalence Test Case'
       TestType: 'equivalence'
    RunOnTarget: {2x1 cell}
         Parent: [1x1 sltest.testmanager.TestSuite]
   Requirements: [0x1 struct]
    Description: ''
        Enabled: 1
```

See Also

`sltest.testmanager.TestFile` | `sltest.testmanager.TestSuite`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage Using MATLAB-Based Simulink Tests”
“Author Class-Based Unit Tests in MATLAB”
“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2015b

sltest.testmanager.TestCaseResult class

Package: `sltest.testmanager`
Superclasses: `sltest.testmanager.TestIterationResult`

Access test case results data

Description

An `sltest.testmanager.TestCaseResult` enables you to access results from executing test cases or test files.

The `sltest.testmanager.TestCaseResult` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`tcr = getTestCaseResults(ResultSet)` returns `tcr` a test case result from a `ResultSet`.

Properties

`Duration` — Length of time the test case ran, in seconds

duration

Length of time the test case ran, in seconds, returned as a duration.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`NumDisabledIterations` — Number of disabled tests

integer

The number of disabled tests in an individual test case result, returned as an integer.

Attributes:

`SetAccess`	`private`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`NumFailedIterations` — Number of failed tests

integer

The number of failed tests in an individual test case result, returned as an integer.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`NumIncompleteIterations` — Number of incomplete tests

integer

The number of incomplete tests in an individual test case result, returned as an integer.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`NumPassedIterations` — Number of passed tests

integer

The number of passed tests in an individual test case result, returned as an integer.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`NumTotalIterations` — Total number of tests

integer

The total number of tests in an individual test case result, returned as an integer.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Outcome` — Outcome of test case result

0 | 1 | 2 | 3

The outcome of an individual test case result. The integer `0` means the test case was disabled, `1` means the test case execution was incomplete, `2` means the test case passed, and `3` means the test case failed.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Parent` — Parent of the result object

object

Parent of the result. The parent of a test case result is a test suite result or result set object.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Release` — Release in which the test was run

character vector

Release in which the test was run, returned as a character vector.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`RunOnTarget` — Target indicator

cell array

Indicates if the simulation runs on a target, returned as a cell array of Booleans.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`StartTime` — Time the test case began to run

datetime

Time the test case began to run, returned as a datetime.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`StopTime` — Time the test case completed

datetime

Time the test case completed, returned as a datetime.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

Tags — Tags to filter test file results

string array

Tags to filter the test file results. Use tags to view a subset of the test results. See “Tags” for more information.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestCasePath — Result hierarchy path

character vector

The hierarchy path in the parent result set.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestCaseType — Type of test case

`'Simulation'` | `'Baseline'` | `'Equivalence'`

The type of test case from the three available test cases in the Test Manager: simulation, baseline, and equivalence.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestFilePath — Test file path

character vector

The path of the test file used to create the test case result.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`TestSequenceScenario` — Test sequence scenario

struct

Test sequence scenario used in the test case, returned as a struct. The struct contains two fields, `TestSequenceBlock` and `TestSequenceScenario`. The `TestSequenceBlock` field is the path of the Test Sequence block that contains the scenario. The `TestSequenceScenario` is the name of the scenario that ran during the test. The test sequence information is returned in the `TestCaseResult` object only if the test case did not include iterations. If iterations were included, the `TestSequenceScenario` is returned in a `TestIterationResults` object.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`ErrorMessages` — Error messages

array of strings

Error messages produced by the test case, returned as an array of strings.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`LogMessages` — Log messages

array of strings

Log messages produced by the test case, returned as an array of strings.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`UserData` — Custom data stored with test case results

any data type

Custom data stored with the test case results, specified as any type of data. Use this field to add custom information, such as the settings used to obtain the results.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Methods

Public Methods

getBaselineRun	Get test case baseline dataset
getTestCase	Get test case that produced result
getComparisonResult	Get test data comparison result
getComparisonRun	Get test case signal comparison results
getCoverageResults	Get coverage results
getCustomCriteriaPlots	Get plots from test case custom criteria
getCustomCriteriaResult	Get custom criteria results from test case result
getIterationResults	Get iteration results
getInputRuns	Get inputs from simulations captured with the test result
getOutputRuns	Get test case simulation output results
getSimulationPlots	Get plots from test case callbacks
getVerifyRuns	Get test case verify statement

Examples

Get Test Case Result From Results Set

```
% Run test file in Test Manager and output results set
resultset = sltest.testmanager.run;

% Get test file result object
tfr = getTestFileResults(resultset);

% Get test suite result object
tsr = getTestSuiteResults(tfr);

% Get test case result object
tcr = getTestCaseResults(tsr);
```

See Also

`sltest.testmanager.TestSuiteResult` | `sltest.testmanager.TestFileResult`

Topics

“Create and Run Test Cases with Scripts”
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2015a

sltest.testmanager.TestFile class

Package: `sltest.testmanager`

Create or modify test file

Description

Instances of `sltest.testmanager.TestFile` are files that can contain test suites and test cases.

For MATLAB-based Simulink tests, test files correspond to the file name. See “Test Models Using MATLAB-Based Simulink Tests” for more information.

The `sltest.testmanager.TestFile` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`obj = sltest.testmanager.TestFile(filePath)` opens the `sltest.testmanager.TestFile` that exists with the same file name and at the specified `FilePath` location. If the test file does not exist at the location, a new one is created with a default test suite and test case as children of the test file. The default test case type is a baseline test case.

`obj = sltest.testmanager.TestFile(filePath,mode)` overwrites the existing test file if `mode` is set to `true`. The default for mode is `false`.

Properties

`FilePath` — File path and name

character vector

File path and name of the test file, returned as a character vector.

Example: `'C:\MATLAB\test_file.mldatx'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`Description` — Test file description

character vector

Test file description text, specified as a character vector.

Attributes:

```
GetAccess                                   public
SetAccess                                   public
Dependent                                   true
NonCopyable                                 true
```

Data Types: `char`

`Dirty` — Unsaved changes indicator

`0` | `1`

Indicates if the test file has unsaved changes, returned as 0 or 1. If the value is 0, there are no unsaved changes. The value is 1 if there are unsaved changes.

Attributes:

```
GetAccess                                   public
SetAccess                                   private
Dependent                                   true
NonCopyable                                 true
```

Data Types: `logical`

`Enabled` — Test file execution indicator

`true` | `false`

Indicates if test cases that are children of the test file will execute, specified as a logical value `true` or `false`.

Attributes:

```
GetAccess                                   public
SetAccess                                   public
Dependent                                   true
NonCopyable                                 true
```

Data Types: `logical`

`Name` — Test file name

character vector

Name of the test file without the file path and file extension, returned as a character vector.

Attributes:

```
GetAccess                                   public
SetAccess                                   private
Dependent                                   true
NonCopyable                                 true
```

Data Types: `char`

`ReasonForDisabling` — Disabled description

character vector

Description text for why the test file was disabled, specified as a character vector. This property is visible only when the `Enabled` property is set to `false`.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`Requirements` — Test file requirements

structure array

The requirements that are attached at the test-file level, returned as a structure.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `struct`

`Tags` — Tags for categorizing

character vector | string array

Tags to use for categorizing, specified as a character vector or string array.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char` | `string`

Methods

Public Methods

close	Close test file in Test Manager
convertTestType	Convert test from one type to another
createTestForSubsystem	(To be removed) Create test harness and test case for subsystem in test file
createTestSuite	Create new test suite
getCoverageSettings	Get coverage settings
getOptions	Get and set test file options
getProperty	Get test file property
getTestCaseByName	Get test case object by name

getTestCases	Get test cases in a test file
getAllTestCases	Get all test cases in a test file
getTestSuiteByName	Get test suite object by name
getTestSuites	Get test suites at first level of test file
run	Run test cases in test file
saveToFile	Save test file
setProperty	Set test file property

Examples

Create New Test File

Create a new test file and return the test file object.

```
testfile = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx')
```

```
testfile =

  TestFile with properties:

           Name: 'test_file'
       FilePath: 'C:\MATLAB\test_file.mldatx'
          Dirty: 1
   Requirements: [0x1 struct]
    Description: ''
        Enabled: 1
```

See Also

`sltest.testmanager.TestSuite` | `sltest.testmanager.TestCase` | `sltest.TestCase`

Topics

“Create and Run Test Cases with Scripts”
“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2015b

sltest.testmanager.TestFileResult class

Package: `sltest.testmanager`
Superclasses: `sltest.testmanager.ResultSet`

Access test file results data

Description

Instances of `sltest.testmanager.TestFileResult` enable you to access the results from test execution performed by the Test Manager at a test-file level.

The `sltest.testmanager.TestFileResult` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

The function `sltest.testmanager.run` creates a `sltest.testmanager.ResultSet` object, which contains the test file result object. You can also create a test file result directly if you use `run` to execute tests in an individual test file.

Properties

`Duration` — Length of time the test ran, in seconds

duration

Length of time the test ran, in seconds, returned as a duration.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`NumDisabled` — Number of disabled tests

integer

The number of test cases that were disabled in the test file result.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

NumFailed — Number of failed tests

integer

The number of failed tests contained in the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumIncomplete — Number of incomplete tests

integer

The number of test cases that did not execute in the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumPassed — Number of passed tests

integer

The number of passed tests contained in the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumTestCaseResults — Number of test case result children

integer

The number of test case results that are direct children of the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumTestSuiteResults — Number of test suite result children

integer

The number of test suite results that are direct children of the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`NumTotal` — Total number of tests

integer

The total number of tests in the test file result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`Parent` — Parent of the result object

object

Parent of the result. The parent of a test file result is a result set object.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Release` — Release in which the test was run

character vector

Release in which the test was run, returned as a character vector.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`StartTime` — Time the test began to run

datetime

Time the test began to run, returned as a datetime.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`StopTime` — Time the test completed

datetime

Time the test completed, returned as a datetime.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Tags — Tags to filter test file results

string array

Tags to filter the test file results. Use tags to view a subset of the test results. See “Tags” for more information.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestFileResultPath — Result hierarchy path

character vector

The hierarchy path in the result set.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestFilePath — Test file path

character vector

The path of the test file used to create the result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

UserData — Custom data stored with test file results

any data type

Custom data stored with the test file results, specified as any type of data. Use this field to add custom information, such as the settings used to obtain the results.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Methods

Public Methods

getTestSuiteResults	Get test suite results object
getCoverageResults	Get coverage results
getCleanupPlots	Get plots from cleanup callbacks
getSetupPlots	Get plots from setup callbacks

Examples

Get Test File Result From Results Set

```
% Run test file in Test Manager and output results set
resultset = sltest.testmanager.run;

% Get the test file result object
tfr = getTestFileResults(resultset);
```

See Also

`sltest.testmanager.TestSuiteResult` | `sltest.testmanager.TestCaseResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.TestInput class

Package: `sltest.testmanager`

Add or modify test input

Description

Instances of `sltest.testmanager.TestInput` are sets of signal input data that can be mapped to override the inputs in the system under test.

The `sltest.testmanager.TestInput` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`obj = sltest.testmanager.TestCase.addInput` creates a `sltest.testmanager.TestInput` object for a test case object.

Properties

`Active` — Enabled indicator

`0` | `1`

Indicates if the input is set to override in the test case, `0` if it is not enabled, and `1` if it is enabled.

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `logical`

`ExcelSpecifications` — Sheet and range information for Excel baseline file

1-by-N array

Sheet and range information for Microsoft Excel baseline file, returned as a 1-by-N array, where each row has a `Sheet` and `Range` value. Specify `Range` as shown in the table.

Ways to specify Range	Description
`'Corner1:Corner2'` Rectangular Range	Specify the range using the syntax `'Corner1:Corner2'`, where *`Corner1`* and *`Corner2`* are two opposing corners that define the region. For example, `'D2:H4'` represents the 3-by-5 rectangular region between the two corners `D2` and `H4` on the worksheet. The `'Range'` name-value pair argument is not case-sensitive, and uses Excel A1 reference style (see Excel help). **Example:** `'Range','Corner1:Corner2'`
`''` Unspecified or Empty	If unspecified, the importing function automatically detects the used range. **Example:** `'Range',''` **Note:** *Used Range* refers to the rectangular portion of the spreadsheet that actually contains data. The importing function automatically detects the used range by trimming leading and trailing rows and columns that do not contain data. Text that is only white space is considered data and is captured within the used range.
`'Row1:Row2'` Row Range	You can identify the range by specifying the beginning and ending rows using Excel row designators. Then `readtable` automatically detects the used column range within the designated rows. For instance, the importing function interprets the range specification `'1:7'` as an instruction to read all columns in the used range in rows 1 through 7 (inclusive). **Example:** `'Range','1:7'`
`'Column1:Column2'` Column Range	You can identify the range by specifying the beginning and ending columns using Excel column designators. Then `readtable` automatically detects the used row range within the designated columns. For instance, the importing function interprets the range specification `'A:F'` as an instruction to read all rows in the used range in columns A through F (inclusive). **Example:** `'Range','A:F'`
`'NamedRange'` Excel Named Range	In Excel, you can create names to identify ranges in the spreadsheet. For instance, you can select a rectangular portion of the spreadsheet and call it `'myTable'`. If such named ranges exist in a spreadsheet, then the importing function can read that range using its name. **Example:** `'Range','myTable'`

Attributes:

```
GetAccess                                   public
SetAccess                                   public
Dependent                                   true
NonCopyable                                 true
```

Data Types: `array`

`FilePath` — File path

character vector

File path of the test input, returned as a character vector.

Example: `'C:\MATLAB\sltestExampleInputs.xlsx'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`InputString` — Input

character vector

Input evaluated during test case execution in the `LoadExternalInput` configuration parameter of the system under test, specified as a character vector.

Example: `'Acceleration.getElement(1),Acceleration.getElement(2)'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types:

`Name` — Test input name

character vector

Name of the test input, returned as a character vector.

Example: `'sltestExampleInputs.xlsx'`

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `char`

`MappingStatus` — Input mapping status

character vector

Mapping status to indicate if the inport mapping was successful. For more information about troubleshooting the mapping status, see “Understand Mapping Results”.

Example: `'Successfully mapped inputs.'`

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: char

Methods

Public Methods

addExcelSpecification	Add a Microsoft Excel sheet to baseline criteria or test case inputs
map	Map test input to system under test
remove	Remove test input

Examples

Add Microsoft® Excel® Data as Input

This example shows how to add data from a Microsoft® Excel® spreadsheet and map it to a test case. Only the two sheets that have data are added and mapped.

Load the Example Model

```
open_system('sltestExcelExample');
```

Create a New Test File

```
tf = sltest.testmanager.TestFile('input_test_file.mldatx');
```

Get the Test Suite and Test Case Objects

```
ts = getTestSuites(tf);
tc = getTestCases(ts);
```

Add the Example Model as the System Under Test

```
setProperty(tc,'Model','sltestExcelExample');
```

Add Excel® Data to Inputs Section and Specify Sheets to Add

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile,'Sheets',["Acceleration","Braking"]);
```

Map the Input Signal for the Sheets by Block Name

```
map(input(1),0);
map(input(2),0);
```

See Also

sltest.testmanager.TestCase | addInput

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

sltest.testmanager.TestIteration class

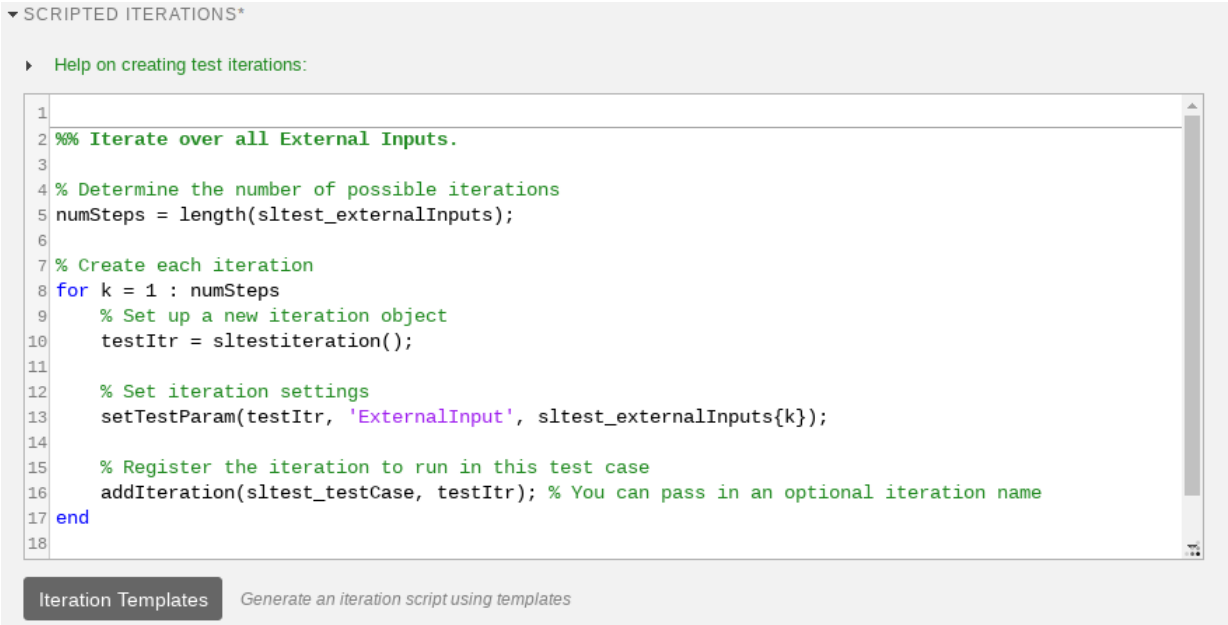
Package: `sltest.testmanager`

Create or modify test iteration

Description

Iterations let you test a combination of model settings for testing methods such as Monte Carlo and parameter sweeping. Iterations initialize during test execution but before model callbacks and test callbacks. Once you create a test iteration object, you can override aspects of the test case for each iteration using the class methods.

You create your iteration script in the text window under the **Iterations** section of a test case. Iteration scripts cannot run in the MATLAB command window.



The examples scripts in this reference page must be inserted into this section and other sections of the test case must be defined. For more information on iterations and scripted iterations, see “Test Iterations”.

The `sltest.testmanager.TestIteration` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`iterationObj = sltest.testmanager.TestIteration` returns a test iteration object. The object is used to construct a single iteration in a test case. Each iteration you want to create in the test must use a single iteration object.

You can also create a test iteration within a iteration script using the `sltestiteration` function.

If you use a `for` loop in the MATLAB command window to add many iterations to a test case, then the MATLAB command window might become temporarily unusable. Instead, use vectorization in the command window to add iterations to a test case. For example:

```
iterations(100) = sltest.testmanager.TestIteration;
addIteration(tc,iterations);
```

Properties

`Name` — Iteration name

empty (default) | character vector

Name of the test iteration, specified as a character vector. The iteration name must be unique from other iterations in the test case.

Example: `'Iteration 1a'`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`ModelParams` — Model parameter overrides

empty (default) | cell array

Set of model parameter overrides for the iteration, returned as a cell array of character vectors.

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`TestParams` — Test parameter settings

empty (default) | cell array

Set of test parameter settings for the iteration, returned as a cell array of character vectors.

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`Variables` — Model variable overrides

empty (default) | cell array

Set of model variable overrides for the iteration, returned as a cell array of character vectors.

Attributes:

`SetAccess`	`protected`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`Enabled` — Run iteration with test case

`false` (default) | `true`

Option to run the iteration with the test case, specified as a logical.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

Methods

Public Methods

getIterationResults	Get test iteration results history
setModelParam	Set model parameter for iteration
setTestParam	Set test case parameter
setVariable	Set model variable override

Examples

Model Parameter Sweep

In this example of a scripted iteration, specify the model in the test case to be `sldemo_absbrake`. The iterations are generated during test execution. This section of script is in the **Scripted Iterations** section of the test case. It will execute only in the **Scripted Iterations** section. The `sltest_testCase` is a variable defined for you in the **Scripted Iterations** section, which is the parent test case object of the iteration.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Specify the parameter sweep
vars = 32 : 0.5 : 34;

% Create iteration for each parameter using a loop
for k = 1 : length(vars)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration;
```

```
    % Set the parameter value for this iteration
    setVariable(testItr,'Name','g','Source',...
       'base workspace','Value',vars(k));

    str = sprintf('Iteration %d',k);

    % Add the iteration object to the test case
    addIteration(sltest_testCase,testItr,str);
end
```

Iterate Over Parameter Sets

In this example of a scripted iteration, there must be parameter sets defined in the **Parameter Overrides** section of the test case. The iterations are generated during test execution. This section of script is in the **Scripted Iterations** section of the test case. It will execute only in the **Scripted Iterations** section. The `sltest_testCase` is a variable defined for you in the **Scripted Iterations** section, which is the parent test case object of the iteration.

```
% Define parameter sets for a test case and add this code in the

% Scripted iterations section of the test case
for k = 1 : length(sltest_parameterSets)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration;

    % Use the parameter set in this iteration
    testItr.setTestParam('ParameterSet',sltest_parameterSets{k});

    str = sprintf('ParameterSet %d',k);

    % Add the iteration object to the test case
    addIteration(sltest_testCase,testItr,str);
end
```

Alternatives

If you do not want to use a script to create iterations, then you can use table iterations in the test case. For more information about table iterations, see “Test Iterations”.

See Also

`sltest.testmanager.TestIterationResult`

Topics

“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.TestIterationResult class

Package: `sltest.testmanager`

Access test iteration result data

Description

Instances of `sltest.testmanager.TestIterationResult` enable you to access the results from test execution performed by the Test Manager at a test-iteration level. The hierarchy of test results is Result Set > Test File Result > Test Suite Result > Test Case Result > Test Iteration Result.

The `sltest.testmanager.TestIterationResult` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

The function `sltest.testmanager.run` creates a `sltest.testmanager.ResultSet` object, which contains the test case result object. For an example, see “Get Test Iteration Results” on page 2-122

Properties

`Outcome` — Outcome of test iteration result

0 | 1 | 2 | 3

The outcome of an individual test iteration result. The integer `0` means the test iteration was disabled, `1` means the test iteration execution was incomplete, `2` means the test iteration passed, and `3` means the test iteration failed.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `integer`

`Duration` — Length of time the test iteration ran, in seconds

duration

Length of time the test iteration ran, in seconds, returned as a duration.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `duration`

`StartTime` — Time the test iteration began to run

datetime

Time the test iteration began to run, returned as a datetime.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `datetime`

`StopTime` — Time the test iteration completed

datetime

Time the test completed, returned as a datetime.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `datetime`

`TestFilePath` — Test file path

character vector

The path of the test file used to create the test iteration result.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

`TestCasePath` — Result hierarchy path

character vector

The hierarchy path in the parent result set.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

`TestCaseType` — Type of test case

`'Simulation'` | `'Baseline'` | `'Equivalence'`

The type of test case from the three available test cases in the Test Manager: simulation, baseline, and equivalence.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

`TestSequenceScenario` — Test sequence scenario

struct

Test sequence scenario used in the test iteration, returned as a struct. The struct contains two fields, `TestSequenceBlock` and `TestSequenceScenario`. The `TestSequenceBlock` field is the path of the Test Sequence block containing the scenario that ran for this iteration. The `TestSequenceScenario` is the name of that scenario. The test sequence information is returned in a `TestIterationResult` object only if the test case included iterations. If iterations were not included, the `TestSequenceScenario` is returned in a `TestCaseResults` object.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `struct`

`RunOnTarget` — Target indicator

cell array

Indicates if the simulation ran on the target or not, returned as an array of Booleans.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `logical`

`Parent` — Parent of the result object

`sltest.testmanager.TestCaseResult` object

Parent of the result. The parent of a test iteration result is a test case result object.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `sltest.testmanager.TestCaseResult`

`ErrorMessages` — Error messages

array of strings

Error messages produced by the iteration, returned as a array of strings.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `string`

`LogMessages` — Log messages

array of strings

Log messages produced by the iteration, returned as a array of strings.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types: `string`

`UserData` — Custom data stored with test iteration results

any data type

Custom data stored with the test iteration results, specified as any type of data. Use this field to add custom information, such as the settings used to obtain the results.

Methods

Public Methods

getBaselineRun	Get test iteration baseline dataset
getComparisonResult	Get test data comparison result
getComparisonRun	Get test iteration signal comparison results
getCoverageResults	Get coverage results

getCustomCriteriaPlots	Get plots from custom criteria
getCustomCriteriaResult	Get custom criteria results from test iteration
getOutputRuns	Get test iteration simulation output results
getSimulationPlots	Get plots from callbacks
getTestIteration	Get test iteration that produced result
getVerifyRuns	Get test iteration verify statement

Examples

Get Test Iteration Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile...
   ('Get Test Iteration Results File');
ts = createTestSuite(tf,'Test Suite');
tc = createTestCase(ts,'baseline','Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Specify iterations
vars = 32 : 0.5 : 34;

for k = 1 : length(vars)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration;

    % Set the parameter value for this iteration
    setVariable(testItr,'Name','g','Source',...
       'base workspace','Value',vars(k));

    str = sprintf('Iteration %d',k);

    % Add the iteration object to the test case
    addIteration(tc,testItr,str);
end

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

```
% Get the test case type from first iteration
testType = tir(1).TestCaseType;
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Test Iterations”
“Programmatically Create and Run Test Sequence Scenarios”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.TestResultReport class

Package: `sltest.testmanager`

Customize generated results report

Description

`sltest.testmanager.TestResultReport` is a class that enables you to customize report generation of result from the Test Manager. You can derive the class and override various methods to customize your report. By customizing the methods, you can change the report title, plots, tables, headers, icons, and more.

For more information and examples on customizing reports, see “Customize Test Results Reports”.

The `sltest.testmanager.TestResultReport` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

`Obj = sltest.testmanager.TestResultReport(resultObjects,reportFilePath)` creates a report generation object.

To use this class, you must inherit from the class. Use the following code as the first lines in your class definition code to inherit from the class.

```
% class definition
classdef CustomReport < sltest.testmanager.TestResultReport
    %
    % Report customization code here
    %
end
```

Input Arguments

`resultObjects` — Results set object
object

Results set object to get results from, specified as an `sltest.testmanager.ResultSet` object.

`reportFilePath` — File name and path of the generated report
character vector

File name and path of the generated report. File path must have file extension of pdf, docx, or zip, which are the only supported file types.

Example: `'C:\MATLAB\Report.pdf'`

Properties

`AuthorName` — Author name

empty character vector (default)

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`BodyFontColor` — Body paragraph font color

`'Black'` (default) | character vector

Body paragraph text font color, specified as a character vector.

Example: `'Red'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`BodyFontName` — Body paragraph font style name

`'Arial'` (default) | character vector

Body paragraph text font-style name, specified as a character vector.

Example: `'Times New Roman'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`BodyFontSize` — Body paragraph font size

`'12pt'` (default) | character vector

Body paragraph text font size, specified in points as a character vector.

Example: `'14pt'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`ChapterIndent` — First level indentation width

`'3mm'` (default) | character vector

First level section indentation width, specified in millimeters as a character vector.

Example: '5mm'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

ChapterIndentL2 — Second level indentation width

'6mm' (default) | character vector

Second level section indentation width, specified in millimeters as a character vector.

Example: '8mm'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

ChapterIndentL3 — Third level indentation width

'8mm' (default) | character vector

Third level section indentation width, specified in millimeters as a character vector.

Example: '10mm'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

CustomTemplateFile — Template file name and path

empty character vector (default)

The file name and path to a Microsoft Word template file for report customization, specified as a character vector. For more information about using template files, see “Generate Reports Using Templates”. The use of this argument is valid only available if you have a MATLAB Report Generator license.

Example: 'C:\MATLAB\CustomReportTemplate.dotx'

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

HeadingFontColor — Section heading font color

'Black' (default) | character vector

Section heading text font color, specified as a character vector.

Example: `'Blue'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

HeadingFontName — Section heading font style name

`'Arial'` (default) | character vector

Section heading text font-style name, specified as a character vector.

Example: `'Times New Roman'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

HeadingFontSize — Section heading font size

`'14pt'` (default) | character vector

Section heading text font color, specified in points as a character vector.

Example: `'16pt'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

IconFileOutcomeDisabled — Disabled test result icon

empty character vector (default)

File name and path of an icon image for a disabled test result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\disabled_test_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

IconFileOutcomeFailed — Failed test result icon

empty character vector (default)

File name and path of an icon image for a failed test result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\failed_test_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileOutcomeIncomplete` — Incomplete test result icon

empty character vector (default)

File name and path of an icon image for an incomplete test result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\incomplete_test_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileOutcomeMisaligned` — Misaligned test result icon

empty character vector (default)

File name and path of an icon image for a misaligned test result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\misaligned_test_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileOutcomePassed` — Passed test result icon

empty character vector (default)

File name and path of an icon image for a passed test result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\passed_test_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileTestCaseResult` — Test case result icon

empty character vector (default)

File name and path of an icon image for a test case result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\test_case_result_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileTestFileResult` — Test file result icon

empty character vector (default)

File name and path of an icon image for a test file result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\test_file_result_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileTestIterationResult` — Iteration result icon

empty character vector (default)

File name and path of an icon image for an iteration result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\iteration_result_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconFileTestSuiteResult` — Test suite result icon

empty character vector (default)

File name and path of an icon image for a test suite result, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\test_suite_result_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconModelReference` — Model reference icon

empty character vector (default)

File name and path of an icon image for a model reference in the coverage report, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\model_reference_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IconTopLevelModel` — Top-level model icon

empty character vector (default)

File name and path of an icon image for a top-level model in the coverage report, specified as a character vector. The icon file specified replaces the default icon image. The icon image is reduced to 16x16 pixels.

Example: `'C:\MATLAB\top_level_model_icon.png'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeComparisonSignalPlots` — Include comparison signal plots

`false` (default) | `true`

Include the signal comparison plots in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeCoverageResult` — Include coverage results

`false` (default) | `true`

Include the coverage results in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeErrorMessages` — Include error messages

`true` (default) | `false`

Include error messages in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeMWVersion` — Include MATLAB version

`true` (default) | `false`

Include the version of MATLAB used to run the tests in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeSimulationMetaData` — Include simulation metadata

`false` (default) | `true`

Include simulation metadata in the report, specified as `true` or `false`. The metadata includes: Simulink version, model version, model author, date, model user ID, model path, machine name, solver name, solver type, fixed step size, simulation start time, simulation stop time, and platform.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeSimulationSignalPlots` — Include simulation signal plots

`false` (default) | `true`

Include the simulation signal output plots in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeTestRequirement` — Include test requirement

`true` (default) | `false`

Include the test requirements linked to the test file, test suite, or test case in the report, specified as `true` or `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`IncludeTestResults` — Include all or subset of test results

2 (default) | `0` | `1`

Include all or a subset of test results in the report. You can select all passed and failed results, specified as the value `0`, select only passed results, specified as the value `1`, or select only failed results, specified as the value `2`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`LaunchReport` — Open report at completion

`true` (default) | `false`

Open the report when it is finished generating, specified as a boolean value, `true` or to not open the report, `false`.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`ReportTitle` — Report title

empty character vector (default)

Title of the report, specified as a character vector

Example: `'Test Case Report'`

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`SectionSpacing` — Spacing between sections

`'2mm'` (default) | character vector

Spacing between sections, specified in millimeters as a character vector.

Example: `'5mm'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

SignalPlotHeight — Plot height

'600px' (default) | character vector

Plot height, specified in pixels as a character vector.

Example: '500px'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

SignalPlotWidth — Plot width

'500px' (default) | character vector

Plot width, specified in pixels as a character vector.

Example: '400px'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

TableFontColor — Table font color

'Black' (default) | character vector

Table font color, specified as a character vector.

Example: 'Blue'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

TableFontName — Table font style name

'Arial' (default) | character vector

Table font-style name, specified as a character vector.

Example: 'Times New Roman'

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`TableFontSize` — Table font size

`'7.5pt'` (default) | character vector

Table font size, specified in points as a character vector.

Example: `'10pt'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`TitleFontColor` — Title font color

`'Black'` (default) | character vector

Title font color, specified as a character vector.

Example: `'Blue'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`TitleFontName` — Title font style name

`'Arial'` (default) | character vector

Title font-style name, specified as a character vector.

Example: `'Times New Roman'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`TitleFontSize` — Title font size

`'16pt'` (default) | character vector

Title font size, specified in points as a character vector.

Example: `'20pt'`

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

Methods

Public Methods

genTableRowsForResultMetaInfo	Generate test result metadata table
addReportBody	Add main report body
addReportTOC	Add report table of contents
addTitlePage	Add report title page
genBaselineInfoTable	Generate baseline dataset information table
genCoverageTable	Generate coverage collection table
genHyperLinkToToC	Generate link to table of contents
genIterationSettingTable	Generate iteration settings table
genMetadataBlockForTestResult	Generate result metadata section
genParameterOverridesTable	Generate test case parameter overrides table
genRequirementLinksTable	Generate requirement links table
genResultSetBlock	Generate results set section
genRunBlockForTestCaseResult	Generate test case configuration and results section
genSignalSummaryTable	Generate signal output and comparison data
genSimulationConfigurationTable	Generate test case simulation configuration table
genTableRowsForResultMetaInfo	Generate test result metadata table
genTestCaseResultBlock	Generate test case result section
genTestSuiteResultBlock	Generate test suite result section
layoutReport	Incorporates parts of report into one document
plotOneSignalToFile	Save signal plot to file

Examples

Inherit Class and Customize a Report

```
% class definition
classdef CustomReport < sltest.testmanager.TestResultReport
    % This custom class used by Test Manager
    % adds a custom message in the title page

    % Class constructor
    methods
        function this = CustomReport(resultObjects, reportFilePath)
            this@sltest.testmanager.TestResultReport...
               (resultObjects,reportFilePath);
        end
    end

    methods(Access=protected)
        function addTitlePage(obj)
            import mlreportgen.dom.*;

            % Call the superclass method to get the default behavior
```

```
            addTitlePage@sltest.testmanager.TestResultReport(obj);

            % Add a custom message
            label = Text('Some custom content can be added here');
            append(obj.TitlePart,label);
        end
    end
end
```

Use Custom Report Class to Generate Report

```
% import existing results or use sltest.testmanager.run to run tests
% and collect results
result = sltest.testmanager.importResults('testResults.mldatx');
filePath = 'testreport.zip';
sltest.testmanager.report(result,filePath,...
            'Author','User',...
            'Title','Test',...
            'IncludeMLVersion',true,...
            'IncludeTestResults',int32(0),...
            'CustomReportClass','CustomReport',...
            'LaunchReport',true);
```

See Also

`sltest.testmanager.report` | `sltest.testmanager.ResultSet`

Topics

“Customize Test Results Reports”
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

sltest.testmanager.TestSuite class

Package: `sltest.testmanager`

Create or modify test suite

Description

Instances of `sltest.testmanager.TestSuite` can contain other test suites and test cases. For MATLAB-based Simulink tests, test suites are implemented using class and method parameters. See “Test Models Using MATLAB-Based Simulink Tests” for more information.

The `sltest.testmanager.TestSuite` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

Description

`obj = sltest.testmanager.TestSuite(parent,name)` creates a `sltest.testmanager.TestSuite` object with the specified Name as a child of the specified Parent. You can use test files or other test suites as the parent.

Properties

`Parent` — Parent test file or test suite

object

Test file or test suite that is the parent of the specified test suite, specified as a `sltest.testmanager.TestFile` or `sltest.testmanager.TestSuite` object.

Attributes:

`GetAccess`	`public`
`SetAccess`	`private`
`Dependent`	`true`
`NonCopyable`	`true`

Data Types:

`Name` — Test suite name

character vector

Name of the test file without the file path and file extension, returned as a character vector.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types:

`Description` — Test suite description

character vector

Test suite description text, specified as a character vector.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `char`

`Enabled` — Test suite execution indicator

`true` (default) | `false`

Indicates if test cases that are children of the test suite execute, specified as a logical value `true` or `false`.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `logical`

`ReasonForDisabling` — Disabled description

character vector

Description text for why the test suite was disabled, specified as a character vector. This property is visible only when the `Enabled` property is set to `false`.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `char`

`Requirements` — Test suite requirements

structure array

The requirements that are attached at the test-suite level, returned as a structure.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `struct`

Tags — Tags for categorizing

character vector | string array

Tags to use for categorizing, specified as a character vector or string array.

Attributes:

GetAccess	public
SetAccess	public
Dependent	true
NonCopyable	true

Data Types: `char` | `string`

TestFile — Parent test file

`sltest.testmanager.TestFile` object

Test file that is the parent of the test suite, returned as a `sltest.testmanager.TestFile` object.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `object`

TestPath — Test hierarchy

character vector

Test file and test suite hierarchy, returned as a character vector.

Attributes:

GetAccess	public
SetAccess	private
Dependent	true
NonCopyable	true

Data Types: `char`

Methods

Public Methods

convertTestType	Convert test from one type to another

createTestCase	Create test case
createTestForSubsystem	(To be removed) Create test harness and test case for subsystem in test suite
createTestSuite	Create test suite
getCoverageSettings	Get coverage settings
getOptions	Get test file options
getProperty	Get test suite property
getTestCaseByName	Get test case object by name
getTestCases	Get test cases at first level of test suite
getTestSuiteByName	Get test suite object by name
getTestSuites	Get test suites at first level of test suite
remove	Remove test suite
run	Run test cases in test suite
setProperty	Set test suite property

Examples

Create New Test File and Suite

```
% Create test file
testfile = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
testsuite = sltest.testmanager.TestSuite(testfile,'My Test Suite')

testsuite =

  TestSuite with properties:

           Name: 'My Test Suite'
       TestFile: [1x1 sltest.testmanager.TestFile]
       TestPath: 'test_file > My Test Suite'
         Parent: [1x1 sltest.testmanager.TestFile]
   Requirements: [0x1 struct]
    Description: ''
        Enabled: 1
```

See Also

`sltest.testmanager.TestFile` | `sltest.testmanager.TestCase` | `testsuite`

Topics

“Create and Run Test Cases with Scripts”
“Use Parameters in Class-Based Tests”
“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2015b

sltest.testmanager.TestSuiteResult class

Package: `sltest.testmanager`
Superclasses: `sltest.testmanager.ResultSet`

Access test suite results data

Description

Instances of `sltest.testmanager.TestSuiteResult` enable you to access the results from test execution performed by the Test Manager at a test-suite level.

The `sltest.testmanager.TestSuiteResult` class is a `handle` class.

Class Attributes

`HandleCompatible`	`true`

For information on class attributes, see “Class Attributes”.

Creation

The function `sltest.testmanager.run` creates a `sltest.testmanager.ResultSet` object, which contains the test suite result object. You can also create a test suite result directly if you use `run` to execute tests in an individual test suite.

Properties

`Duration` — Length of time the test suite ran, in seconds

duration

Length of time the test suite ran, in seconds, returned as a duration.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

`NumDisabled` — Number of disabled tests

integer

The number of test cases that were disabled in the test suite result.

Attributes:

`SetAccess`	`public`
`GetAccess`	`public`
`Dependent`	`true`
`NonCopyable`	`true`

NumFailed — Number of failed tests
integer

The number of failed tests contained in the test suite result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumPassed — Number of passed tests
integer

The number of passed tests contained in the test suite result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumTestCaseResults — Number of test case result children
integer

The number of test case results that are direct children of the test suite result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumTestSuiteResults — Number of test suite result children
integer

The number of test suite results that are direct children of the test suite result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

NumTotal — Total number of tests
integer

The total number of tests in the test suite result.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`Parent` — Parent of the result object

object

Parent of the result. The parent of a test suite result is another test suite result, test file result, or result set object.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

`Release` — Release in which the test was run

character vector

Release in which the test was run, returned as a character vector.

Attributes:

SetAccess	protected
GetAccess	public
Dependent	true
NonCopyable	true

`StartTime` — Time the test suite began to run

datetime

Time the test suite began to run, returned as a datetime.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

`StopTime` — Time the test suite completed

datetime

Time the test suite completed, returned as a datetime.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Tags — Tags to filter test file results

string array

Tags to filter the test file results. Use tags to view a subset of the test results. See “Tags” for more information.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

TestFilePath — Test file path

character vector

The path of the test file used to create the result.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

TestSuitePath — Result hierarchy path

character vector

The hierarchy path in the parent result set.

Attributes:

SetAccess	private
GetAccess	public
Dependent	true
NonCopyable	true

UserData — Custom data stored with test suite results

any data type

Custom data stored with the test suite results, specified as any type of data. Use this field to add custom information, such as the settings used to obtain the results.

Attributes:

SetAccess	public
GetAccess	public
Dependent	true
NonCopyable	true

Methods

Public Methods

getCleanupPlots	Get plots from cleanup callbacks of test suite
getCoverageResults	Get coverage results

getSetupPlots	Plots from setup callbacks
getTestCaseResults	Get test case results object
getTestSuiteResults	Get test suite results object

Examples

Get Test Suite Result From Results Set

```
% Run test file in Test Manager and output results set
resultset = sltest.testmanager.run;

% Get test file result object
tfr = getTestFileResults(resultset);

% Get test suite result object
tsr = getTestSuiteResults(tfr);
```

See Also

`sltest.testmanager.TestFileResult` | `sltest.testmanager.TestCaseResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

Methods

assertSignalsMatch

Class: `sltest.TestCase`
Package: `sltest`

Assert two data sets are equivalent

Syntax

```
assertSignalsMatch(testCase,actual,expected)
assertSignalsMatch( ___ ,diagnostic)
assertSignalsMatch( ___ ,Name,Value)
```

Description

`assertSignalsMatch(testCase,actual,expected)` filters test content by asserting that the actual and expected signal data values are equivalent. When an assertion fails, the test point or test file stops running, and that test is marked as failed. This qualification is useful when a failure at the assertion point renders the rest of the current test method invalid, but does not prevent proper execution of other test methods. Often, you use assertions to check that preconditions of the current test are not violated or that fixtures are set up correctly. For more information, see `matlab.unittest.qualifications.Assertable`.

`assertSignalsMatch( ___ ,diagnostic)` returns diagnostic information when the actual and expected data values are not equivalent.

`assertSignalsMatch( ___ ,Name,Value)` filters test content with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`actual` — Actual values to compare to expected values

time series data | string | character array

Actual values to compare to expected values, specified as time series data, a string, or character array. The data for each actual value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/actualData.mat'`

`expected` — Expected values to use as the baseline for the comparison

time series data | string scalar | character array

Expected values to use as the baseline for the comparison. The data for each expected value must pair data value with time value. The data must be in a format supported by the Simulation Data

Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/expectedData.mat'`

`diagnostic` — Diagnostic information
string | character vector | function handle | `matlab.unittest.diagnostics.Diagnostic` instance

Diagnostic information to display when the assertion that the actual and expected values are equivalent fails, specified as a string, character array, a function handle, or an instance of a `matlab.unittest.diagnostics.Diagnostic` class.

Example: `'Simulation output does not match.'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

In addition to the listed Name-Value pairs, you can use the `Simulink.sdi.constraints.MatchesSignal` Name-Value pairs.

Example: `'AbsTol',.02`

`AbsTol` — Absolute tolerance
0 (default) | scalar

Absolute tolerance, specified as the comma-separated pair consisting of `'AbsTol'` and the scalar value of the tolerance. The tolerance specifies the magnitude of the difference between the actual and expected values.

Example: `'AbsTol',1e-9`

`RelTol` — Relative tolerance
0 (default) | scalar

Relative tolerance, specified as the comma-separated pair consisting of `'RelTol'` and the scalar value of the tolerance. The relative tolerance specifies the magnitude of the difference between the actual and expected values, relative to the expected value.

Example: `'RelTol',.002`

`TimeTol` — Time tolerance
0 (default) | scalar

Time tolerance, specified as the comma-separated pair consisting of `'TimeTol'` and the scalar value of the tolerance.

Example: `'TimeTol',.2`

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Assert that Back-to-Back Simulations Match

Create a test case for interactive use. Then, simulate the model in normal mode to obtain the expected values, and simulate in rapid accelerator mode to obtain the actual values. Use `assertSignalsMatch` to compare the values.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

expected = testCase.simulate('myModel',...
   'SimulationMode','Normal');
actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assertSignalsMatch(actual,expected)
```

Assert that Simulation Outputs Match Within a Specified Tolerance

Create a test case for interactive use. Simulate the model in rapid accelerator mode to obtain the actual values. Use `assertSignalsMatch` to compare the actual values to the baseline values saved in a MAT=file. Set a relative tolerance.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assertSignalsMatch(actual,'baseline.mat',...
   'RelTol',0.001)
```

Assert that Simulations Match and Display Custom Diagnostic Message

Create a test case for interactive use. Then, simulate the model in rapid accelerator mode to obtain the actual values. Use `assertSignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Specify the diagnostic message to display if the assertion fails.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assertSignalsMatch(actual,'baseline.mat',...
```

```
    'Rapid-Accel output did not match.')
```

See Also

`sltest.TestCase` | `Simulink.sdi.constraints.MatchesSignal` | `matlab.unittest.qualifications.Assertable` | `fatalAssertSignalsMatch` | `verifySignalsMatch` | `assumeSignalsMatch` | `matlab.unittest.constraints.AbsoluteTolerance` | `matlab.unittest.constraints.RelativeTolerance`

Topics

“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2020b

assumeSignalsMatch

Class: `sltest.TestCase`
Package: `sltest`

Assume two data sets are equivalent

Syntax

```
assumeSignalsMatch(testCase,actual,expected)
assumeSignalsMatch( ___ ,diagnostic)
assumeSignalsMatch( ___ ,Name,Value)
```

Description

`assumeSignalsMatch(testCase,actual,expected)` assumes that the actual and expected signal data values are equivalent. When an assumption fails, the test stops running at the test point or test file, and the test is marked as incomplete. For more information, see `matlab.unittest.qualifications.Assumable`.

`assumeSignalsMatch( ___ ,diagnostic)` returns diagnostic information when the actual and expected data values are not equivalent.

`assumeSignalsMatch( ___ ,Name,Value)` filters test content with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`actual` — Actual values to compare to expected values

time series data | string | character array

Actual values to compare to expected values, specified as time series data, a string, or character array. The data for each actual value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/actualData.mat'`

`expected` — Expected values to use as the baseline for the comparison

time series data | string scalar | character array

Expected values to use as the baseline for the comparison. The data for each expected value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/expectedData.mat'`

`diagnostic` — Diagnostic information
string | character vector | function handle | `matlab.unittest.diagnostics.Diagnostic` instance

Diagnostic information to display when the assumption that the actual and expected values are equivalent fails, specified as a string, character array, a function handle, or an instance of a `matlab.unittest.diagnostics.Diagnostic` class.

Example: `'Simulation output does not match.'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

In addition to the listed Name-Value pairs, you can use the `Simulink.sdi.constraints.MatchesSignal` Name-Value pairs.

Example: `'AbsTol',.02`

`AbsTol` — Absolute tolerance
0 (default) | scalar

Absolute tolerance, specified as the comma-separated pair consisting of `'AbsTol'` and the scalar value of the tolerance. The tolerance specifies the magnitude of the difference between the actual and expected values.

Example: `'AbsTol',1e-9`

`RelTol` — Relative tolerance
0 (default) | scalar

Relative tolerance, specified as the comma-separated pair consisting of `'RelTol'` and the scalar value of the tolerance. The relative tolerance specifies the magnitude of the difference between the actual and expected values, relative to the expected value.

Example: `'RelTol',.002`

`TimeTol` — Time tolerance
0 (default) | scalar

Time tolerance, specified as the comma-separated pair consisting of `'TimeTol'` and the scalar value of the tolerance.

Example: `'TimeTol',.2`

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Assume that Back-to-Back Simulations Match

Create a test case for interactive use. Then, simulate the model in normal mode to obtain the expected values, and simulate in rapid accelerator mode to obtain the actual values. Use `assumeSignalsMatch` to compare the values.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

expected = testCase.simulate('myModel',...
   'SimulationMode','Normal');
actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assumeSignalsMatch(actual,expected)
```

Assume that Simulation Outputs Match Within a Specified Tolerance

Create a test case for interactive use. Simulate the model in rapid accelerator mode to obtain the actual values. Use `assumeSignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Set an absolute tolerance.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assumeSignalsMatch(actual,'baseline.mat',...
   'AbsTol',1e-12)
```

Assume that Simulations Match and Display Custom Diagnostic Message

Create a test case for interactive use. Then, simulate the model in rapid accelerator mode to obtain the actual values. Use `assumeSignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Specify the diagnostic message to display if the assumption fails.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.assumeSignalsMatch(actual,'baseline.mat',...
```

```
    'Rapid-Accel output did not match.')
```

See Also

`sltest.TestCase` | `matlab.unittest.qualifications.Assumable` | `matlab.unittest.constraints.AbsoluteTolerance` | `Simulink.sdi.constraints.MatchesSignal` | `fatalAssertSignalsMatch` | `verifySignalsMatch` | `assertSignalsMatch` | `matlab.unittest.constraints.RelativeTolerance` | `Simulink.sdi.constraints.MatchesSignal`

Topics

“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2020b

createTemporaryFolder

Class: `sltest.TestCase`
Package: `sltest`

Create temporary folder

Syntax

```
folder = createTemporaryFolder(testCase)
```

Description

`folder = createTemporaryFolder(testCase)` returns a temporary folder This folder is deleted based on the scope of the test case. For example, for a folder created by a method, that folder is deleted when the method is complete and goes out of scope. Temporary folders are useful if you want to use a separate folder to store methods of a test case. See“Create Temporary Folder for Each Test Method” on page 3-10 “Write Plugins to Extend TestRunner” for information on test case scope.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

Output Arguments

`folder` — Temporary folder path

character vector

Temporary folder, returned as a character vector.

Attributes

`Access`	`public`

To learn about attributes of methods, see Method Attributes.

Examples

Create Temporary Folder for Each Test Method

```
classdef tempFolder < sltest.TestCase

    properties
       Folder;
    end
```

```
    methods (TestMethodSetup)
       function setup(testCase)
          testCase.Folder = ...
             testCase.createTemporaryFolder();
       end
    end

    methods (Test)
       function test1(testCase)
          testCase.simulate('myModel1',...
             'InFolder',testCase.Folder);
       end

       function test2(testCase)
          testCase.simulate('myModel2',...
             'InFolder',testCase.Folder);
       end
   end
end
```

See Also

`sltest.TestCase`

Topics

“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2020b

createSimulationInput

Create simulation input object

Syntax

```
inputObj = createSimulationInput(model)
inputObj = createSimulationInput(model,'WithHarness',harness)
```

Description

`inputObj = createSimulationInput(model)` creates a `Simulink.SimulationInput` or `sltest.harness.SimulationInput` object for the specified `model`. If the model is not loaded, `createSimulationInput` uses `testCase.loadSystem` to loads the model when you simulate it.

`inputObj = createSimulationInput(model,'WithHarness',harness)` creates an `sltest.harness.SimulationInput` object for the specified test harness.

Input Arguments

`model` — Model name

string | character vector

Name of the model, specified as a string or character vector, without the model extension. For example, for the `myModel.slx` model, enter only `myModel`.

Example: `'RollAutopilotModelRef'`

`harness` — Harness name

string | character vector

Name of the harness, specified as a comma-separated pair of consisting of `'WithHarness'` and the name of the test harness for which to create input, specified as a string or character vector.

Example: `'WithHarness','RollAutopilotModelRef_harness1'`

Output Arguments

`inputObj` — Simulation input object

`Simulink.SimulationInput` object | `sltest.harness.SimulationInput` object

Simulation input object, returned as a `Simulink.SimulationInput` or `sltest.harness.SimulationInput` object. To use the simulation input with a test harness, use the `WithHarness` syntax to return an `sltest.harness.SimulationInput` object. If you do not use the `WithHarness` option, this function returns a `Simulink.SimulationInput`. You use these objects to pass inputs to a harness or model, respectively.

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Create Simulation Input For a Harness

Create a MATLAB-based Simulink test file named `testSim.m`.

In the file, define the test case in the `testOne` function. The function creates the simulation input for a harness called `myExample_harness1`, simulates using that input, and compares the simulation output to a baseline file.

```
classdef testSim < sltest.TestCase
    methods (Test)
        function testOne(testCase)
            in = testCase.createSimulationInput('myExample',...
               'WithHarness','myExample_Harness1');
            simOut = testCase.simulate(in);
            testCase.verifySignalsMatch(simOut,'myExampleBaseline.mat');
        end
    end
end
```

See Also

`Simulink.SimulationInput` | `sltest.harness.SimulationInput`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2021a

fatalAssertSignalsMatch

Class: `sltest.TestCase`
Package: `sltest`

Fatally assert two data sets are equivalent

Syntax

```
fatalAssertSignalsMatch(testCase,actual,expected)
fatalAssertSignalsMatch( ___ ,diagnostic)
fatalAssertSignalsMatch( ___ ,Name,Value)
```

Description

`fatalAssertSignalsMatch(testCase,actual,expected)` fatally asserts that the actual and expected signal data values are equivalent. When a fatal assertion fails, the whole test session is stopped. This is useful when the test contains so many errors that it does not make sense to continue the test session.

`fatalAssertSignalsMatch( ___ ,diagnostic)` returns diagnostic information when the actual and expected data values are not equivalent..

`fatalAssertSignalsMatch( ___ ,Name,Value)` fatally asserts with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`actual` — Actual values to compare to expected values

time series data | string | character array

Actual values to compare to expected values, specified as time series data, a string, or character array. The data for each actual value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/actualData.mat'`

`expected` — Expected values to use as the baseline for the comparison

time series data | string scalar | character array

Expected values to use as the baseline for the comparison. The data for each expected value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/expectedData.mat'`

`diagnostic` — Diagnostic information
string | character vector | function handle | `matlab.unittest.diagnostics.Diagnostic` instance

Diagnostic information to display when the fatal assertion that the actual and expected values are equivalent fails, specified as a string, character array, a function handle, or an instance of a `matlab.unittest.diagnostics.Diagnostic` class.

Example: `'Simulation output does not match.'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

In addition to the listed Name-Value pairs, you can use the `Simulink.sdi.constraints.MatchesSignal` Name-Value pairs.

Example: `'AbsTol',.02`

`AbsTol` — Absolute tolerance
0 (default) | scalar

Absolute tolerance, specified as the comma-separated pair consisting of `'AbsTol'` and the scalar value of the tolerance. The tolerance specifies the magnitude of the difference between the actual and expected values.

Example: `'AbsTol',1e-9`

`RelTol` — Relative tolerance
0 (default) | scalar

Relative tolerance, specified as the comma-separated pair consisting of `'RelTol'` and the scalar value of the tolerance. The relative tolerance specifies the magnitude of the difference between the actual and expected values, relative to the expected value.

Example: `'RelTol',.002`

`TimeTol` — Time tolerance
0 (default) | scalar

Time tolerance, specified as the comma-separated pair consisting of `'TimeTol'` and the scalar value of the tolerance.

Example: `'TimeTol',.2`

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Fatal Assert that Back-to-Back Simulations Match

Create a test case for interactive use. Then, simulate the model in normal mode to obtain the expected values, and simulate in rapid accelerator mode to obtain the actual values. Use `fatalAssertSignalsMatch` to compare the values.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

expected = testCase.simulate('myModel',...
   'SimulationMode','Normal');
actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.fatalAssertSignalsMatch(actual,expected)
```

Fatal Assert that Simulation Outputs Match Within a Specified Tolerance

Create a test case for interactive use. Simulate the model in rapid accelerator mode to obtain the actual values. Use `fatalAssertSignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Set a relative tolerance.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.fatalAssertSignalsMatch(actual,'baseline.mat',...
   'RelTol',0.001)
```

Fatal Assert that Simulations Match and Display Custom Diagnostic Message

Create a test case for interactive use. Then, simulate the model in rapid accelerator mode to obtain the actual values. Use `fatalAssertSignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Specify the diagnostic message to display if the assertion fails.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.fatalAssertSignalsMatch(actual,'baseline.mat',...
```

```
    'Rapid-Accel output did not match.')
```

See Also

`sltest.TestCase` | `matlab.unittest.qualifications.FatalAssertable` | `Simulink.sdi.constraints.MatchesSignal` | `verifySignalsMatch` | `assumeSignalsMatch` | `matlab.unittest.constraints.AbsoluteTolerance` | `matlab.unittest.constraints.RelativeTolerance` | `assertSignalsMatch`

Topics

“Test Models Using MATLAB-Based Simulink Tests”

Introduced in R2020b

sltest.TestCase.forInteractiveUse

Class: `sltest.TestCase`
Package: `sltest`

Create test case for interactive use

Syntax

```
testCase = sltest.TestCase.forInteractiveUse
```

Description

`testCase = sltest.TestCase.forInteractiveUse` returns a test case instance configured for interactive use at the MATLAB command line. Use this method at the MATLAB command line to debug a `TestCase` object without having to write a complete test file. You cannot use this method within a test file.

Output Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of a test case, returned as an `sltest.TestCase` object. This instance is configured to print qualification failures and successes to the standard output, which is usually the screen.

Attributes

Static	yes

To learn about attributes of methods, see Method Attributes.

Examples

Create Test Case for Debugging at Command Line

```
testCase =...
   sltest.TestCase.forInteractiveUse;

expected = testCase.simulate('myModel',...
   'SimulationMode','Normal');
actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.verifySignalsMatch(actual,expected)
```

See Also

`sltest.TestCase` | `assertSignalsMatch` | `fatalAssertSignalsMatch` | `assumeSignalsMatch` | `verifySignalsMatch`

Topics
“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2020b

loadSystem

Class: `sltest.TestCase`
Package: `sltest`

Load model for MATLAB-based Simulink test

Syntax

```
[modelname,modelhandle,modelpath] = loadSystem(testCase,model)
[modelname,modelhandle,modelpath] = loadSystem( ___ ,Name,Value)
```

Description

`[modelname,modelhandle,modelpath] = loadSystem(testCase,model)` loads the specified model and returns the name of the model, the model handle, and the path to the model.

`loadSystem` loads a Simulink model within the scope of a single `TestCase` method class. The life cycle of the model is tied to the test case. When the test case goes out of scope, the testing framework closes the model without saving any changes to the model and clears any base workspace variables loaded by the model. Previously loaded models remain loaded. Variable values of previously loaded models might be overridden if, for example, the model being opened has model callbacks. To retain the variable values of opened models, add `PreservingBaseWorkspace` as an input Name-Value pair.

`[modelname,modelhandle,modelpath] = loadSystem( ___ ,Name,Value)` loads the model and test case with additional options specified by one or more `Name,Value` pairs.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`model` — Name of model

string | character vector

Name of model to load, specified as a string or character vector.

Example: `'sltestCar'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'PreservingBaseWorkspace',true`

`PreservingBaseWorkspace` — Whether to preserve existing base workspace variable values

`false` (default) | true

Whether to preserve existing base workspace variable values, specified as the comma-separated pair consisting of `'PreservingBaseWorkspace'` and `true` or `false`.

`IncludingReferencedModels` — Whether to load model and its referenced models
`false` (default) | `true`

Whether to load the model and its referenced models, specified as the comma-separated pair consisting of `'IncludingReferencedModels'` and `true` or `false`.

Output Arguments

`modelname` — Name of loaded model
string | character vector

Name of the loaded model, returned as a string or character vector. If `'IncludingReferencedModels'` is `true`, then `loadSystem` returns the model name and the names of its referenced models.

`modelhandle` — Handle of loaded model
string | character vector

Handle of the loaded model, returned as a string or character vector. If `IncludeReferencedModels` is true, returns the handle of the model and the handles of its referenced models.

`modelpath` — Path of loaded model
string | character vector

Path of the loaded model, returned as a string or character vector. If `IncludeReferencedModels` is true, returns the path of the model and the paths of its referenced models.

Attributes

`Access`	`public`

To learn about attributes of methods, see Method Attributes.

Examples

Load Model

```
classdef simTest < sltest.TestCase
   methods (Test)
      function testOne(testCase)
         [modelname,modelhandle,modelpath] =...
            testCase.loadSystem('myModel');
      end
   end
end
```

Load Model and Referenced Models

```
 classdef simTest < sltest.TestCase
    methods (Test)
        function testOne(testCase)
           [modelname,modelhandle,modelpath] =...
              testCase.loadSystem('myModel',...
              'IncludingReferencedModels',true);
        end
    end
end
```

See Also

`sltest.TestCase`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2020b

simulate

Class: `sltest.TestCase`
Package: `sltest`

Simulate model or `Simulink.SimulationInput` for MATLAB-based Simulink test

Syntax

```
simulate(testcase,model)
simulate(testcase,siminput)
simulate(testcase,Name,Value)
```

Description

`simout = simulate(testcase,model)` simulates the specified model and returns a `Simulink.SimulationOutput` object.

`simout = simulate(testcase,siminput)` simulates using a `Simulink.SimulationInput` object as the `siminput`.

`simout = simulate(testcase,Name,Value)` simulates the model with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`model` — Name of model

scalar string | character vector

Name of the model to simulate, specified as a scalar string or character vector, without the model extension. For example, for the `myModel.slx` model, enter only `myModel`.

`siminput` — Input object to simulate

`sltest.harness.SimulationInput` object | `Simulink.SimulationInput` object

Input object to simulate, specified as a `sltest.harness.SimulationInput` or `Simulink.SimulationInput` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'InFolder','C:\matlab\myTest'`

`InFolder` — Name of folder
string | character vector

Name of folder that contains the model to simulate, specified as the comma-separated pair consisting of `'InFolder'` and the name of the folder, specified as a string or character vector.

`WithHarness` — Name of harness
string | character vector

Name of the harness to simulate, specified as the comma-separated pair of consisting of `'WithHarness'`, specified as a string or character vector.

Note You can use the `sim` function name-value pairs with the `simulate` method.

Output Arguments

`simout` — Simulation result object
`Simulink.SimulationOutput` object

Simulation results, returned as a `Simulink.SimulationOutput` object.

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Simulate a Test Case Using Model Input

```
classdef simTest < sltest.TestCase
    methods (Test)
        function testOne(testCase)
           simout = testCase.simulate('myModel');
        end
    end
end
```

Simulate Test Case Using a `SimulationInput` Object

```
classdef simTest < sltest.TestCase
    methods(Test)
        function testOne(testCase)
            simInput = Simulink.SimulationInput('myModel');
            simOut = testCase.simulate(simInput);
        end
```

```
    end
end
```

Simulate a Test Case Using a Model in a Specified Folder

```
classdef simTest < sltest.TestCase
    methods(Test)
        function testOne(testCase)
           simout = testCase.simulate('myModel',...
             'InFolder','C:/matlab/newTestFolder');
        end
    end
end
```

Simulate a Test Case Using Harness Input

```
classdef simTest < sltest.TestCase
    methods (Test)
        function testOne(testCase)
           simout = testCase.simulate('myModel',...
              'WithHarness','mymodel_Harness1');
        end
    end
end
```

See Also

`sltest.TestCase` | `Simulink.SimulationInput` | `Simulink.SimulationOutput` | `sim`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2020b

verifySignalsMatch

Class: `sltest.TestCase`
Package: `sltest`

Verify two sets of data are equivalent

Syntax

```
verifySignalsMatch(testCase,actual,expected)
verifySignalsMatch( ___ ,diagnostic)
verifySignalsMatch( ___ ,Name,Value)
```

Description

`verifySignalsMatch(testCase,actual,expected)` verifies that the actual and expected signal data values are equivalent. When a verification fails, the failure is recorded and the test runs to completion. For more information, see `matlab.unittest.qualifications.Verifiable`.

`verifySignalsMatch( ___ ,diagnostic)` returns diagnostic information when the actual and expected data values are not equivalent.

`verifySignalsMatch( ___ ,Name,Value)` filters test content with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`testCase` — Instance of test case

`sltest.TestCase` object

Instance of the test case, specified as an `sltest.TestCase` object.

`actual` — Actual values to compare to expected values

time series data | string | character array

Actual values to compare to expected values, specified as time series data, a string, or character array. The data for each actual value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/actualData.mat'`

`expected` — Expected values to use as the baseline for the comparison

time series data | string scalar | character array

Expected values to use as the baseline for the comparison. The data for each expected value must pair data value with time value. The data must be in a format supported by the Simulation Data Inspector. The Simulation Data Inspector requires data in a format that associates sample values with time. Supported formats include `timeseries`, `Structure with time`, and `Dataset`.

Example: `'C:/matlab/data/expectedData.mat'`

`diagnostic` — Diagnostic information
string | character vector | function handle | `matlab.unittest.diagnostics.Diagnostic` instance

Diagnostic information to display when the verification that the actual and expected values are equivalent fails, specified as a string, character array, a function handle, or an instance of a `matlab.unittest.diagnostics.Diagnostic` class.

Example: `'Simulation output does not match.'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

In addition to the listed Name-Value pairs, you can use the `Simulink.sdi.constraints.MatchesSignal` Name-Value pairs.

Example: `'AbsTol',.02`

`AbsTol` — Absolute tolerance
0 (default) | scalar

Absolute tolerance, specified as the comma-separated pair consisting of `'AbsTol'` and the scalar value of the tolerance. The tolerance specifies the magnitude of the difference between the actual and expected values.

Example: `'AbsTol',1e-9`

`RelTol` — Relative tolerance
0 (default) | scalar

Relative tolerance, specified as the comma-separated pair consisting of `'RelTol'` and the scalar value of the tolerance. The relative tolerance specifies the magnitude of the difference between the actual and expected values, relative to the expected value.

Example: `'RelTol',.002`

`TimeTol` — Time tolerance
0 (default) | scalar

Time tolerance, specified as the comma-separated pair consisting of `'TimeTol'` and the scalar value of the tolerance.

Example: `'TimeTol',.2`

Attributes

`Access`	`public`
`Sealed`	`true`

To learn about attributes of methods, see Method Attributes.

Examples

Verify that Back-to-Back Simulations Match

Create a test case for interactive use. Then, simulate the model in normal mode to obtain the expected values, and simulate in rapid accelerator mode to obtain the actual values. Use `verifySignalsMatch` to compare the values.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

expected = testCase.simulate('myModel',...
   'SimulationMode','Normal');
actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.verifySignalsMatch(actual,expected)
```

Verify that Simulation Outputs Match Within a Specified Tolerance

Create a test case for interactive use. Simulate the model in rapid accelerator mode to obtain the actual values. Use `verifySignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Set a relative tolerance.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.verifySignalsMatch(actual,'baseline.mat',...
   'RelTol',0.001)
```

Verify that Simulations Match and Display Custom Diagnostic Message

Create a test case for interactive use. Then, simulate the model in rapid accelerator mode to obtain the actual values. Use `verifySignalsMatch` to compare the actual values to the baseline values saved in a MAT-file. Specify the diagnostic message to display if the verification fails.

```
testCase =...
   sltest.TestCase.forInteractiveUse;

actual = testCase.simulate('myModel',...
   'SimulationMode','Rapid-Accelerator');

testCase.verifySignalsMatch(actual,'baseline.mat',...
   'Rapid-Accel output did not match.')
```

See Also

`sltest.TestCase` | `matlab.unittest.qualifications.Verifiable` | `Simulink.sdi.constraints.MatchesSignal` | `fatalAssertSignalsMatch` |

`assumeSignalsMatch` | `matlab.unittest.constraints.AbsoluteTolerance` | `matlab.unittest.constraints.RelativeTolerance` | `assertSignalsMatch`

Topics
"Test Models Using MATLAB-Based Simulink Tests"

Introduced in R2020b

addBaselineCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Add baseline criteria to test case

Syntax

```
base = addBaselineCriteria(tc,file)
base = addBaselineCriteria(tc,file,'RefreshIfExists',true)

base = addBaselineCriteria(tc,excel,'SeparateBaselines',false)
base = addBaselineCriteria(tc,excel,'Sheets',sheets,Name,Value)
```

Description

`base = addBaselineCriteria(tc,file)` adds a MAT-file, Simulation Data Inspector (SDI) MLDATX file, or Microsoft Excel file as baseline criteria to a baseline test case. If `file` is an Excel file that has multiple sheets, each is added to the test case as a separate baseline set.

`base = addBaselineCriteria(tc,file,'RefreshIfExists',true)` adds the baseline criteria to the test case, replacing the baseline criteria if the test case already had one.

`base = addBaselineCriteria(tc,excel,'SeparateBaselines',false)` adds all sheets in the Excel file as a single baseline set.

`base = addBaselineCriteria(tc,excel,'Sheets',sheets,Name,Value)` specifies the sheets from the Excel to include in the baseline criteria and uses additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that you want to add the baseline criteria to, specified as an `sltest.testmanager.TestCase` object.

`file` — Excel, MAT, or SDI MLDATX file name and path

character vector

File and path name of the baseline criteria file, specified as a character vector. You can specify a MAT-file, Simulation Data Inspector MLDATX file, or a Microsoft Excel file.

Example: `'C:\MATLAB\baseline_API.mat'`

`excel` — Excel file name and path

character vector

File and path name of the Excel file to use as the baseline criteria, specified as a character vector.

Example: `'C:\MATLAB\baseline.xlsx'`

`sheets` — Names of Excel sheets to add
character vector | string | array of strings

Names of sheets from Excel file to add, specified as a character vector, string, or array of strings.

Example: `'signals'`, `["Heater","Plant"]`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Ranges','B1:C4','RefreshIfExists',false`

`Ranges` — Range of cells from sheet
character vector | string | array of strings

Ranges of cells from the sheets that you add as baseline criteria, specified as a character vector, a string, or an array of strings. The ranges you specify must correspond to the sheets you specify. For example, if you specify one sheet, specify one range. If you specify a cell array of sheets, each value in the `'Ranges'` cell array must correspond to a sheet in the `'Sheets'` cell array. Specify an empty range to use the entire sheet.

Example: `'B2:C30'`, `"D2:E30"`, `["B2:C30", "D2:E30", "B2:C30"]`, `["B2:C30","","D2:E30"]`

`RefreshIfExists` — Replace baseline criteria
`false` (default) | `true`

Option to replace the test case baseline criteria, specified as a Boolean. Use `false` to return an error if the test case already has baseline criteria, that is, to prevent overwriting the baseline. Use `true` to add the baseline criteria, replacing the existing baseline.

`SeparateBaselines` — Specify separate baselines
true (default) | false

Option to use each sheet in specified by the `'Sheets'` argument as a separate baseline, specified as `true` or `false`.

Output Arguments

`base` — Baseline criteria
`sltest.testmanager.BaselineCriteria` object | array of `sltest.testmanager.BaselineCriteria` objects

Baseline criteria added to the test case, returned as an `sltest.testmanager.BaselineCriteria` object or an array of `sltest.testmanager.BaselineCriteria` objects.

Examples

Add Baseline Criteria to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Add baseline criteria from file
baseline = addBaselineCriteria(tc,'C:\MATLAB\baseline_API.mat');
```

Use Microsoft Excel File as Baseline

Use an Excel file as baseline, overwriting the existing baseline on the test case.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Excel Test File');
ts = createTestSuite(tf,'Excel Test Suite');
tc = createTestCase(ts,'baseline','Baseline Excel Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Add baseline criteria from file
baseline = addBaselineCriteria(tc,...
   'C:\MATLAB\myexcel.xlsx','RefreshIfExists',true);
```

Add One Baseline from a Microsoft Excel File

Use an Excel file as baseline, creating one baseline even if the Excel file has multiple sheets.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Excel Test File');
ts = createTestSuite(tf,'Excel Test Suite');
tc = createTestCase(ts,'baseline','Baseline Excel Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Add baseline criteria from file
```

```
baseline = addBaselineCriteria(tc,...
   'C:\MATLAB\myexcel.xlsx','SeparateBaselines',false);
```

Specify Sheets and Cell Range in a Baseline

Select three sheets from an Excel file to use as the baseline. For each sheet, specify a range of cells.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Excel Test File');
ts = createTestSuite(tf,'Excel Test Suite');
tc = createTestCase(ts,'baseline','Baseline Excel Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Create sheets and ranges arrays
sheets = ["HotTemp", "ColdTemp", "NominalTemp"];
ranges = ["B2:C30", "D2:E30", "B2:C30"];

% Add baseline criteria from file, using the sheets and cell ranges specified
baseline = addBaselineCriteria(tc,...
   'C:\MATLAB\myexcel.xlsx','Sheets',sheets,'Ranges',ranges);
```

See Also

`sltest.testmanager.BaselineCriteria`

Topics

“Baseline Criteria”
“Create and Run Test Cases with Scripts”

Introduced in R2015b

addDataStoreSignal

Class: `sltest.testmanager.LoggedSignalSet`
Package: `sltest.testmanager`

Add a data store or `Simulink.Signal` object to a set

Syntax

```
obj = addDataStoreSignal(lgset,BlockPath)
```

Description

`obj = addDataStoreSignal(lgset,BlockPath)` creates and adds an `sltest.testmanager.LoggedSignal` object to a set when the `LoggedSignal` object derives from a data store or `Simulink.Signal` object. You must open or load the model to add a `LoggedSignal` from the model.

Input Arguments

`lgset` — Logged signal set

`sltest.testmanager.LoggedSignalSet` object

Logged signal set object contained in a test case.

`BlockPath` — Block path object

`Simulink.BlockPath` object

`Simulink.BlockPath` object that uniquely identifies a Data Store Write block and the associated data store memory or associated `Simulink.Signal` object.

Examples

Add a Global Data Store to a Signal Set

Open a model and create a signal set.

```
% Open model for this example
openExample('sldemo_mdlref_dsm')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
mylgset = tc.addLoggedSignalSet;
```

Select the `sldemo_mdlref_dsm_bot2` Model block and enter `gcb`. Open `sldemo_mdlref_dsm_bot2` and select the Data Store Write block and enter `gcb`. Use the returned paths to create a `Simulink.BlockPath` object for the global data store.

```
% Add signal to set
bPath = Simulink.BlockPath({'sldemo_mdlref_dsm/A1',...
                            'sldemo_mdlref_dsm_bot2/DSW'});
sig1 = mylgset.addDataStoreSignal(bPath);

% Check signal was added successfully
sigs = mylgset.getLoggedSignals
```

Add Local Data Store Memory to a Signal Set

Begin with the model and signal set created in the previous example.

Select the `sldemo_mdlref_dsm_bot` Model block and enter `gcb`. Open `sldemo_mdlref_dsm_bot`, select the `PositiveSS` subsystem and enter `gcb`. Open the subsystem, select the Data Store Write block and enter `gcb`. Use the returned paths to create a `Simulink.BlockPath` object for the local data store.

```
% Add signal to set
bPath = Simulink.BlockPath({'sldemo_mdlref_dsm/A',...
    'sldemo_mdlref_dsm_bot/PositiveSS',...
    'sldemo_mdlref_dsm_bot/PositiveSS/DSW'});
sig2 = mylgset.addDataStoreSignal(bPath);

% Check that signal was added successfully
sigs = mylgset.getLoggedSignals;
```

See Also

`gcb` | `sltest.testmanager.LoggedSignal`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

addExcelSpecification

Package: `sltest.testmanager`

Add a Microsoft Excel sheet to baseline criteria or test case inputs

Syntax

```
addExcelSpecification(obj,'Sheet',sheet)
addExcelSpecification(obj,'Sheet',sheet,'Range',range)
```

Description

`addExcelSpecification(obj,'Sheet',sheet)` adds the specified Excel sheet to the baseline criteria or test case inputs `obj`.

`addExcelSpecification(obj,'Sheet',sheet,'Range',range)` adds the cells in the specified range to the baseline criteria or test case inputs.

Examples

Add a Sheet to Baseline Criteria

Create the test file, test suite, and test case structure.

```
tf = sltest.testmanager.TestFile('Add Excel Test');
ts = createTestSuite(tf,'Add Excel Suite');
tc = createTestCase(ts,'baseline','Baseline Excel Test Case');
```

Add baseline criteria from an Excel file. Specifying two sheets creates two baseline criteria.

```
base = addBaselineCriteria(tc,'C:\MATLAB\baseline.xlsx','Sheets',{'Optics','Converter'});
```

Add the sheet `X2Out` to the first set.

```
base(1).addExcelSpecification('Sheet','X2Out');
```

Show the contents of the `Sheet` property of the Excel specifications for each baseline criteria. The first set now includes the `X2Out` sheet.

```
base(1).ExcelSpecifications(:).Sheet
base(2).ExcelSpecifications(:).Sheet

ans =
    'Optics'

ans =
    'X2Out'
```

```
ans =
    'Converter'
```

Input Arguments

`obj` — Object to which to add Excel sheet or cell data

baseline criteria object | test case object

Object to which to add Excel sheet or cell data, specified as a baseline criteria or test case input object.

`sheet` — Excel sheet to add

character vector | string

Excel sheet to add to baseline criteria or test case inputs, specified as a character vector.

Example: `'Optics'`

`range` — Range of cells to add

character vector | string

Range of cells from the specified sheet to add to test case inputs, specified as a character vector or string in one of these forms:

Ways to specify Range	Description
`'Corner1:Corner2'` Rectangular Range	Specify the range using the syntax `'Corner1:Corner2'`, where *`Corner1`* and *`Corner2`* are two opposing corners that define the region. For example, `'D2:H4'` represents the 3-by-5 rectangular region between the two corners `D2` and `H4` on the worksheet. The `'Range'` name-value pair argument is not case-sensitive, and uses Excel A1 reference style (see Excel help). **Example:** `'Range','Corner1:Corner2'`
`''` Unspecified or Empty	If unspecified, the importing function automatically detects the used range. **Example:** `'Range',''` **Note:** *Used Range* refers to the rectangular portion of the spreadsheet that actually contains data. The importing function automatically detects the used range by trimming leading and trailing rows and columns that do not contain data. Text that is only white space is considered data and is captured within the used range.
`'Row1:Row2'` Row Range	You can identify the range by specifying the beginning and ending rows using Excel row designators. Then `readtable` automatically detects the used column range within the designated rows. For instance, the importing function interprets the range specification `'1:7'` as an instruction to read columns in the used range in rows 1 through 7 (inclusive). **Example:** `'Range','1:7'`

Ways to specify Range	Description
`'Column1:Column2'` Column Range	You can identify the range by specifying the beginning and ending columns using Excel column designators. Then `readtable` automatically detects the used row range within the designated columns. For instance, the importing function interprets the range specification `'A:F'` as an instruction to read rows in the used range in columns A through F (inclusive). **Example:** `'Range','A:F'`
`'NamedRange'` Excel Named Range	In Excel, you can create names to identify ranges in the spreadsheet. For instance, you can select a rectangular portion of the spreadsheet and call it `'myTable'`. If such named ranges exist in a spreadsheet, then the importing function can read that range using its name. **Example:** `'Range','myTable'`

Example: `'A1:C20'`

See Also

`sltest.testmanager.BaselineCriteria` | `sltest.testmanager.TestInput`

Topics

“Baseline Criteria”
“Inputs”
“Use External Excel or MAT-File Data in Test Cases”

Introduced in R2017b

addInput

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Add input file to test case

Syntax

```
input = addInput(tc,file,Name,Value)
```

Description

`input = addInput(tc,file,Name,Value)` adds a file to the **Inputs** section of the test case and returns a test input object, `sltest.testmanager.TestInput`.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that you want to add the test input to, specified as a `sltest.testmanager.TestCase` object.

`file` — Input file name and path

character vector

Name and path of MAT-file or Microsoft Excel input file, specified as a character vector.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Sheets','mysheet','Ranges','C1:F10','CreateIterations',false`

Pairs for MAT-Files and Microsoft Excel Files

`SimulationIndex` — Test case simulation number

1 | 2

Test case simulation number that the inputs apply to, specified as `1` or `2`. This setting applies to equivalence tests.

Example: `'SimulationIndex',2`

`CreateIterations` — Create a table iteration from the input

true (default) | false

Option to add the input file to the iteration table under **Iterations** in the test case, specified as Boolean.

Example: `'CreateIterations',false`

Pairs to Use Only with Microsoft Excel Files

Sheets — Names of sheets to use as inputs

character vector | string | array of strings

Names of sheets from Excel file to use as test case inputs, specified as a character vector, string, or array of strings.

Example: `'testinputs', ["Heater","Plant"]`

Ranges — Range of cells from sheet

character vector | string | array of strings

Ranges of cells from the sheets that you added as inputs, specified as a character vector, string, or array of strings. You can specify `'Ranges'` only if you also specify `'Sheets'`. The ranges you specify must correspond to the sheets. For example, if you specify one sheet, specify one range. If you specify a cell array of sheets, each value in the `'Ranges'` cell array must correspond with a sheet in the `'Sheets'` cell array.

You can specify `'Ranges'` as shown in the table.

Ways to specify Range	Description
`'Corner1:Corner2'` Rectangular Range	Specify the range using the syntax `'Corner1:Corner2'`, where *`Corner1`* and *`Corner2`* are two opposing corners that define the region. For example, `'D2:H4'` represents the 3-by-5 rectangular region between the two corners `D2` and `H4` on the worksheet. The `'Range'` name-value pair argument is not case-sensitive, and uses Excel A1 reference style (see Excel help). **Example:** `'Range','Corner1:Corner2'`
`''` Unspecified or Empty	If unspecified, the importing function automatically detects the used range. **Example:** `'Range',''` **Note:** *Used Range* refers to the rectangular portion of the spreadsheet that actually contains data. The importing function automatically detects the used range by trimming leading and trailing rows and columns that do not contain data. Text that is only white space is considered data and is captured within the used range.
`'Row1:Row2'` Row Range	You can identify the range by specifying the beginning and ending rows using Excel row designators. Then `readtable` automatically detects the used column range within the designated rows. For instance, the importing function interprets the range specification `'1:7'` as an instruction to read all columns in the used range in rows 1 through 7 (inclusive). **Example:** `'Range','1:7'`

Ways to specify Range	Description
'Column1:Column2' Column Range	You can identify the range by specifying the beginning and ending columns using Excel column designators. Then `readtable` automatically detects the used row range within the designated columns. For instance, the importing function interprets the range specification `'A:F'` as an instruction to read all rows in the used range in columns A through F (inclusive). **Example:** `'Range','A:F'`
'NamedRange' Excel Named Range	In Excel, you can create names to identify ranges in the spreadsheet. For instance, you can select a rectangular portion of the spreadsheet and call it `'myTable'`. If such named ranges exist in a spreadsheet, then the importing function can read that range using its name. **Example:** `'Range','myTable'`

Example: `'B2:C30'`, `"D2:E30"`, `["B2:C30", "D2:E30", "B2:C30"]`

`SeparateInputs` — Specify separate inputs
true (default) | false

Option to use each sheet in the Excel file or specified by the `'Sheets'` argument as a separate input, specified as `true` or `false`.

Output Arguments

`input` — Test input
`sltest.testmanager.TestInput` object | array of `sltest.testmanager.TestInput` objects

Test input, returned as an `sltest.testmanager.TestInput` object or an array of `sltest.testmanager.TestInput` objects.

Examples

Add Microsoft® Excel® Data as Input

This example shows how to add data from a Microsoft® Excel® spreadsheet and map it to a test case. Only the two sheets that have data are added and mapped.

Load the Example Model

```
open_system('sltestExcelExample');
```

Create a New Test File

```
tf = sltest.testmanager.TestFile('input_test_file.mldatx');
```

Get the Test Suite and Test Case Objects

```
ts = getTestSuites(tf);
tc = getTestCases(ts);
```

Add the Example Model as the System Under Test

```
setProperty(tc,'Model','sltestExcelExample');
```

Add Excel® Data to Inputs Section and Specify Sheets to Add

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile,'Sheets',["Acceleration","Braking"]);
```

Map the Input Signal for the Sheets by Block Name

```
map(input(1),0);
map(input(2),0);
```

Specify Sheets and Ranges for Microsoft Excel File

This example shows the syntax to add Excel file sheets and range.

```
% Create test file
tf = sltest.testmanager.TestFile('Excel Input Test File');

% Create test suite and test case
ts = createTestSuite(tf,'Excel Test Suite');
tc = createTestCase(ts,'baseline','Excel Input Test Case');

% Add Excel data to Inputs section, specifying sheets and range
input = addInput(tc,'C:\MyHomeDir\myexcel.xlsx',...
   'Sheets',["Optics","Torque","Throttle"],...
   'Ranges',["B1:C20","","D1:G10"]);
```

See Also

`sltest.testmanager.TestCase`

Topics

“Create and Run Test Cases with Scripts”
“Inputs”
“Create Data Files for Test Case Input”
“Use External Excel or MAT-File Data in Test Cases”

Introduced in R2015b

addIteration

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Add test iteration to test case

Syntax

```
addIteration(tc,iter)
addIteration( ___ ,name)
```

Description

`addIteration(tc,iter)` adds a test iteration to the test case. The Test Manager gives the iteration a unique name.

`addIteration( ___ ,name)` adds a test iteration to the test case with a specified name, which must be unique.

Input Arguments

`tc` — Test case to add iteration to

`sltest.testmanager.TestCase` object

Test case that you want to add the iteration to, specified as a `sltest.testmanager.TestCase` object.

`iter` — Test iteration to add

`sltest.testmanager.TestIteration` object

Test iteration that you want to add to the test case, specified as a `sltest.testmanager.TestIteration` object.

`name` — Test iteration name

character vector

Test iteration name, specified as a character vector. The name must be unique with respect to other iterations in the test case. This is an optional argument.

Example: `'Test Iteration 5'`

Examples

Iterate Over Parameter Sets

In this example, there must be parameter sets defined in the **Parameter Overrides** section of the test case. The iterations are generated during test execution. This section of script is in the Scripted Iterations section of the test case. It will execute only in the Scripted Iterations section.

```
% Define parameter sets for a test case and add this code in the

% Scripted iterations section of the test case
for k = 1 : length(sltest_parameterSets)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration();

    % Use the parameter set in this iteration
    testItr.setTestParam('ParameterSet', sltest_parameterSets{k});

    str = sprintf('ParameterSet %d', k);

    % Add the iteration object to the test case
    addIteration(sltest_testCase, testItr, str);
end
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

getTestCaseResults

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test case results history

Syntax

```
tcresult = getTestCaseResults(tc)
```

Description

`tcresult = getTestCaseResults(tc)` returns the test case results history for the specified test case, `tc`. The test case history includes the results for all runs of the test case in the Test Manager.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case for which to obtain result history, specified as an `sltest.testmanager.TestCase` object.

Output Arguments

`tcresult` — Test case result history

array of `sltest.testmanager.TestCaseResult` objects

Test case result history, returned as an array of `sltest.testmanager.TestCaseResult` objects. Each object in the array contains the results for a single test case run.

Examples

Obtain Test Case Results

This example shows how to create a test file, test suite, and simulation test case programmatically. It also show how to obtain the results. The test case runs on the `HeatPumpScenario` model.

Clear existing test files from the Test Manager.

```
sltest.testmanager.clear;
```

Create a new test file, test suite, and test case.

```
tf = sltest.testmanager.TestFile('TestFile1');
ts = createTestSuite(tf,'TestSuite1');
tc = createTestCase(ts,'simulation','TestCase1');
```

Remove the default test suite so that only the created test suite is used.

```
tsDel = tf.getTestSuites();
remove(tsDel(1));
```

Assign the system under test to the test case.

```
setProperty(tc,'Model','HeatPumpScenario');
tcresult = run(tc);
```

Obtain the test case results

```
tcresultobj = getTestCaseResults(tc);
```

See Also

`getTestCase`

Introduced in R2019b

addLoggedSignal

Class: `sltest.testmanager.LoggedSignalSet`
Package: `sltest.testmanager`

Add a logged signal to a set

Syntax

```
obj = addLoggedSignal(lgset,BlockPath,PortIndex)
obj = addLoggedSignal( ___ ,'LeafElement',busleaf)
```

Description

`obj = addLoggedSignal(lgset,BlockPath,PortIndex)` creates and adds an `sltest.testmanager.LoggedSignal` object to a `sltest.testmanager.LoggedSignalSet` object. You must open or load the model to add signals from the model.

`obj = addLoggedSignal( ___ ,'LeafElement',busleaf)` specifies the bus leaf element to include as a logged signal. `busleaf` is a string. If the signal has nested buses, specify the full path to the leaf (`'parentLeaf.childLeaf'`).

Input Arguments

`lgset` — Logged signal set

`sltest.testmanager.LoggedSignalSet` object

Logged signal set object contained in a test case.

`BlockPath` — Block path object

`Simulink.BlockPath` object | character vector

`Simulink.BlockPath` object that uniquely identifies the block that outputs the signal.

`PortIndex` — Output port index

integer

Index of the output port for the block designated by `BlockPath`, starting from `1`.

Examples

Add Signals to a Signal Set

Open a model and create a signal set.

```
openExample('sldemo_absbrake');

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
```

```
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
mylgset = tc.addLoggedSignalSet;
```

Select the `Vehicle Speed` block and enter `gcb`. Use the returned path to create a `Simulink.BlockPath` object.

```
% Add signals to the set
bPath = Simulink.BlockPath('sldemo_absbrake/Vehicle speed');
sig1 = mylgset.addLoggedSignal(bPath,1);
sig2 = mylgset.addLoggedSignal(bPath,2);

setProperty(tc,'Model','sldemo_absbrake');
```

See Also

`gcb`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

addLoggedSignalSet

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Add logged signal set to a test case

Syntax

```
obj = addLoggedSignalSet(tc,Name,Value)
```

Description

`obj = addLoggedSignalSet(tc,Name,Value)` creates and adds a `LoggedSignalSet` object to an `sltest.testmanager.TestCase` object.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

`Name` — Name of the signal set

character vector

Name of the logged signal set.

Example: `obj = addLoggedSignalSet(tc,'Name','mylgset');`

`SimulationIndex` — Simulation index

1 (default) | 2

When the test case is an equivalence test, this index specifies the simulation that contains the signal set.

Example: `obj = getLoggedSignalSets(tc_equiv,'SimulationIndex',2);`

Examples

Add a Signal Set to a Test Case

Open a model and create a test case.

```
openExample('sldemo_absbrake')
```

```
% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create a signal set
lgset = tc.addLoggedSignalSet;
```

See Also

`sltest.testmanager.EquivalenceCriteria` | `sltest.testmanager.LoggedSignalSet`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

addParameterOverride

Class: `sltest.testmanager.ParameterSet`
Package: `sltest.testmanager`

Add parameter override to parameter set

Syntax

```
ovr = addParameterOverride(ps,Name,Value)
```

Description

`ovr = addParameterOverride(ps,Name,Value)` adds a parameter override to a parameter set and returns a parameter override object, `sltest.testmanager.ParameterOverride`.

Input Arguments

`ps` — Parameter set

`sltest.testmanager.ParameterSet` object

Parameter set to which you want to add the override, specified as a `sltest.testmanager.ParameterSet` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Value',5.2`

`Name` — Parameter name

string | character vector

Name of the parameter to override, specified as a string or character vector. Name is a required input.

`Value` — Parameter value

numeric | string

Value of the parameter to override, specified as a numeric or a string. If the value is a string, it is evaluated as a MATLAB expression when the test executes. `Value` is a required input.

`BlockPath` — Block path

string | character vector

Block path of the parameter to override, specified as a string or character vector. A block path is required only if the parameter to override is a block parameter. The combination of `Name` and `BlockPath` properties must be unique within a parameter set.

`Workspace` — Workspace of the parameter
string | character vector

Workspace of the parameter to override, specified as a string or character vector.

Output Arguments

`ovr` — Parameter override
`sltest.testmanager.ParameterOverride` object

Parameter override added to the parameter set, returned as an `sltest.testmanager.ParameterOverride` object.

Examples

Add Parameter Override to Parameter Set

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

export

Class: `sltest.testmanager.ParameterSet`
Package: `sltest.testmanager`

Export parameter set to Excel spreadsheet

Syntax

```
export(ps,filename)
export(ps,filename,sheet)
```

Description

`export(ps,filename)` exports `sltest.testmanager.ParameterSet` object data to an Excel file. The data for each parameter is exported into the spreadsheet columns, Parameter, Value, and BlockPath. For example, this spreadsheet shows three parameters from different model workspaces: the top model (which is unnamed), the MdlRefLeaf1 model workspace, and the MdlRefLeaf2 model workspace.

	A	B	C
1	Parameter:	Value:	BlockPath:
2	a	1	
3	a	3	MdlRefLeaf1
4	a	7	MdlRefLeaf2

Note By default, the parameter set data is exported to the first sheet in the specified file and existing data in that sheet is overwritten.

`export(ps,filename,sheet)` exports the parameter set data to the specified sheet in the Excel file.

Input Arguments

`ps` — Parameter set to export

`sltest.testmanager.ParameterSet` object

Parameter set to export, specified as an `sltest.testmanager.ParameterSet` object.

`filename` — File name

string | character vector

File name of the Excel workbook, specified as a string or character vector. If the file does not exist, it is created.

`sheet` — Name of Excel workbook sheet

string | character vector

Name of Excel workbook sheet, specified as a string or character vector. If you do not specify a sheet name, the parameter set data is exported to the first sheet in the specified file and existing data in that sheet is overwritten. If you specify a sheet name that does not exist, that sheet is created.

Examples

Export Parameter Set to Excel

Export test parameters to an Excel spreadsheet.

Add a parameter set a to a test case (`tc`), then override the value of parameter `a` in that parameter set. Export the parameter set to a sheet in an Excel file.

```
ps = addParameterSet(tc,'Name','Param Set');
addParameterOverride(ps,'a',1);
export(ps,'myPSfile.xlsx','Sheet2');
```

See Also

`sltest.testmanager.ParameterSet` | `addParameterOverride`

Topics

“Override Model Parameters in a Test Case”

Introduced in R2020b

addParameterSet

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Add parameter set

Syntax

```
pset = addParameterSet(tc,Name,Value)
```

Description

`pset = addParameterSet(tc,Name,Value)` adds a parameter set to the test case and returns a parameter set object, `sltest.testmanager.ParameterSet`.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that you want to add the parameter set to, specified as a `sltest.testmanager.TestCase` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'SimulationIndex',2`

`Name` — Parameter set name

auto-generated unique name (default) | character vector

Name of the parameter set, specified as a character vector. This name is the label shown in the test case parameter set table. If you do not specify a name, the function creates an auto-generated unique name.

`FilePath` — Parameter set name and file path

character vector

The full name and path of the .m file or MAT-file, which contains the parameter values, specified as a character vector. If no parameter file path is given, then the function creates an empty parameter set.

`SimulationIndex` — Simulation number

1 (default) | 2

Simulation number to which the parameter set applies, specified as an integer, 1 or 2. This parameter applies to the simulation test case where there are two simulations. For baseline and simulation test cases, the simulation index is 1.

Sheets — Excel spreadsheet sheet names
string array

Excel spreadsheet names for which you want to create parameter sets, specified as a string array. If you do specify `Sheets`, a parameter set is created for each sheet in the file.

Output Arguments

pset — Parameter set
`sltest.testmanager.ParameterSet` object

Parameter set, returned as an `sltest.testmanager.ParameterSet` object.

Examples

Add Parameter Set to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

createInputDataFile

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Create file as basis for test case input signal data

Syntax

```
input = createInputDataFile(tc,file)
input = createInputDataFile(tc,file,Name,Value)
```

Description

`input = createInputDataFile(tc,file)` creates an input file for a test case. The file includes the signals based on the inport blocks in the model specified for the test case `tc`. You enter the time and signal data either in Microsoft Excel or, for MAT-files, using the signal editor in the Test Manager.

For information on the file format the Test Manager uses for Microsoft Excel files, see “Format Test Case Data in Excel”.

`input = createInputDataFile(tc,file,Name,Value)` uses additional arguments specified by one or more `Name,Value` pair arguments.

Examples

Create Input File Template for Signal Data

Create the input file template for a test case, using the Excel file format. Name the sheet for the template `Optics`. Creating the file also adds it as input in the test case. After you create the file, edit it to populate it with signal data.

```
% Create test file
tf = sltest.testmanager.TestFile('Excel Input Test File');

% Create test suite and test case
ts = createTestSuite(tf,'Excel Test Suite');
tc = createTestCase(ts,'baseline','Excel Input Test Case');

% Assign the system under test to the test case
setProperty(tc,'Model','sltestExcelExample');

% Generate Excel file template and add it to Inputs section, specifying the sheet name
input = createInputDataFile(tc,'C:\MyHomeDir\myexcel.xlsx','Sheet','Optics');
```

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that you want to create the template input file from, specified as a `sltest.testmanager.TestCase` object.

`file` — New input file name and path

character vector

Name and path of MAT-file or Microsoft Excel to create, specified as a character vector.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Sheet','mysheet','Range','C1:F10','CreateIterations',false`

Pairs for MAT-Files and Microsoft Excel Files

`CreateIterations` — Create a table iteration from the input

`true` (default) | `false`

Option to create a table iteration from the input, specified as Boolean.

Example: `'CreateIterations',false`

Pairs Only for Microsoft Excel Files

`Sheet` — Name of sheet for inputs

character vector

Name to give the sheet in the new Excel file, specified as a character vector.

Example: `'Sheet','testinputs'`

`Range` — Range of cells in sheet

character vector

Ranges of cells to add the inputs to in the sheet, specified as a character vector. You can specify `'Range'` only if you also specify `'Sheet'`.

Example: `'Range','B2:C30'`

Output Arguments

`input` — Test input file

`sltest.testmanager.TestInput` object

Test input, returned as an `sltest.testmanager.TestInput` object.

See Also

`addInput` | `sltest.testmanager.TestCase`

Topics

“Format Test Case Data in Excel”
“Create Data Files for Test Case Input”
“Use External Excel or MAT-File Data in Test Cases”

Introduced in R2018a

addReportBody

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Add main report body

Syntax

```
addReportBody(obj)
```

Description

`addReportBody(obj)` adds the main body pages to the report.

This method also calls:

- `genResultSetBlock`
- `genTestSuiteResultBlock`
- `genTestCaseResultBlock`

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

See Also

`sltest.testmanager.TestResultReport`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

addReportTOC

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

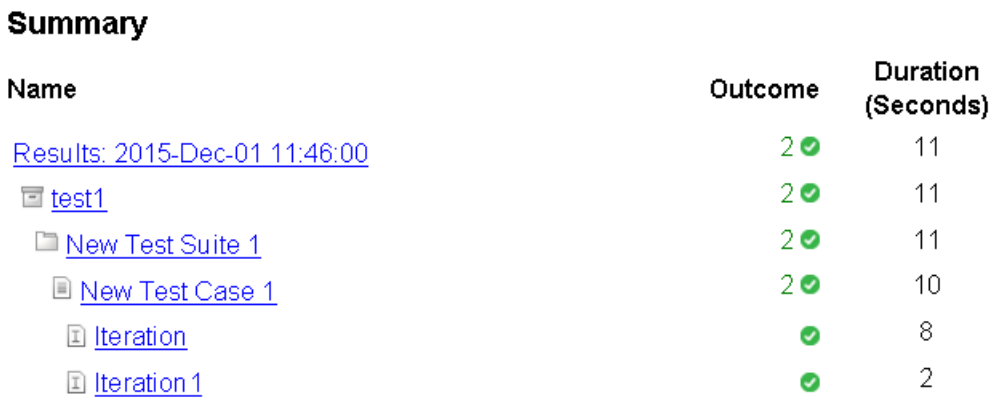
Add report table of contents

Syntax

```
addReportTOC(obj)
```

Description

`addReportTOC(obj)` adds the table of contents page to the report.



Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

See Also

`sltest.testmanager.TestResultReport`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

addTitlePage

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

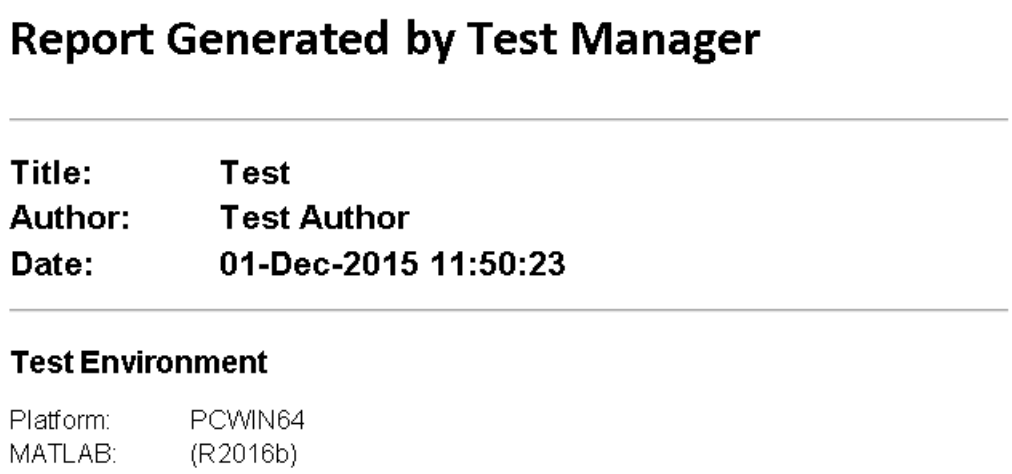
Add report title page

Syntax

```
addTitlePage(obj)
```

Description

`addTitlePage(obj)` adds the title page to the report.



Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

See Also

`sltest.testmanager.TestResultReport`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

captureBaselineCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Capture baseline criteria and add to test case

Syntax

```
baseline = captureBaselineCriteria(tc,file,append)
baseline = captureBaselineCriteria(tc,file,append,Name,Value)
```

Description

`baseline = captureBaselineCriteria(tc,file,append)` runs the system under test and captures a baseline criteria set as a MAT-file, Simulation Data Inspector (SDI) MLDATX file, or Microsoft Excel file. The function returns a baseline criteria object, `sltest.testmanager.BaselineCriteria`. Use this function only if the test type is a baseline test case.

`baseline = captureBaselineCriteria(tc,file,append,Name,Value)` uses additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to capture baseline criteria in, specified as an `sltest.testmanager.TestCase` object.

`file` — Excel, MAT, or SDI MLDATX file name and path

character vector

File and path name of the baseline criteria file, specified as a character vector. You can specify a MAT-file, Simulation Data Inspector MLDATX file, or a Microsoft Excel file.

Example: `'C:\MATLAB\baseline_API.mat'`

append — Append baseline criteria

`true` | `false`

Append baseline criteria if criteria already exists, specified as a Boolean. The Boolean `true` appends to existing criteria, and `false` replaces existing criteria.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Sheet','mysheet','Range','C1:F10'`

Pairs for MAT-Files, Simulation Data Inspector (SDI) .mldatx file, and Microsoft Excel Files

`Release` — Simulink release to capture the baseline in
character vector | string array

Simulink release to capture the baseline data in, specified as a character vector or string array. Use a release specified in your preferences. For more information, see `sltest.testmanager.getpref` and `sltest.testmanager.setpref`.

Example: `'Release','R2017a'`

`CaptureForIterations` — Capture baseline data for test case iterations
`false` (default) | `true`

Whether to capture baseline data for test case iterations, specified as a Boolean.

Example: `'CaptureForIterations',true`

Pairs Only for Microsoft Excel Files

`Sheet` — Name of sheet to capture baseline criteria to
character vector | string array

Name to sheet to capture baseline criteria to, specified as a character vector or string array.

Example: `'Sheet','testinputs'`

`Range` — Range of cells
character vector | string array

Ranges of cells to capture baseline criteria to, specified as a character vector or string array. You can specify `'Range'` only if you also specify `'Sheet'`.

Example: `'Range','B2:C30'`

Output Arguments

`baseline` — Baseline criteria object
object

Baseline criteria added to the test case, returned as an `sltest.testmanager.BaselineCriteria` object.

Examples

Capture Baseline Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');
```

```
% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);
```

See Also

Topics
“Create and Run Test Cases with Scripts”
“Capture Baseline Criteria”

Introduced in R2015b

captureEquivalenceCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Capture equivalence criteria and add to test case

Syntax

```
eq = captureEquivalenceCriteria(tc,replaceAll)
```

Description

`eq = captureEquivalenceCriteria(tc,replaceAll)` runs the System Under Test in Simulation 1 and captures an equivalence criteria set. The function returns an equivalence criteria object, `sltest.testmanager.EquivalenceCriteria`. This function can be used only if the test type is an equivalence test case.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to capture equivalence criteria in, specified as an `sltest.testmanager.TestCase` object.

`replaceAll` — Replace equivalence criteria

`true` | `false`

Replace existing equivalence criteria if criteria already exist in the test case, specified as a Boolean. `true` replaces existing criteria, and `false` produces an error if criteria already exist in the test case.

Output Arguments

`eq` — Equivalence criteria object

object

Equivalence criteria added to the test case, returned as an `sltest.testmanager.EquivalenceCriteria` object.

Examples

Add Equivalence Criteria to Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
```

```
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Capture equivalence criteria
eq = captureEquivalenceCriteria(tc);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

close

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Close test file in Test Manager

Syntax

```
close(tf)
```

Description

`close(tf)` closes the test file in the Test Manager and does not save unsaved changes.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file, specified as a `sltest.testmanager.TestFile` object.

Examples

Close Test File

```
% Create test file in Test Manager
tf = sltest.testmanager.TestFile('My Test File');

% Close test file
close(tf);
```

See Also

Topics

"Create and Run Test Cases with Scripts"

Introduced in R2015b

convertTestType

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Convert test from one type to another

Syntax

```
convertTestType(tc,testType)
```

Description

`convertTestType(tc,testType)` converts the test case type to a different type.

If you convert certain test case types to another type, then you can lose information about the original test case:

- Baseline to simulation or equivalence — baseline criteria is lost
- Equivalence to simulation or baseline — equivalence criteria is lost for Simulation 1 and 2

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that you want to convert to a different type, specified as a `sltest.testmanager.TestCase` object.

`testType` — Test case type

`sltest.testmanager.TestCaseTypes.Baseline` |
`sltest.testmanager.TestCaseTypes.Equivalence` |
`sltest.testmanager.TestCaseTypes.Simulation`

Test case type that you want to convert to, specified as a `sltest.testmanager.TestCaseTypes` enumeration. Specify:

- `sltest.testmanager.TestCaseTypes.Baseline` to convert to a baseline test case
- `sltest.testmanager.TestCaseTypes.Equivalence` to convert to an equivalence test case
- `sltest.testmanager.TestCaseTypes.Simulation` to convert to a simulation test case

Examples

Change Baseline Test Case to Simulation

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create new test file with test suite and default test case
```

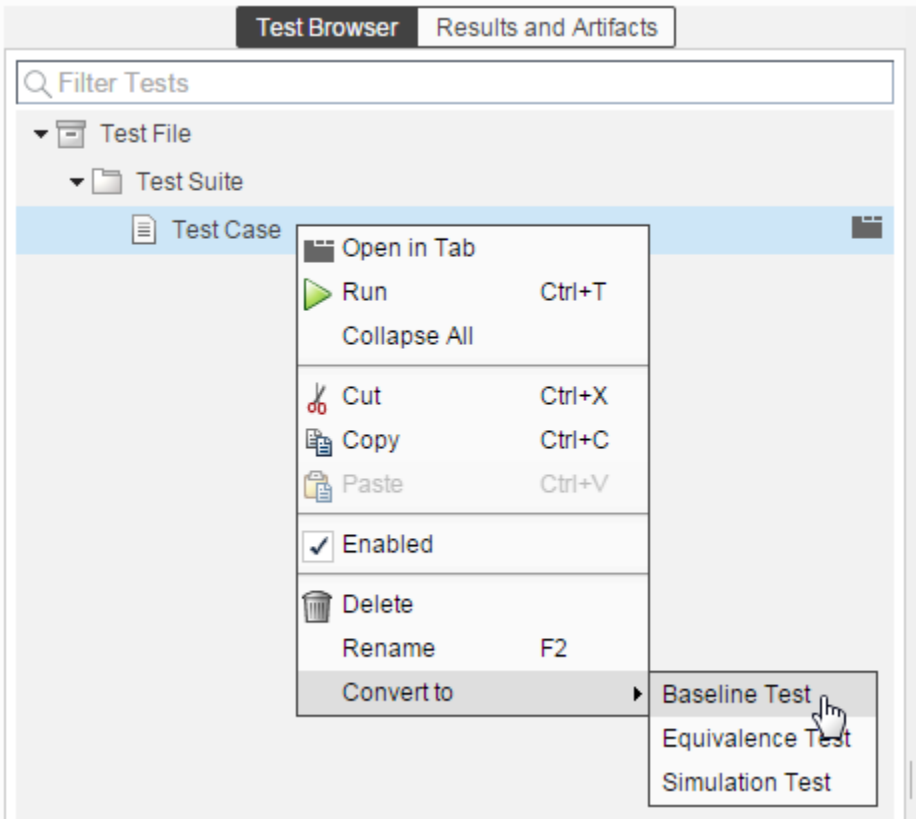
```
tf = sltest.testmanager.TestFile('API Test File');
ts = getTestSuites(tf);
tc = getTestCases(ts);

% Assign system under test to test case
setProperty(tc,'Model','sldemo_absbrake');

% Convert test case to simulation type
convertTestType(tc,sltest.testmanager.TestCaseTypes.Simulation);
```

Alternatives

You can also convert the test case type using the context menu in the **Test Browser** pane. Right-click the test case, select **Convert to**, and then select the test case type you want to convert the test case to.



See Also

`sltest.testmanager.TestCase`

Topics

"Create and Run Test Cases with Scripts"

Introduced in R2016b

convertTestType

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Convert test from one type to another

Syntax

```
convertTestType(tf,testType)
```

Description

`convertTestType(tf,testType)` converts the test case type to a different type. The function converts all test cases contained in the test file. If you want to convert a single test case, then use the `convertTestType (TestCase)` method.

If you convert certain test case types to another type, then you can lose information about the original test case:

- Baseline to simulation or equivalence — baseline criteria is lost
- Equivalence to simulation or baseline — equivalence criteria is lost for Simulation 1 and 2

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file that contains the test cases you want to convert to a different type, specified as a `sltest.testmanager.TestFile` object.

`testType` — Test case type

`sltest.testmanager.TestCaseTypes.Baseline` |
`sltest.testmanager.TestCaseTypes.Equivalence` |
`sltest.testmanager.TestCaseTypes.Simulation`

Test case type that you want to convert to, specified as a `sltest.testmanager.TestCaseTypes` enumeration. Specify:

- `sltest.testmanager.TestCaseTypes.Baseline` to convert to a baseline test case
- `sltest.testmanager.TestCaseTypes.Equivalence` to convert to an equivalence test case
- `sltest.testmanager.TestCaseTypes.Simulation` to convert to a simulation test case

Examples

Change Baseline Test Cases to Simulation

```
% Create new test file with test suite and default test case
tf = sltest.testmanager.TestFile('API Test File');
```

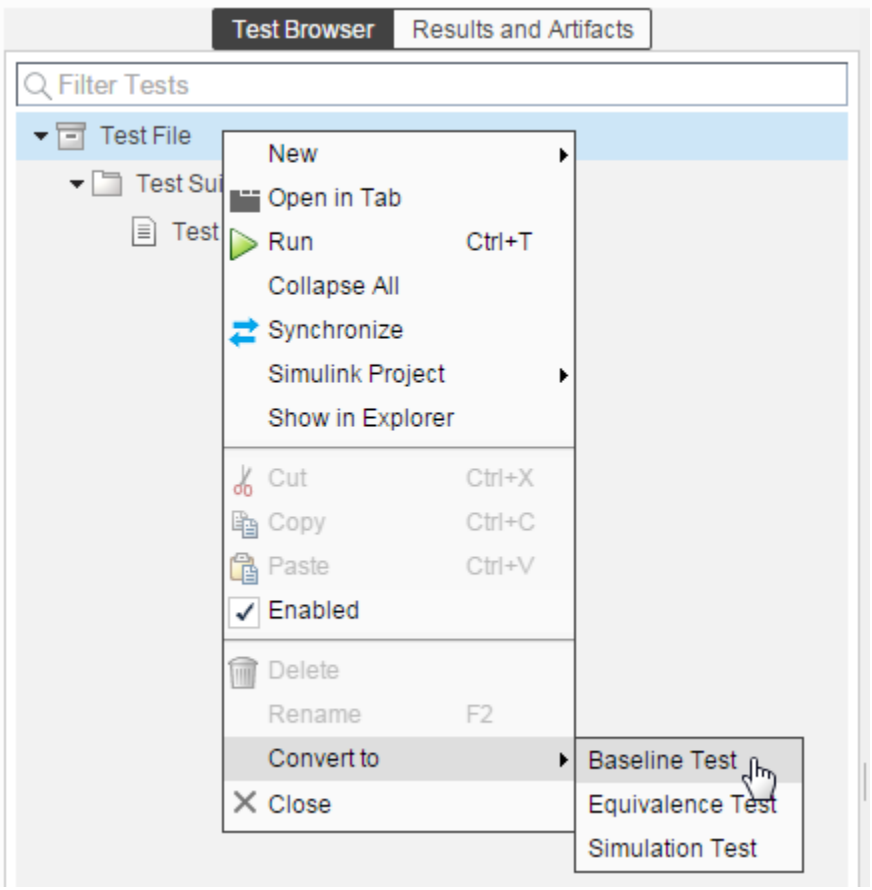
```
ts = getTestSuites(tf);
tc1 = getTestCases(ts);

% Create new test case
tc2 = createTestCase(ts,'baseline','API Test Case');

% Convert test cases to simulation type
convertTestType(tf,sltest.testmanager.TestCaseTypes.Simulation);
```

Alternatives

You can also convert the test case type using the context menu in the **Test Browser** pane. Right-click the test file, select **Convert to**, and then select the test case type you want to convert the test cases to.



See Also

`sltest.testmanager.TestCase`

Topics

"Create and Run Test Cases with Scripts"

Introduced in R2016b

convertTestType

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Convert test from one type to another

Syntax

```
convertTestType(ts,testType)
```

Description

`convertTestType(ts,testType)` converts the test case type to a different type. The function converts all of the test cases contained in the test suite. If you want to convert a single test case, then use the `convertTestType (TestCase)` method.

If you convert certain test case types to another type, then you can lose information about the original test case:

- Baseline to simulation or equivalence — baseline criteria is lost
- Equivalence to simulation or baseline — equivalence criteria is lost for Simulation 1 and 2

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite that contains the test cases you want to convert to a different type, specified as a `sltest.testmanager.TestSuite` object.

`testType` — Test case type

`sltest.testmanager.TestCaseTypes.Baseline` |
`sltest.testmanager.TestCaseTypes.Equivalence` |
`sltest.testmanager.TestCaseTypes.Simulation`

Test case type that you want to convert to, specified as a `sltest.testmanager.TestCaseTypes` enumeration. Specify:

- `sltest.testmanager.TestCaseTypes.Baseline` to convert to a baseline test case
- `sltest.testmanager.TestCaseTypes.Equivalence` to convert to an equivalence test case
- `sltest.testmanager.TestCaseTypes.Simulation` to convert to a simulation test case

Examples

Change Baseline Test Cases to Simulation

```
% Create new test file with test suite and default test case
tf = sltest.testmanager.TestFile('API Test File');
```

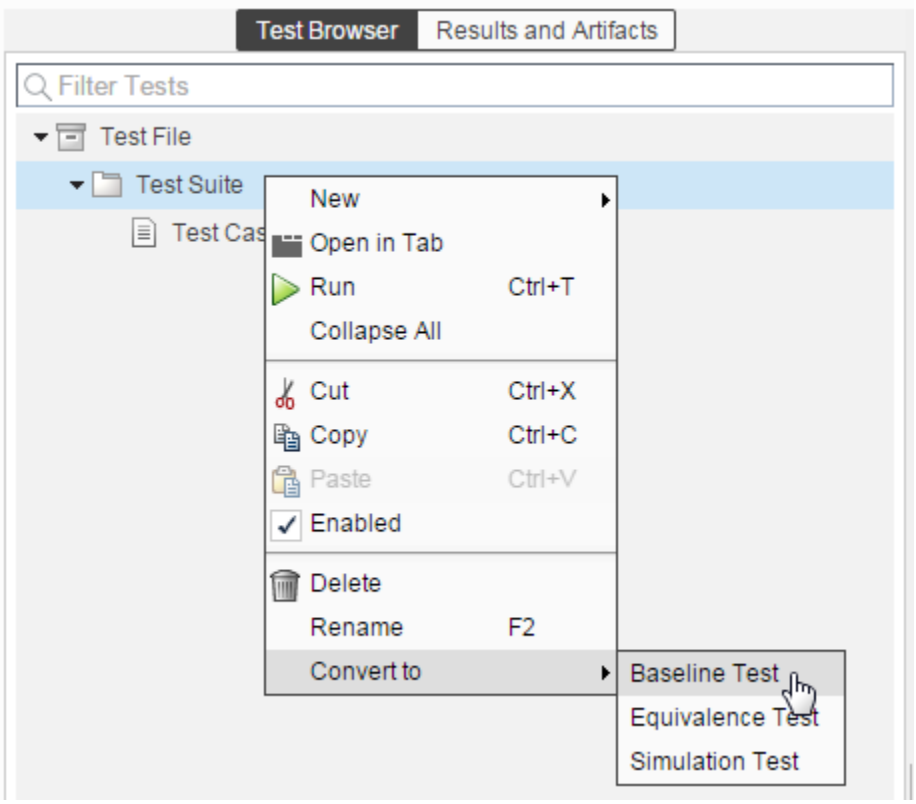
```
ts = getTestSuites(tf);
tc1 = getTestCases(ts);

% Create new test case
tc2 = createTestCase(ts,'baseline','API Test Case');

% Convert test cases to simulation type
convertTestType(ts,sltest.testmanager.TestCaseTypes.Simulation);
```

Alternatives

You can also convert the test case type using the context menu in the **Test Browser** pane. Right-click the test suite, select **Convert to**, and then select the test case type you want to convert the test cases to.



See Also

`sltest.testmanager.TestCase`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016b

copySimulationSettings

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Copy simulation setting in equivalence test case

Syntax

```
copySimulationSettings(tc,fromSimIndex,toSimIndex)
```

Description

`copySimulationSettings(tc,fromSimIndex,toSimIndex)` copies the simulation setting from one simulation number to another within an equivalence test case. This function works only for equivalence test case types.

Input Arguments

`tc` — Equivalence test case

`sltest.testmanager.TestCase` object

Equivalence test case that you want to copy simulation settings in, specified as a `sltest.testmanager.TestCase` object.

`fromSimIndex` — Copy from simulation number

1 | 2

Simulation number you want to copy the settings from, specified as an integer, 1 or 2. This is the source simulation.

`toSimIndex` — Copy to simulation number

1 | 2

Simulation number you want to copy the settings to, specified as an integer, 1 or 2. This is the target simulation.

Examples

Copy Simulation Settings in Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
```

```
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Change simulation stop time in Simulation 1
setProperty(tc,'StopTime',100,'SimulationIndex',1);

% Copy simulation setting to Simulation 2
copySimulationSettings(tc,1,2);
```

See Also

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

createTestCase

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Create test case

Syntax

```
tc = createTestCase(ts,type,name,runOnTarget)
```

Description

`tc = createTestCase(ts,type,name,runOnTarget)` creates a new test case within the test suite. You can specify the test case name and type: baseline, equivalence, and simulation. Also, if you are using the test case for real-time testing, you can specify this using the `runOnTarget` argument.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite that you want to add a test case to, specified as an `sltest.testmanager.TestSuite` object.

`type` — Test case type

`'baseline'` (default) | `'equivalence'` | `'simulation'`

Test case type, specified as a character vector.

`name` — Test case name

character vector

Test case name, specified as a character vector. If this input argument is empty, then the Test Manager gives the test case a unique name.

`runOnTarget` — Run simulation on target

cell array of Booleans

Specify if you want to run the test case simulation on a target, specified as a cell array of Booleans. This is an optional argument. For more information on real-time testing, see “Test Models in Real Time”.

Output Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case, returned as an `sltest.testmanager.TestCase` object.

Examples

Create Test Case

```
% Create test file
tf = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
ts = sltest.testmanager.TestSuite(tf,'My Test Suite');

% Create test case
tc = createTestCase(ts,'baseline','My Baseline Test')
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

createTestForSubsystem

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

(To be removed) Create test harness and test case for subsystem in test file

---

Note `sltest.testmanager.TestFile.createTestForSubsystem` will be removed in a future release. Use `sltest.testmanager.createTestForComponent` instead. For more information, see "Compatibility Considerations" .

Syntax

```
tc = createTestForSubsystem(tf,'Subsystem',subsystem)
tc = createTestForSubsystem(tf,'Subsystem',subsystem,Name,Value)
```

Description

`tc = createTestForSubsystem(tf,'Subsystem',subsystem)` creates a harness on the specified subsystem, Model block, Stateflow chart, or another supported model component (see "Test Harness and Model Relationship". It also creates a baseline test case and test suite in the specified Excel file. This function also simulates the model and adds the input and the output files to the test case, as MAT-files. For more information, see "Generate Tests and Test Harnesses for a Component or Model".

`tc = createTestForSubsystem(tf,'Subsystem',subsystem,Name,Value)` uses additional options specified by one or more `Name,Value` pair arguments. Use this syntax to use Microsoft Excel files as input and output files.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file, specified as an `sltest.testmanager.TestFile` object.

`subsystem` — Subsystem path

character vector | string array

Full path of the subsystem, specified as a character vector or string array. If the subsystem or component is in a Model block, you do not have to include the name of the block in the path. You can specify only the top-level model and system or the component under test.

Example: `'f14/Controller'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'CreateExcelFile',true,'Sheet','mysheet'`

`TopModel` — Model name at top of hierarchy
character vector | string

Model name at the top of the hierarchy if the subsystem is in a referenced model, specified as a character vector or string.

Example: `'TopModel','Plant'`

`TestType` — Test case type
`'baseline'` (default) | `'equivalence'` | `'simulation'`

Test case type to create, specified as `'baseline'`, `'equivalence'`, or `'simulation'`.

Example: `'TestType','equivalence'`

`UseSubsystemInputs` — Option to simulate model to obtain inputs
`true` (default) | `false`

Option to simulate the model to obtain subsystem inputs to use as inputs in the created test harness, specified as a logical. If this property is true, the test harness uses the subsystem inputs from the model simulation. If this property is false, the test harness does not use the subsystem inputs from the simulation.

Example: `'UseSubsystemInputs',false`

Pairs for Equivalence Testing

`Simulation1Mode` — Simulation mode for simulation 1
`"Normal"` | `"Accelerator"`

Simulation mode for simulation 1 of an equivalence test, specified as either `"Normal"` or `"Accelerator"`. If you do not specify a simulation mode, the mode of the system under test is used.

Example: `"Simulation1Mode","Normal"`

`Simulation2Mode` — Simulation mode for simulation 2
string | character vector

Simulation mode for simulation 2 of an equivalence test, specified as one of these values:

- `"Normal"`
- `"Accelerator"`
- `"Rapid Accelerator"`
- `"Software-in-the-Loop (SIL)"`
- `"Processor-in-the-Loop (PIL)"`

If you do not specify a simulation mode, the mode of the system under test is used. For information about simulation modes, see “Choosing a Simulation Mode”. If `TestType` is `equivalence` and `Simulation2Mode` is `Software-in-the-Loop (SIL)`, an extra test harness is created in addition to the test case and test harness.

Example: `"Simulation2Mode","Software-in-the-Loop (SIL)"`

Pairs for MAT-Files

`InputsLocation` — Input file name and path for MAT-files
character vector | string

Input file name and path for MAT-files, specified as a character vector or string array. Include the file extension `.mat`.

Example: `'InputsLocation','C:\MATLAB\inputs_data.mat'`

`BaselineLocation` — Baseline file location
character vector | string

File name and path to save baseline data to, specified as a character vector or string. Include the file extension `.mat`.

Example: `'BaselineLocation','C:\MATLAB\baseline_data.mat'`

Pairs for Microsoft Excel Files

`CreateExcelFile` — Use Excel format for inputs and outputs
`false` (default) | `true`

Option to use Excel format for inputs and, for baseline tests only, outputs, specified as `true` or `false`. If you use the `ExcelFileLocation` argument to specify the file name and location, you do not need to also use `CreateExcelFile`.

Example: `'CreateExcelFile',true`

`ExcelFileLocation` — Name and location for Excel file
character vector | string

File name and path to save the Excel file to, specified as a character vector or string. Include the extension `.xlsx`. If you specify a location, you do not need to also use the `'CreateExcelFile'` option.

Note If `SLDVTestGeneration` is `true` and `HarnessSource` is `"Signal Editor"`, you cannot save data to an Excel file.

Example: `'ExcelFileLocation','C:\MATLAB\baseline_data.xlsx'`

`Sheet` — Name of Excel sheet to save data to
character vector | string

Name of the sheet to save Excel data to, specified as a character vector or string.

Example: `'Sheet','MySubsysTest'`

Pairs for Simulink Design Verifier

`SLDVTestGeneration` — Whether to generate tests using Simulink Design Verifier
`false` (default) | `true`

Whether to generate tests using Simulink Design Verifier, specified as a logical. If this property is `true`, Simulink Design Verifier generates the tests to include in the test file. An error occurs if this property is `true`, but Simulink Design Verifier is not installed.

Note To generate tests from Simulink Design Verifier, the system under test must be an atomic subsystem.

Example: `'SLDVTestGeneration',true`

`HarnessSource` — Input source block for the harness
`"Inport"` (default) | `"Signal Editor"`

Input source block for the test harness, specified as `"Inport"` or `"Signal Editor"`.

Example: `"HarnessSource","Signal Editor"`

Output Arguments

`tc` — Test case
`sltest.testmanager.testcase` object

Test case, returned as an `sltest.testmanager.testcase` object.

Examples

Create Test for a Subsystem

Create a baseline test case and test harness for a subsystem in a model reference, then save the inputs in Excel format. Baseline tests are used primarily for debugging.

```
% Load the model
load_system('sltestBasicCruiseControl');

% Create a test file
tf = sltest.testmanager.TestFile('My Test File');

% Create test from subsystem
createTestForSubsystem(tf,'Subsystem',...
    'sltestBasicCruiseControl/Controller/PI Controller',...
    'TestType','baseline','CreateExcelFile',true);
```

Compatibility Considerations

`sltest.testmanager.TestFile.createTestForSubsystem` will be removed
Not recommended starting in R2020b

`sltest.testmanager.TestFile.createTestForSubsystem` will be removed in a future release. Use `sltest.testmanager.createTestForComponent` instead. This replacement function allows you to create test cases for models, in addition to subsystems. Four additional name-value pairs are included in `sltest.testmanager.createTestForComponent` that require updates to your code:

- `TestFile` — Required name-value pair to specify the test file for the created test case
- `Component` — Required name-value pair to specify the component or model to test
- `CreateTestFile` — Optional name-value pair for whether to create a new test file
- `CreateHarness` — Optional name-value pair for whether to create a test harness in addition to the test case

See Also

`sltest.testmanager.createTestForComponent`

Topics

“Create and Run Test Cases with Scripts”
“Generate Tests and Test Harnesses for a Component or Model”
“Create and Run a Back-to-Back Test”

Introduced in R2016a

createTestForSubsystem

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

(To be removed) Create test harness and test case for subsystem in test suite

---

Note `sltest.testmanager.TestSuite.createTestForSubsystem` will be removed in a future release. Use `sltest.testmanager.createTestForComponent` instead. For more information, see "Compatibility Considerations".

Syntax

```
tc = createTestForSubsystem(ts,'Subsystem',subsystem)
tc = createTestForSubsystem(ts,'Subsystem',subsystem,Name,Value)
```

Description

`tc = createTestForSubsystem(ts,'Subsystem',subsystem)` creates a harness on the specified subsystem and a baseline test case in the specified test suite. This function also simulates the model and adds the input and the output files to the test case as MAT-files. files. For more information, see "Generate Tests and Test Harnesses for a Component or Model".

`tc = createTestForSubsystem(ts,'Subsystem',subsystem,Name,Value)` uses additional options specified by one or more `Name,Value` pair arguments. Use this syntax to use Microsoft Excel files as input and output files.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite in which to add the new test case, specified as an `sltest.testmanager.TestSuite` object.

`subsystem` — Subsystem path

character vector | string array

Full path of the subsystem, specified as a character vector or string array. If the subsystem or component is in a Model block, you do not have to include the name of the block in the path. You can specify only the top-level model and system or the component under test.

Example: `'f14/Controller'`

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'CreateExcelFile',true,'Sheet','mysheet'`

`TopModel` — Model name at top of hierarchy
character vector | string array

Model name at the top of the hierarchy if the subsystem is in a referenced model, specified as a character vector or string array.

Example: `'TopModel','Plant'`

`TestType` — Test case type
`"baseline"` (default) | `"equivalence"` | `"simulation"`

Test case type, specified as one of these strings: `'baseline'`, `'equivalence'`, or `'simulation'`.

Example: `'TestType','equivalence'`

`UseSubsystemInputs` — Option to simulate model to obtain inputs
`true` (default) | `false`

Option to simulate the model to obtain subsystem inputs to use as inputs in the created test harness, specified as a logical. If this property is true, the test harness uses the subsystem inputs from the model simulation. If this property is false, the test harness does not use the subsystem inputs from the simulation.

Example: `'UseSubsystemInputs',false`

Pairs for Equivalence Testing

`Simulation1Mode` — Simulation mode for simulation 1
`"Normal"` | `"Accelerator"`

Simulation mode for simulation 1 of an equivalence test, specified as either `"Normal"` or `"Accelerator"`. If you do not specify a simulation mode, the mode of the system under test is used.

Example: `"Simulation1Mode","Normal"`

`Simulation2Mode` — Simulation mode for simulation 2
string | character vector

Simulation mode for simulation 2 of an equivalence test, specified as one of these values:

- `"Normal"`
- `"Accelerator"`
- `"Rapid Accelerator"`
- `"Software-in-the-Loop (SIL)"`
- `"Processor-in-the-Loop (PIL)"`

If you do not specify a simulation mode, the mode of the system under test is used. If `TestType` is `equivalence` and `Simulation2Mode` is `Software-in-the-Loop (SIL)`, an extra test harness is created in addition to the test case and test harness.

Example: `"Simulation2Mode","Software-in-the-Loop (SIL)"`

Pairs for MAT-Files

`InputsLocation` — Input file name and path for MAT-files
character vector | string array

Input file name and location for MAT-files, specified as a character vector or string array. Include the file extension `.mat`.

Example: `'InputsLocation','C:\MATLAB\inputs_data.mat'`

`BaselineLocation` — Baseline file location

character vector | string array

File name and path to save baseline data to, specified as a character vector or string. Include the file extension `.mat`.

Example: `'BaselineLocation','C:\MATLAB\baseline_data.mat'`

Pairs for Microsoft Excel Files

`CreateExcelFile` — Use Excel format for inputs and outputs

`false` (default) | `true`

Option to use Excel format for inputs and, for baseline tests only, outputs, specified as `true` or `false`. If you use the `'ExcelFileLocation` argument to specify the file name and location, you do not need to also use `'CreateExcelFile`.

Example: `'CreateExcelFile',true`

`ExcelFileLocation` — Name and location for Excel file

character vector | string array

File name and path to save the Excel file to, specified as a character vector or string array. Include the extension `.xlsx`. If you specify a location, you do not need to also use the `'CreateExcelFile'` option.

Note If `SLDVTestGeneration` is `true` and `HarnessSource` is `"Signal Editor"`, you cannot save data to an Excel file.

Example: `'ExcelFileLocation','C:\MATLAB\baseline_data.xlsx'`

`Sheet` — Name of Excel sheet to save data to

character vector | string array

Name of the sheet to save Excel data to, specified as a character vector or string array.

Example: `'Sheet','MySubsysTest'`

Pairs for Simulink Design Verifier

`SLDVTestGeneration` — Whether to generate tests using Simulink Design Verifier

`false` (default) | `true`

Whether to generate tests using Simulink Design Verifier, specified as a logical. If this property is true, Simulink Design Verifier generates the tests to include in the test suite.

Note To generate tests from Simulink Design Verifier, the system under test must be an atomic subsystem.

Example: `'SLDVTestGeneration',true`

`HarnessSource` — Input source block for the harness
`"Inport"` (default) | `"Signal Editor"`

Input source block for the test harness, specified as `"Inport"` or `"Signal Editor"`.

Example: `"HarnessSource","Signal Editor"`

Output Arguments

`tc` — Test case
`sltest.testmanager.testcase` object

Test case, returned as an `sltest.testmanager.testcase` object.

Examples

Create Test for a Subsystem

Create a baseline test case and test harness for a subsystem, then save the inputs in Excel format.

```
% Load the model
load_system('rtwdemo_sil_block');

% Create a test file and get the test suite
tf = sltest.testmanager.TestFile('My B2B Test File');
ts = getTestSuites(tf);

% Create test from subsystem
createTestForSubsystem(ts,'Subsystem',...
    'rtwdemo_sil_block/Controller',...
    'CreateExcelFile',true);
```

Compatibility Considerations

`sltest.testmanager.TestSuite.createTestForSubsystem` Will Be Removed
Not recommended starting in R2020b

`sltest.testmanager.TestSuite.createTestForSubsystem` will be removed in a future release. Use `sltest.testmanager.createTestForComponent` instead. This replacement function allows you to create test cases for models, in addition to subsystems. Four additional name-value pairs are included in `sltest.testmanager.createTestForComponent` that require updates to your code:

- `TestFile` — Required name-value pair to specify the test file for the created test case
- `Component` — Required name-value pair to specify the component or model to test
- `CreateTestFile` — Optional name-value pair for whether to create a new test file
- `CreateHarness` — Optional name-value pair for whether to create a test harness in addition to the test case

See Also

`sltest.testmanager.createTestForComponent`

Topics
“Create and Run Test Cases with Scripts”

“Generate Tests and Test Harnesses for a Component or Model”
“Create and Run a Back-to-Back Test”

Introduced in R2016a

createTestSuite

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Create new test suite

Syntax

```
ts = createTestSuite(tf,suiteName)
```

Description

`ts = createTestSuite(tf,suiteName)` creates a test suite and adds it to the test file.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file that you want to create the test suite within, specified as a `sltest.testmanager.TestFile` object.

`suiteName` — Test suite name

character vector

Name of the test suite, specified as a character vector.

Example: `'My Test Suite'`

Output Arguments

`ts` — Test suite object

object

Test suite, returned as an `sltest.testmanager.TestSuite` object.

Examples

Create a Test Suite

```
% Create a test file
tf = sltest.testmanager.TestFile('My Test File');
```

```
% Create a test suite
ts = createTestSuite(tf,'My Test Suite');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

createTestSuite

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Create test suite

Syntax

```
tsOut = createTestSuite(ts,suiteName)
```

Description

`tsOut = createTestSuite(ts,suiteName)` creates a new test suite.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite that want to add another test suite to, specified as an `sltest.testmanager.TestSuite` object.

`suiteName` — Test suite name

character vector

Test suite name, specified as a character vector. If this input argument is empty, then the Test Manager gives the test suite a unique name.

Output Arguments

`tsOut` — Test suite

`sltest.testmanager.TestSuite` object

Test suite, returned as an `sltest.testmanager.TestSuite` object.

Examples

Create Test Suite

```
% Create test file
tf = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
ts = sltest.testmanager.TestSuite(tf,'My Test Suite');
```

```
% Create another new test suite using method
ts2 = createTestSuite(ts,'Baseline Tests')
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

deleteIterations

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Delete test iterations that belong to test case

Syntax

```
deleteIterations(tc,iter)
```

Description

`deleteIterations(tc,iter)` deletes one or more test iterations from the test case.

Input Arguments

`tc` — Test case to delete iteration from

`sltest.testmanager.TestCase` object

Test case that you want to delete the iteration from, specified as a `sltest.testmanager.TestCase` object.

`iter` — Test iteration to delete

`sltest.testmanager.TestIteration` object array

Test iterations that you want to delete from the test case, specified as an array of `sltest.testmanager.TestIteration` objects.

Examples

Delete Test Iteration from Test Case

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Iterations Test File');
ts = getTestSuites(tf);
tc = createTestCase(ts,'simulation','Simulation Iterations');

% Specify model as system under test
setProperty(tc,'Model','sldemo_autotrans');

% Set up table iteration
% Create iteration object
testItr1 = sltestiteration;
% Set iteration settings
setTestParam(testItr1,'SignalBuilderGroup','Passing Maneuver');
% Add the iteration to test case
addIteration(tc,testItr1);
```

```
% Set up another table iteration
% Create iteration object
testItr2 = sltestiteration;
% Set iteration settings
setTestParam(testItr2,'SignalBuilderGroup','Coasting');
% Add the iteration to test case
addIteration(tc,testItr2);

% Delete first iteration
deleteIterations(tc,testItr1);
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genBaselineInfoTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate baseline dataset information table

Syntax

```
baselineTable = genBaselineInfoTable(obj,result)
```

Description

`baselineTable = genBaselineInfoTable(obj,result)` generates a section for the baseline dataset information used in the test case.

Baseline Information

Baseline Name: baseline1.mat
Baseline File: Z:\12\aabhishe.Dec1\baseline1.mat

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
yout.Ww	double		Continuous	linear	union	Link
yout.Vs	double		Continuous	linear	union	Link
yout.Sd	double		Continuous	linear	union	Link
slp	double		Continuous	linear	union	Link

Input Arguments

`obj` — Test report object
`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set
`sltest.testmanager.TestCaseResult` object |
`sltest.testmananger.TestIterationResult` object

Result set, specified as a `sltest.testmanager.TestCaseResult` or `sltest.testmanager.TestIterationResult` object.

Output Arguments

`baselineTable` — Table
`mlreportgen.dom.FormalTable` object

The test case baseline dataset table generated by the method, returned as a `mlreportgen.dom.FormalTable` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.FormalTable`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genCoverageTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate coverage collection table

Syntax

```
groupObj = genCoverageTable(obj,resultObj)
```

Description

`groupObj = genCoverageTable(obj,resultObj)` generates a section for coverage that was collected during the test.

Aggregated Coverage Results

Model Name	C1	TBL	Execution
sldemo_absbrake	--	100%	100%
sldemo_wheelspeed_absbrake	100%	--	100%

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`resultObj` — Result set

`sltest.testmanager.TestResult` object

Result set, specified as a `sltest.testmanager.TestResult` object.

Output Arguments

`groupObj` — Group object

`mlreportgen.dom.Group` object

The coverage section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genHyperLinkToToC

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate link to table of contents

Syntax

```
para = genHyperLinkToToC(obj,indent)
```

Description

`para = genHyperLinkToToC(obj,indent)` generates link to the report table of contents.

The link appears at the end of sections:

Back to Report Summary

Input Arguments

`obj` — Test report

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`indent` — Link indentation

character vector

Space between the left outer boundary of this paragraph and the left inner boundary of the link, specified as a character vector.

The character vector has the format `valueUnits`, where `Units` is an abbreviation for the units in which the indentation is expressed. Use one of these abbreviations for the units for indentation.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Example: `'5mm'`

Output Arguments

para — Paragraph

`mlreportgen.dom.Paragraph` object

The link paragraph generated by the method, returned as a `mlreportgen.dom.Paragraph` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Paragraph`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genIterationSettingTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate iteration settings table

Syntax

```
groupObj = genIterationSettingTable(obj,result)
```

Description

`groupObj = genIterationSettingTable(obj,result)` generates a section for the iteration settings used to override the parent test case settings.

Iteration Settings

Test Overrides

Parameter Name	Value
ParameterSet	Parameter Set 1

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

Output Arguments

`groupObj` — Group object

`mlreportgen.dom.Group` object

The iteration settings section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genMetadataBlockForTestResult

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate result metadata section

Syntax

```
groupObj = genMetadataBlockForTestResult(obj,result,isTestSuiteResult)
```

Description

`groupObj = genMetadataBlockForTestResult(obj,result,isTestSuiteResult)` generates a result metadata section for a test suite or test case result.

If called from `genTestSuiteResultBlock`, then this method also calls:

- `sgenTableRowsForResultMetaInfo`
- `genRequirementLinksTable`

If called from `genTestCaseResultBlock`, then this method also calls:

- `genTableRowsForResultMetaInfo`
- `genRequirementLinksTable`
- `genIterationSettingTable`

Input Arguments

`obj` — Test report object
`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set
`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

`isTestSuiteResult` — Test suite indicator
`true` | `false`

Flag to indicate whether the test result metadata block is for a test suite result or not, specified as a Boolean, `true` or `false`.

Output Arguments

`groupObj` — Group object
`mlreportgen.dom.Group` object

The result set section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genParameterOverridesTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate test case parameter overrides table

Syntax

```
overridesTable = genParameterOverridesTable(obj,result,simIndex)
```

Description

`overridesTable = genParameterOverridesTable(obj,result,simIndex)` generates a section for parameter overrides used in the test case.

Parameter Overrides

Workspace Variable	Value	Source	Model Element
Parameter Set 1			
Rr	1.5	base workspace	sldemo_absbrake/Rr, sldemo_absbrake/Vehicle speed (angular)

Input Arguments

`obj` — Test report object
`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set
`sltest.testmanager.TestResult` object

Result set, specified as a `sltest.testmanager.TestResult` object.

`simIndex` — Simulation index
`1 | 2`

Simulation number that the test case parameter overrides table applies to, specified as an integer, 1 or 2. This setting applies to the simulation test case.

Output Arguments

`overridesTable` — Table
`mlreportgen.dom.FormalTable` object

The test case parameter overrides table generated by the method, returned as a `mlreportgen.dom.FormalTable` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.FormalTable`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genRequirementLinksTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate requirement links table

Syntax

```
reqTable = genRequirementLinksTable(obj,resultObj,isTestSuiteResult)
```

Description

`reqTable = genRequirementLinksTable(obj,resultObj,isTestSuiteResult)` generates a section for table of requirement links.

Input Arguments

`obj` — Test report object
`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`resultObj` — Result set
`sltest.testmanager.TestResult` object

Result set, specified as a `sltest.testmanager.TestResult` object.

`isTestSuiteResult` — Test suite indicator
`true` | `false`

Flag to indicate whether the requirement links table is for a test suite result or not, specified as a Boolean, `true` or `false`.

Output Arguments

`reqTable` — Table
`mlreportgen.dom.FormalTable` object

The requirements links table generated by the method, returned as a `mlreportgen.dom.FormalTable` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.FormalTable`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genResultSetBlock

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

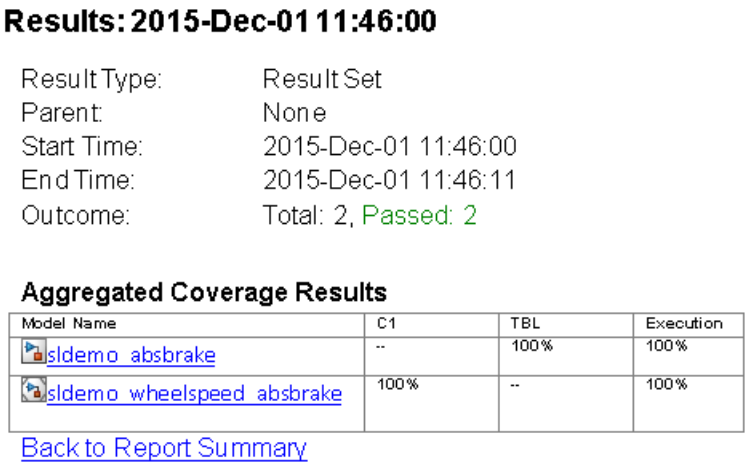
Generate results set section

Syntax

```
groupObj = genResultSetBlock(obj,result)
```

Description

`groupObj = genResultSetBlock(obj,result)` generates the results set section.



This method also calls:

- `genTableRowsForResultMetaInfo`
- `genCoverageTable`
- `genHyperLinkToToC`

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

Output Arguments

`groupObj` — Group object
`mlreportgen.dom.Group` object

The result set section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genRunBlockForTestCaseResult

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate test case configuration and results section

Syntax

```
groupObj = genRunBlockForTestCaseResult(obj,run,runType,result,simIndex)
```

Description

`groupObj = genRunBlockForTestCaseResult(obj,run,runType,result,simIndex)` generates a combined section for baseline data, simulation configuration, parameter overrides, simulation output, criteria comparison, and verify run data.

This method also calls:

- `genBaselineInfoTable`
- `genSimulationConfigurationTable`
- `genParameterOverridesTable`
- `genSignalSummaryTable`
- `plotOneSignalToFile`
- `genHyperLinkToToC`

Input Arguments

`obj` — Test report object
`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`run` — Run data
`Simulink.sdi.Run` object

Test case result run data, specified as a `Simulink.sdi.Run` object.

`runType` — Run type
`sltest.testmanager.RunTypes` object

The run type, specified as a `sltest.testmanager.RunTypes` object.

`result` — Result
`sltest.testmanager.ReportUtility.ReportResultData` object

Run result, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

`simIndex` — Simulation index
`1 | 2`

Simulation number that the result applies to, specified as an integer, 1 or 2. This setting applies to the simulation test case.

Output Arguments

`groupObj` — Group object
`mlreportgen.dom.Group` object

The result set section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `Simulink.sdi.Run` | `mlreportgen.dom.Group`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genSignalSummaryTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate signal output and comparison data

Syntax

```
groupObj = genSignalSummaryTable(obj,signalList,isComparison,isSummaryTable)
```

Description

`groupObj = genSignalSummaryTable(obj,signalList,isComparison,isSummaryTable)` generates a section for signal output and comparison data.

Name	Data Type	Units	Sample Time	Interp	Sync	Link to Plot
yout.Ww	double		Continuous	linear	union	Link
yout.Vs	double		Continuous	linear	union	Link
yout.Sd	double		Continuous	linear	union	Link
slp	double		Continuous	linear	union	Link

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`signalList` — Signal list

`sltest.testmanager.ReportUtility.Signal` object

Signals in the summary table, specified as an array of `sltest.testmanager.ReportUtility.Signal` objects.

`isComparison` — Comparison indicator

`true` | `false`

Flag to indicate whether the signal is from a comparison run or not, specified as a Boolean, `true` or `false`.

`isSummaryTable` — Summary table indicator

`true` | `false`

Flag to indicate whether this is for a signal summary table in the report or an individual signal plot, specified as a Boolean. `true` for the signal summary table or `false` for an individual signal plot.

Output Arguments

`groupObj` — Group object
`mlreportgen.dom.Group` object

The signal summary section generated by the method, returned as an `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genSimulationConfigurationTable

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate test case simulation configuration table

Syntax

```
simCfgTable = genSimulationConfigurationTable(obj,result,simIndex)
```

Description

`simCfgTable = genSimulationConfigurationTable(obj,result,simIndex)` generates a section for simulation configuration data used in the test case.

Simulation

System Under Test Information

Model:	sldemo_absbrake
Simulation Mode	Normal
Configuration Set:	Configuration
Start Time:	0
Stop Time:	14.635438874554231
Checksum:	1514901952 3523488043 2320696550 3824373991
Simulink Version:	8.7

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

`simIndex` — Simulation index

`1 | 2`

Simulation number that the test case configuration table applies to, specified as an integer, 1 or 2. This setting applies to the simulation test case.

Output Arguments

`simCfgTable` — Table
`mlreportgen.dom.FormalTable` object

The test case simulation configuration table generated by the method, returned as a `mlreportgen.dom.FormalTable` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.FormalTable`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genTableRowsForResultMetaInfo

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

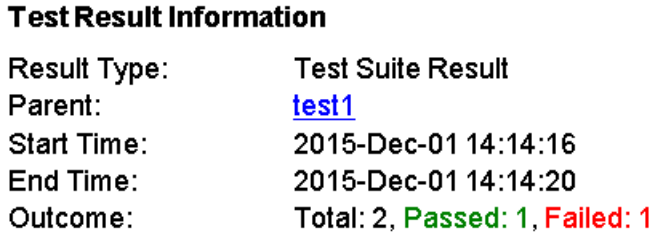
Generate test result metadata table

Syntax

```
rowList = genTableRowsForResultMetaInfo(obj,result)
```

Description

`rowList = genTableRowsForResultMetaInfo(obj,result)` generates a section for test result metadata used in a result set, test file, test suite, test case, or test iteration.



Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

Output Arguments

`rowList` — Table row

`mlreportgen.dom.TableRow` object

The metadata information table row generated by the method, returned as a `mlreportgen.dom.TableRow` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.TableRow`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genTestCaseResultBlock

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Generate test case result section

Syntax

```
groupObj = genTestCaseResultBlock(obj,result)
```

Description

`groupObj = genTestCaseResultBlock(obj,result)` generates a test case result section.

This method also calls:

- `genMetadataBlockForTestResult`
- `genCoverageTable`
- `genHyperLinkToToC`

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

Output Arguments

`groupObj` — Group object

`mlreportgen.dom.Group` object

The result set section generated by the method, returned as a `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

genTestSuiteResultBlock

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

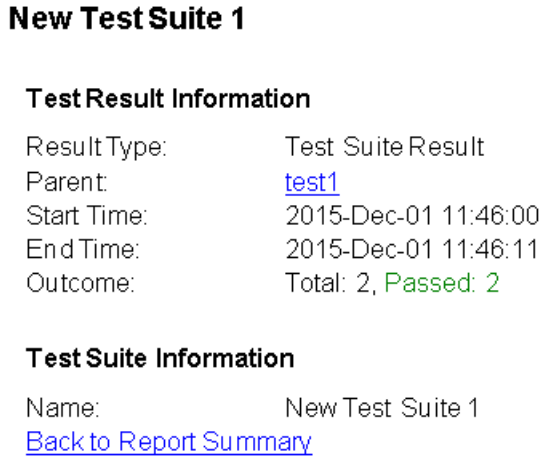
Generate test suite result section

Syntax

```
groupObj = genTestSuiteResultBlock(obj,result)
```

Description

`groupObj = genTestSuiteResultBlock(obj,result)` generates a test suite result section.



This method also calls:

- `genMetadataBlockForTestResult`
- `genCoverageTable`
- `genHyperLinkToToC`

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`result` — Result set

`sltest.testmanager.ReportUtility.ReportResultData` object

Result set, specified as a `sltest.testmanager.ReportUtility.ReportResultData` object.

Output Arguments

`groupObj` — Group
`mlreportgen.dom.Group` object

The result set section generated by the method, returned as a `mlreportgen.dom.Group` object.

See Also

`sltest.testmanager.TestResultReport` | `mlreportgen.dom.Group`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

getAssessmentsCallback

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test case assessments callback

Syntax

```
callback = getAssessmentsCallback(tc)
```

Description

`callback = getAssessmentsCallback(tc)` returns the assessments callback for the specified test case.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to which the assessment callback is associated, specified as an `sltest.testmanager.TestCase` object.

Data Types: `string`

Output Arguments

`callback` — Assessment callback

string

Assessments callback, returned as a string.

Data Types: `string`

Examples

Get the Callback for a Test Case

1. Specify the test file and get the test suite and test case object in the file. Assume there is only one test suite and one test case in the file. Then, use `getAssessmentsCallback` to get the callback code.

   ```
   tf = sltest.testmanager.TestFile('myTestFile.mldatx');
   ts = tf.getTestSuites();
   tc = ts.getTestCases();
   ```

2. Get the assessment callback for the test case object.

   ```
   tc.getAssessmentsCallback()
   ```

See Also

`setAssessmentsCallback`

Topics

“Logical and Temporal Assessment Syntax”

Introduced in R2020b

getBaselineCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get baseline criteria

Syntax

```
baselines = getBaselineCriteria(tc)
```

Description

`baselines = getBaselineCriteria(tc)` gets the baseline criteria sets in a test case and returns them as an array of baseline criteria objects, `sltest.testmanager.BaselineCriteria`.

Input Arguments

`tc` — Baseline test case

`sltest.testmanager.TestCase` object

Baseline test case that you want to get baseline criteria from, specified as a `sltest.testmanager.TestCase` object.

Output Arguments

`baselines` — Baseline criteria object

`sltest.testmanager.BaselineCriteria` object array

Baseline criteria that are in the baseline test case, returned as an array of `sltest.testmanager.BaselineCriteria` objects.

Examples

Get Baseline Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');
```

```
% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;

% Get baseline criteria
baselineOut = getBaselineCriteria(tc);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getBaselineRun

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test case baseline dataset

Syntax

```
baseline = getBaselineRun(result)
```

Description

`baseline = getBaselineRun(result)` gets the baseline dataset used in a test case, which belongs to the test case results object. The baseline dataset is saved with the test case result only if the **Save baseline data in test result** check box is selected in the test case under the **Baseline Criteria** section.

To record the baseline data in the test case result, you must set the `SaveBaselineRunInTestResult` test case property to `true`:

```
setProperty(testcase,'SaveBaselineRunInTestResult',true);
```

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get baseline dataset from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`baseline` — Baseline dataset

`Simulink.sdi.Run` object

Test case baseline dataset, returned as a `Simulink.sdi.Run` object. If the **Save baseline data in test result** check box is not selected in the test case, then the function returns an empty array.

Examples

Get Baseline Data From Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
```

```
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria and record baseline
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);
setProperty(tc,'SaveBaselineRunInTestResult',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;

% Run the test case and return an object with results data
resultsObj = run(tc);

% Get test case result
tcr = getTestCaseResults(resultsObj);

% Get the baseline run dataset
baselineOut = getBaselineRun(tcr);
```

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getTestCase

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test case that produced result

Syntax

```
tc = getTestCase(tcresult)
```

Description

`tc = getTestCase(tcresult)` returns the test case that produced the test case results, `tc`.

Input Arguments

`tcresult` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case result from a test case run, specified as an `sltest.testmanager.TestCaseResult` object.

Output Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case that produced the test case results, returned as an `sltest.testmanager.TestCase` object.

Examples

Obtain Test Case That Produced Result

This example shows how to create a test file, test suite, and simulation test case programmatically. The test case runs on the `HeatPumpScenario` model and uses `getTestCase` to obtain the test case that produced the test results.

Clear existing test files from the Test Manager.

```
sltest.testmanager.clear;
```

Create test file, test suite, and test case.

```
tf = sltest.testmanager.TestFile('Test File 1');
ts = createTestSuite(tf,'Test Suite 1');
tc = createTestCase(ts,'simulation','Test Case 1');
```

Remove default test suite so that only the created test suite is used.

```
tsDel = tf.getTestSuites();
remove(tsDel(1));
```

Assign the system under test to the test case, and run the test.

```
setProperty(tc,'Model','HeatPumpScenario');
tcresult = run(tc);
```

Obtain the test case results.

```
tcresultobj = getTestCaseResults(tc);
```

Obtain the test case that produced the results.

```
tcobj = getTestCase(tcresultobj);
```

See Also

`getTestCaseResults`

Introduced in R2019b

getBaselineRun

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test iteration baseline dataset

Syntax

```
baseline = getBaselineRun(resultObj)
```

Description

`baseline = getBaselineRun(resultObj)` gets the baseline dataset used in a test iteration, which belongs to the test iteration results object. The baseline dataset is saved with the test iteration result only if the **Save baseline data in test result** check box is selected in the parent test case under the **Baseline Criteria** section.

Input Arguments

`resultObj` — Test iteration result

object

Test iteration results object to get baseline dataset from, specified as a `sltest.testmanager.TestIterationResult` object.

Output Arguments

`baseline` — Baseline dataset

object

Test iteration baseline dataset, returned as a `Simulink.sdi.Run` object. If the **Save baseline data in test result** check box is not selected in the parent test case, then the function returns an empty array.

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getCleanupPlots

Class: `sltest.testmanager.TestFileResult`
Package: `sltest.testmanager`

Get plots from cleanup callbacks

Syntax

```
figs = getCleanupPlots(result)
```

Description

`figs = getCleanupPlots(result)` returns figure handles of plots generated from the cleanup callbacks of the test file associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test file results

`sltest.testmanager.TestFileResult` object

Test file results to get cleanup plot figure handles from, specified as a `sltest.testmanager.TestFileResult` object.

Output Arguments

`figs` — Figures from test file cleanup callbacks

array of figure handles

Figures from test file cleanup callbacks, returned as an array of figure handles.

Examples

Get Figure Handles from Test File Results

```
% Open the model for this example
openExample('sldemo_absbrake');

Create the test file, suite, and case
tf = sltest.testmanager.TestFile('Cleanup Plots');
ts = createTestSuite(tf,'Cleanup Plots Test Suite');
tc = createTestCase(ts,'baseline','Cleanup Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in the test file cleanup callback
setProperty(tf,'CleanupCallback','a = [1,2,3]; f = figure; plot(a);');
```

```
% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);

% Get the cleanup plot figure handles
figs = tfr.getCleanupPlots;
```

See Also

`sltest.testmanager.TestFile` | `sltest.testmanager.TestFileResult` | `setProperty` | `sltest.testmanager.Options`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getCleanupPlots

Class: `sltest.testmanager.TestSuiteResult`
Package: `sltest.testmanager`

Get plots from cleanup callbacks of test suite

Syntax

```
figs = getCleanupPlots(result)
```

Description

`figs = getCleanupPlots(result)` returns figure handles of plots from the cleanup callbacks of the test suite associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test suite results

`sltest.testmanager.TestSuiteResult` object

Test suite results to get cleanup plot figure handles from, specified as an `sltest.testmanager.TestSuiteResult` object.

Output Arguments

`figs` — Figures from test suite cleanup callbacks

array of figure handles

Figures from test suite cleanup callbacks, returned as an array of figure handles.

Examples

Get Figure Handles from Test Suite Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile('Test Suite Cleanup Plots');
ts = createTestSuite(tf,'Cleanup Plots Test Suite');
tc = createTestCase(ts,'baseline','Cleanup Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in the test suite cleanup callback
setProperty(ts,'CleanupCallback','a = [1,2,3]; f = figure; plot(a);');
```

```
% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);

% Get the cleanup plot figure handles
figs = tsr.getCleanupPlots;
```

See Also

`sltest.testmanager.TestSuite` | `sltest.testmanager.TestSuiteResult` | `setProperty (Test Suite)` | `sltest.testmanager.Options`

Topics

"Create, Store, and Open MATLAB Figures"
"Export Test Results"

Introduced in R2017a

getComparisonResult

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test data comparison result

Syntax

```
cr = getComparisonResult(tcr)
```

Description

`cr = getComparisonResult(tcr)` returns baseline or equivalence data comparison results `cr` from the `sltest.testmanager.TestCaseResult` object `tcr`.

Input Arguments

`tcr` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case result to get baseline or equivalence data results from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`cr` — Data comparison result

`sltest.testmanager.ComparisonRunResult` object

Result of the baseline or equivalence data comparison, specified as a `sltest.testmanager.ComparisonRunResult` object.

Examples

Get Comparison Results of a Baseline Test

This example shows how to programmatically get the comparison results of the second iteration of a baseline test case.

1. Get the path to the test file, then run the test file.

```
extf = 'sltestTestCaseRealTimeReuseExample.mldatx';
tf = sltest.testmanager.TestFile(extf);
ro = run(tf);
```

2. Get the test iteration results.

```
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

3. Get the comparison run result of iteration 2.

```
cr2 = getComparisonResult(tir(2))
```

```
cr2 =

  ComparisonRunResult with properties:

    Outcome: Passed
```

4. Get the comparison signal result of the run result.

```
cr2sig = getComparisonSignalResults(cr2)
```

```
cr2sig =

  1×2 ComparisonSignalResult array with properties:

    Outcome
    Baseline
    ComparedTo
    Difference
```

5. Clear the results and the Test Manager.

```
sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

Topics
“Compare Model Output to Baseline Data”
“Test Iterations”

Introduced in R2017b

getComparisonResult

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test data comparison result

Syntax

```
cr = getComparisonResult(tir)
```

Description

`cr = getComparisonResult(tir)` returns baseline or equivalence data comparison results `cr` from the `sltest.testmanager.TestIterationResult` object `tir`.

Input Arguments

`tir` — Test iteration result

sltest.testmanager.TestIterationResult object

Test iteration result to get baseline or equivalence data results from, specified as an `sltest.testmanager.TestIterationResult` object.

Output Arguments

`cr` — Data comparison result

sltest.testmanager.TestIterationResult object | object

Result of the baseline or equivalence data comparison, specified as an `sltest.testmanager.ComparisonRunResult` object.

Examples

Get Comparison Results of a Baseline Test

This example shows how to programmatically get the comparison results of the second iteration of a baseline test case.

1. Get the path to the test file, then run the test file.

```
extf = 'sltestTestCaseRealTimeReuseExample.mldatx';
tf = sltest.testmanager.TestFile(extf);
ro = run(tf);
```

2. Get the test iteration results.

```
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

3. Get the comparison run result of iteration 2.

```
cr2 = getComparisonResult(tir(2))
```

```
cr2 =

  ComparisonRunResult with properties:

    Outcome: Passed
```

4. Get the comparison signal result of the run result.

```
cr2sig = getComparisonSignalResults(cr2)
```

```
cr2sig =

  1×2 ComparisonSignalResult array with properties:

    Outcome
    Baseline
    ComparedTo
    Difference
```

5. Clear the results and the Test Manager.

```
sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

`sltest.testmanager.ComparisonRunResult`

Introduced in R2017b

getTestIteration

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test iteration that produced result

Syntax

```
ti = getTestIteration(ti_result)
```

Description

`ti = getTestIteration(ti_result)` returns the test iteration that produced the test iteration results, `ti_result`.

Input Arguments

`ti_result` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration result for a single iteration, specified as an `sltest.testmanager.TestIterationResult` object.

Output Arguments

`ti` — Test iteration

`sltest.testmanager.TestIteration` object

Test iteration that produced the test iteration results, returned as an `sltest.testmanager.TestIteration` object.

See Also

`getIterationResults`

Introduced in R2019b

getComparisonRun

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test case signal comparison results

Syntax

```
run = getComparisonRun(result)
```

Description

`run = getComparisonRun(result)` gets the test case comparison results that belong to the test case results object. The results are output to a `Simulink.sdi.Run` object, which contains signal data for each comparison, tolerance, and difference result.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get comparison results from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`run` — Comparison results

`Simulink.sdi.Run` object

Test case comparison signal results, returned as a `Simulink.sdi.Run` object.

Examples

Get Comparison Data From Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');
```

```
% Capture the baseline criteria and record baseline
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;

% Run the test case and return an object with results data
resultsObj = run(tc);

% Get test case result
tcr = getTestCaseResults(resultsObj);

% Get the baseline run dataset
compOut = getComparisonRun(tcr);
```

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

getComparisonRun

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test iteration signal comparison results

Syntax

```
run = getComparisonRun(result)
```

Description

`run = getComparisonRun(result)` gets the test iteration comparison results that belong to the test iteration results object. The results are output to a `Simulink.sdi.Run` object, which contains signal data for each comparison, tolerance, and difference result.

Input Arguments

`result` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration results to get results from, specified as a `sltest.testmanager.TestIterationResult` object.

Output Arguments

`run` — Comparison results

`Simulink.sdi.Run` object

Test iteration comparison results, returned as a `Simulink.sdi.Run` object.

See Also

`sltest.testmanager.TestIterationResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getComparisonSignalResults

Class: `sltest.testmanager.ComparisonRunResult`
Package: `sltest.testmanager`

Get test signal comparison result from comparison run result

Syntax

```
csr = getComparisonSignalResults(cr)
```

Description

`csr = getComparisonSignalResults(cr)` returns baseline or equivalence signal comparison results `csr` as a `sltest.testmanager.ComparisonSignalResult` object from the `sltest.testmanager.ComparisonRunResult` object `cr`.

Input Arguments

`cr` — Overall data comparison result

`sltest.testmanager.ComparisonRunResult` object

Overall result of a baseline or equivalence data comparison, specified as a `sltest.testmanager.ComparisonRunResult` object. You get signal comparison results from the overall data comparison result.

Output Arguments

`csr` — Signal data comparison result

`sltest.testmanager.ComparisonSignalResult` object

Result of the baseline or equivalence data comparison, specified as a `sltest.testmanager.ComparisonSignalResult` object.

Examples

Get Comparison Results of a Baseline Test

This example shows how to programmatically get the comparison results of the second iteration of a baseline test case.

1. Get the path to the test file, then run the test file.

```
extf = 'sltestTestCaseRealTimeReuseExample.mldatx';
tf = sltest.testmanager.TestFile(extf);
ro = run(tf);
```

2. Get the test iteration results.

```
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
```

```
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);
```

3. Get the comparison run result of iteration 2.

```
cr2 = getComparisonResult(tir(2))
```

```
cr2 =

  ComparisonRunResult with properties:

    Outcome: Passed
```

4. Get the comparison signal result of the run result.

```
cr2sig = getComparisonSignalResults(cr2)
```

```
cr2sig =

  1×2 ComparisonSignalResult array with properties:

    Outcome
    Baseline
    ComparedTo
    Difference
```

5. Clear the results and the Test Manager.

```
sltest.testmanager.clearResults;
sltest.testmanager.clear;
sltest.testmanager.close;
```

See Also

Introduced in R2017b

getCoverageResults

Class: `sltest.testmanager.ResultSet`
Package: `sltest.testmanager`

Get coverage results

Syntax

```
covResult = getCoverageResults(result)
covResult = getCoverageResults(result,model)
```

Description

`covResult = getCoverageResults(result)` gets the coverage results that belong to the result set object.

`covResult = getCoverageResults(result,model)` gets the coverage results that belong to the result set object and the specified model.

Input Arguments

`result` — Result set

`sltest.testmanager.ResultSet` object

Result set object to get coverage results from, specified as a `sltest.testmanager.ResultSet` object.

`model` — Model name

character vector

Name of a model within the set of coverage results, specified as a character vector.

Output Arguments

`covResult` — Coverage results

object array

Coverage results contained in the result set, returned as an array of `cvdata` objects. For more information on `cvdata` objects, see `cvdata`.

Examples

Get Result Set Coverage Results

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
```

```
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');

% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = 'mr';

% Run the test case and return an object with results data
ro = run(tf);

% Get the coverage results
cr = getCoverageResults(ro);
```

See Also

`sltest.testmanager.CoverageSettings` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage in Tests”

Introduced in R2016a

remove

Class: `sltest.testmanager.ResultSet`
Package: `sltest.testmanager`

Remove result set

Syntax

```
remove(result)
```

Description

`remove(result)` removes `result`, a `sltest.testmanager.ResultSet` object. If the Test Manager is visible, the corresponding results are removed from the **Results and Artifacts** pane.

Input Arguments

`result` — Results set

`sltest.testmanager.ResultSet` object

Results set to get test file results from, specified as a `sltest.testmanager.ResultSet` object.

Examples

Remove a Test Result

This example shows how to run a test and remove the result.

Create a Test File

```
tf = sltest.testmanager.TestFile('f14ParameterSweepTest.mldatx');
```

Run the Test

```
result = run(tf)
```

```
result =
  ResultSet with properties:

                   Name: 'Results: 2021-Sep-01 18:03:38'
                Outcome: Failed
              NumPassed: 0
              NumFailed: 25
            NumDisabled: 0
          NumIncomplete: 0
               NumTotal: 25
     NumTestCaseResults: 0
    NumTestSuiteResults: 0
     NumTestFileResults: 1
              StartTime: 01-Sep-2021 18:03:45
```

```
            StopTime: 01-Sep-2021 18:03:47
            Duration: 1.641 sec
         Description: []
    CoverageResults: []
            UserData: []
```

Remove the Result

```
remove(result)
```

See Also

`sltest.testmanager.ResultSet` | `sltest.testmanager.TestSuiteResult` | `sltest.testmanager.TestCaseResult`

Introduced in R2019a

getCoverageResults

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get coverage results

Syntax

```
covResult = getCoverageResults(result)
covResult = getCoverageResults(result,model)
```

Description

`covResult = getCoverageResults(result)` gets the coverage results that belong to the test case results object.

`covResult = getCoverageResults(result,model)` gets the coverage results that belong to the test case results object and the specified model.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get coverage results from, specified as a `sltest.testmanager.TestCaseResult` object.

`model` — Model name

character vector

Name of a model within the set of coverage results, specified as a character vector.

Output Arguments

`covResult` — Coverage results

object array

Coverage results contained in the test case result, returned as an array of `cvdata` objects. For more information on `cvdata` objects, see `cvdata`.

Examples

Get Test Suite Coverage Results

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
```

```
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');

% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = 'mr';

% Run the test case and return an object with results data
rs = run(tf);

% Get the coverage results
cr = getCoverageResults(rs);
```

See Also

`sltest.testmanager.CoverageSettings` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage in Tests”

Introduced in R2016a

getCoverageResults

Class: `sltest.testmanager.TestFileResult`
Package: `sltest.testmanager`

Get coverage results

Syntax

```
covResult = getCoverageResults(result)
covResult = getCoverageResults(result,model)
```

Description

`covResult = getCoverageResults(result)` gets the coverage results that belong to the test file results object.

`covResult = getCoverageResults(result,model)` gets the coverage results that belong to the test file results object and the specified model.

Input Arguments

`result` — Test file result

`sltest.testmanager.ResultSet` object

Test file results to get coverage results from, specified as a `sltest.testmanager.TestFileResult` object.

`model` — Model name

character vector

Name of a model within the set of coverage results, specified as a character vector.

Output Arguments

`covResult` — Coverage results

object array

Coverage results contained in the test file result, returned as an array of `cvdata` objects. For more information on `cvdata` objects, see `cvdata`.

Examples

Get Test File Coverage Results

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
```

```
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');

% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = 'mr';

% Run the test case and return an object with results data
rs = run(tf);

% Get the coverage results
cr = getCoverageResults(rs);
```

See Also

`sltest.testmanager.CoverageSettings` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage in Tests”

Introduced in R2016a

getCoverageResults

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get coverage results

Syntax

```
covResult = getCoverageResults(resultObj)
covResult = getCoverageResults(resultObj,model)
```

Description

`covResult = getCoverageResults(resultObj)` gets the coverage results that belong to the test iteration results object.

`covResult = getCoverageResults(resultObj,model)` gets the coverage results that belong to the test iteration results object and the specified model.

Input Arguments

`resultObj` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration results object to get coverage results from, specified as a `sltest.testmanager.TestIterationResult` object.

`model` — Model name

character vector

Name of a model within the set of coverage results, specified as a character vector.

Example: `'myModel'`

Output Arguments

`covResult` — Coverage results

object array

Coverage results contained in the test iteration result, returned as an array of `cvdata` objects. For more information on `cvdata` objects, see `cvdata`.

See Also

`sltest.testmanager.CoverageSettings` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage in Tests”

Introduced in R2016a

getCoverageResults

Class: `sltest.testmanager.TestSuiteResult`
Package: `sltest.testmanager`

Get coverage results

Syntax

```
covResult = getCoverageResults(result)
covResult = getCoverageResults(result,model)
```

Description

`covResult = getCoverageResults(result)` gets the coverage results that belong to the test suite results object.

`covResult = getCoverageResults(result,model)` gets the coverage results that belong to the test suite results object and the specified model.

Input Arguments

`result` — Test suite result

`sltest.testmanager.TestSuiteResult` object

Test suite results to get coverage results from, specified as a `sltest.testmanager.TestSuiteResult` object.

`model` — Model name

character vector

Name of a model within the set of coverage results, specified as a character vector.

Output Arguments

`covResult` — Coverage results

object array

Coverage results contained in the test suite result, returned as an array of `cvdata` objects. For more information on `cvdata` objects, see `cvdata`.

Examples

Get Test Suite Coverage Results

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
```

```
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');

% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = 'mr';

% Run the test case and return an object with results data
rs = run(tf);

% Get the coverage results
cr = getCoverageResults(rs);
```

See Also

`sltest.testmanager.CoverageSettings` | `cvdata`

Topics

“Create and Run Test Cases with Scripts”
“Collect Coverage in Tests”

Introduced in R2016a

getCoverageSettings

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get coverage settings

Syntax

```
covSettings = getCoverageSettings(tc)
```

Description

`covSettings = getCoverageSettings(tc)` gets the coverage settings for a test case and returns an `sltest.testmanager.CoverageSettings` object.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get coverage settings from, specified as an `sltest.testmanager.TestCase` object.

Output Arguments

`covSettings` — Coverage settings

`sltest.testmanager.CoverageSettings` object

Coverage settings for the test case, returned as an`sltest.testmanager.CoverageSettings` object. For information on coverage metrics, see `sltest.plugins.coverage.CoverageMetrics`.

Examples

Get Coverage Settings

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Enable MCDC and signal range coverage metrics
cov.MetricSettings = 'mr';

% Get and check coverage settings
covSettings = getCoverageSettings(tc);
```

See Also

`sltest.testmanager.CoverageSettings` | `sltest.plugins.coverage.CoverageMetrics`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getCoverageSettings

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get coverage settings

Syntax

```
covSettings = getCoverageSettings(tf)
```

Description

`covSettings = getCoverageSettings(tf)` gets the coverage settings for a test file and returns an `sltest.testmanager.CoverageSettings` object.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file object to get coverage settings from, specified as an `sltest.testmanager.TestFile` object.

Output Arguments

`covSettings` — Coverage settings

object

Coverage settings for the test file, returned as an `sltest.testmanager.CoverageSettings` object. For information on coverage metrics, see `sltest.plugins.coverage.CoverageMetrics`.

Examples

Turn On Coverage For a Test File

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;
```

See Also

`sltest.testmanager.CoverageSettings` | `sltest.plugins.coverage.CoverageMetrics`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getCoverageSettings

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get coverage settings

Syntax

```
covSettings = getCoverageSettings(ts)
```

Description

`covSettings = getCoverageSettings(ts)` gets coverage settings for a test suite and returns an `sltest.testmanager.CoverageSettings` object.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite object to get coverage settings from, specified as an `sltest.testmanager.TestSuite` object.

Output Arguments

`covSettings` — Coverage settings

object

Coverage settings for the test suite, returned as an `sltest.testmanager.CoverageSettings` object. For information on coverage metrics, see `sltest.plugins.coverage.CoverageMetrics`.

Examples

Turn Off Coverage For a Test Suite

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Turn on coverage settings at test-file level
cov = getCoverageSettings(tf);
cov.RecordCoverage = true;

% Turn off coverage at test-suite level
cov = getCoverageSettings(ts);
cov.RecordCoverage = false;
```

See Also

`sltest.testmanager.CoverageSettings` | `sltest.plugins.coverage.CoverageMetrics`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getCustomCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get custom criteria that belong to test case

Syntax

```
customCriteria = getCustomCriteria(tc)
```

Description

`customCriteria = getCustomCriteria(tc)` creates the custom criteria object `customCriteria` from the test case `tc`.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get the custom criteria from, specified as a `sltest.testmanager.TestCase` object.

Output Arguments

`customCriteria` — Test case custom criteria

`sltest.testmanager.CustomCriteria` object

Custom criteria of the test case, returned as an `sltest.testmanager.CustomCriteria` object.

Examples

Get Custom Criteria in Test Case

Create a test case object from the test suite `ts`.

```
tc = ts.getTestCaseByName('Requirement 1.3 Test');
```

Get the custom criteria from the test case `tc`.

```
tcCriteria = getCustomCriteria(tc);
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

getCustomCriteriaPlots

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get plots from test case custom criteria

Syntax

```
figs = getCustomCriteriaPlots(result)
```

Description

`figs = getCustomCriteriaPlots(result)` returns figure handles of plots generated from the custom criteria of the test case associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case result to get custom criteria figure handles from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`figs` — Figures from test case custom criteria

array of figure handles

Figures from test case custom criteria, returned as an array of figure handles.

Examples

Get Figure Handles from Test Case Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile('Test Case Custom Criteria');
ts = createTestSuite(tf,'CC Test Suite');
tc = createTestCase(ts,'baseline','CC Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in custom criteria and enable custom criteria
tcCriteria = getCustomCriteria(tc);
```

```
tcCriteria.Callback = 'a = [1,2,3]; f= figure; plot(a);';
tcCriteria.Enabled = true;


% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);

% Get the custom criteria plot figure handles
figs = tcr.getCustomCriteriaPlots;
```

See Also

`sltest.testmanager.TestCaseResult` | `sltest.testmanager.CustomCriteria` | `sltest.testmanager.Options`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getCustomCriteriaPlots

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get plots from custom criteria

Syntax

```
figs = getCustomCriteriaPlots(result)
```

Description

`figs = getCustomCriteriaPlots(result)` returns figure handles of plots from the custom criteria of the test case associated with the iteration results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration result to get custom criteria plots from, specified as an `sltest.testmanager.TestIterationResult` object.

Output Arguments

`figs` — Figures from test case custom criteria

array of figure handles

Figures from test case custom criteria for the specified iteration, returned as an array of figure handles.

Examples

Get Figure Handles from Test Iteration Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile...
   ('Iteration Custom Criteria Plots');
ts = createTestSuite(tf,'CC Test Suite');
tc = createTestCase(ts,'baseline','CC Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);
```

```
% Create a plot in custom criteria and
% enable custom criteria
tcCriteria = getCustomCriteria(tc);
tcCriteria.Callback = 'a = [1,2,3];
f= figure; plot(a);';
tcCriteria.Enabled = true;

% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Specify iterations
vars = 32 : 0.5 : 34;

for k = 1 : length(vars)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration;

    % Set the parameter value for this iteration
    setVariable(testItr,'Name','g','Source',...
       'base workspace','Value',vars(k));

    str = sprintf('Iteration %d',k);

    % Add the iteration object to the test case
    addIteration(tc,testItr,str);
end

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);

% Get the custom criteria plot figure handles from first iteration
figs = tir(1).getCustomCriteriaPlots;
```

See Also

`sltest.testmanager.TestIterationResult` | `sltest.testmanager.CustomCriteria` | `sltest.testmanager.Options` | `getIterationResults`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getCustomCriteriaResult

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get custom criteria results from test case result

Syntax

```
ccResult = getCustomCriteriaResult(tcResult)
```

Description

`ccResult = getCustomCriteriaResult(tcResult)` creates the custom criteria result object `ccResult` from test case result `tcResult`.

Input Arguments

`tcResult` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case result to get the custom criteria result from, specified as a `TestCaseResult` object.

Output Arguments

`ccResult` — Custom criteria result

`sltest.testmanager.CustomCriteriaResult` object

Custom criteria result of the test case result, returned as an `CustomCriteriaResult` object.

Examples

Get Custom Criteria Result from Test Case Result

Create a test case result object from the test case result set `tcResultSet`.

```
tcResult = getTestCaseResults(tcResultSet);
```

Get the custom criteria from the test case result `tcResult`.

```
ccResult = getCustomCriteriaResult(tcResult);
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

getCustomCriteriaResult

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get custom criteria results from test iteration

Syntax

```
ccResult = getCustomCriteriaResult(tiResult)
```

Description

`ccResult = getCustomCriteriaResult(tiResult)` creates the custom criteria result object `ccResult` from test iteration result `tiResult`.

Input Arguments

`tiResult` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration result to get the custom criteria result from, specified as a `TestIterationResult` object.

Output Arguments

`ccResult` — Custom criteria result

`sltest.testmanager.CustomCriteriaResult` object

Custom criteria result of the test case result, returned as an `CustomCriteriaResult` object.

Examples

Get Custom Criteria Result from Test Case Result

Create a test case result object from the test case result set `tcResultSet`.

```
tcResult = getTestCaseResults(tcResultSet);
```

Get the iteration result from the test case result `tcResult`.

```
iterResult = getIterationResults(tcResult);
```

Get the custom criteria from the test case result `tcResult`.

```
ccResult = getCustomCriteriaResult(iterResult);
```

See Also

`sltest.testmanager.TestIteration`

Topics
“Process Test Results with Custom Scripts”
“Custom Criteria Programmatic Interface Example”
“Create and Run Test Cases with Scripts”

Introduced in R2016b

getEquivalenceCriteria

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get equivalence criteria from test case

Syntax

```
eq = getEquivalenceCriteria(tc)
```

Description

`eq = getEquivalenceCriteria(tc)` gets the equivalence criteria set from the test case. The function returns an equivalence criteria object, `sltest.testmanager.EquivalenceCriteria`. This function can be used only if the test type is an equivalence test case.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get equivalence criteria from, specified as an `sltest.testmanager.TestCase` object.

Output Arguments

`eq` — Equivalence criteria

`sltest.testmanager.EquivalenceCriteria` object

Equivalence criteria in the test case, returned as an `sltest.testmanager.EquivalenceCriteria` object.

Examples

Get Equivalence Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
```

```
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Capture equivalence criteria
eq = captureEquivalenceCriteria(tc);

% Set the equivalence criteria tolerance for one signal
sc = getSignalCriteria(eq);
sc(1).AbsTol = 2.2;

% Get and check the equivalence criteria
eq = getEquivalenceCriteria(tc);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getInputs

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test case inputs

Syntax

```
inputs = getInputs(tc)
inputs = getInputs(tc,simulationIndex)
```

Description

`inputs = getInputs(tc)` gets the input sets in a test case and returns them as an array of test input objects, `sltest.testmanager.TestInput`.

`inputs = getInputs(tc,simulationIndex)` gets the input sets in a test case and returns them as an array of test input objects, `sltest.testmanager.TestInput`. If the test case is an equivalence test case, then specify the simulation index.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get test inputs from, specified as an `sltest.testmanager.TestCase` object.

`simulationIndex` — Test case simulation number

1 | 2

Simulation number that the parameter sets apply to, specified as 1 or 2. This setting applies to the simulation test case where there are two simulations. For baseline and simulation test cases, the default simulation index is 1.

Output Arguments

`inputs` — Test input

`sltest.testmanager.TestInput` object array

Test inputs that belong to the test case, returned as an array of `sltest.testmanager.TestInput` objects.

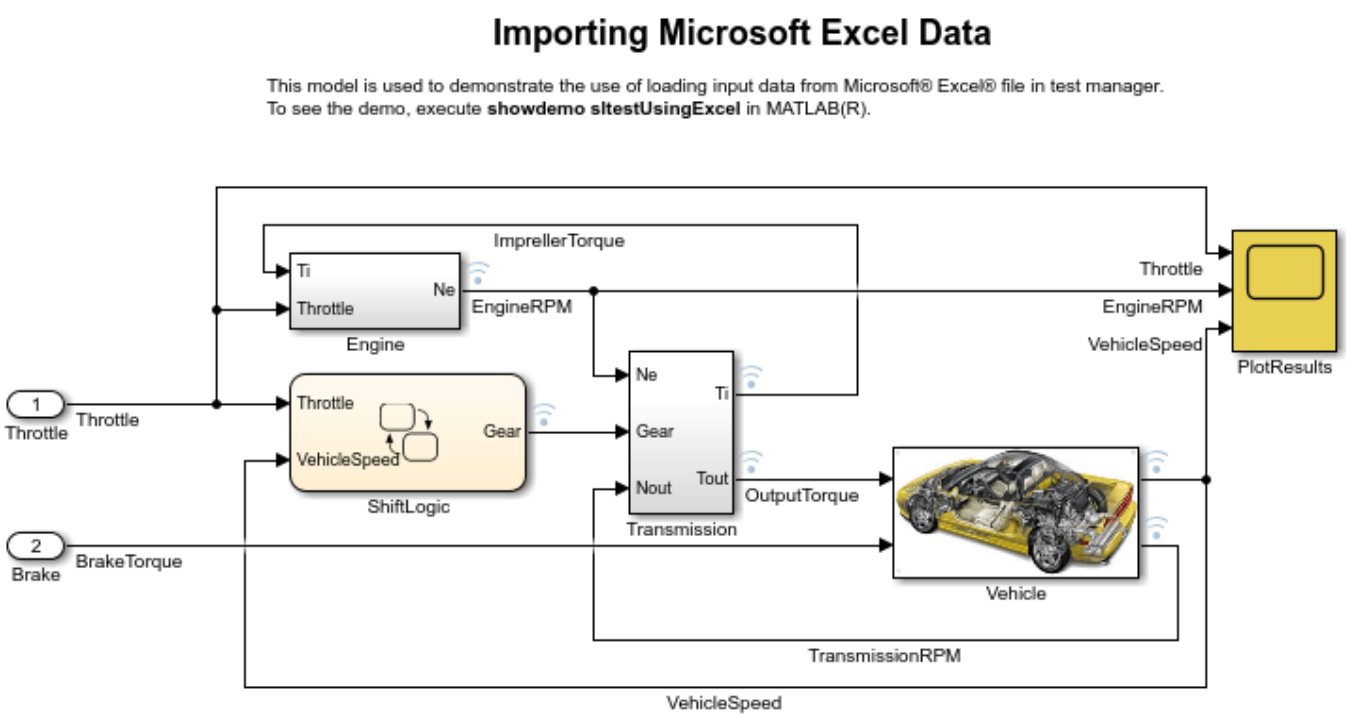
Examples

Get Test Inputs

This example shows how to get the test inputs to a test case.

Load the Example Model and Create a New Test File

```
open_system('sltestExcelExample');
tf = sltest.testmanager.TestFile('input_test_file.mldatx');
```



Get the Test Suite and Test Case Objects

```
ts = getTestSuites(tf);
tc = getTestCases(ts);
```

Add the Model as the System Under Test

```
setProperty(tc,'Model','sltestExcelExample');
```

Add Excel Data to Inputs Section and Specify Sheets to Add

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile,'Sheets',["Acceleration","Braking"]);
```

Map the Input Signal for the Sheets by Block Name

```
map(input(1),0);
map(input(2),0);
```

Get and Check the Test Inputs

```
inputsOut = getInputs(tc);
inputsOut.ExcelSpecifications
```

```
ans =

  ExcelSpecifications with properties:

    Sheet: 'Acceleration'
    Range: ''


ans =

  ExcelSpecifications with properties:

    Sheet: 'Braking'
    Range: ''
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getIterationResults

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get iteration results

Syntax

```
iterArray = getIterationResults(result)
```

Description

`iterArray = getIterationResults(result)` returns the test iteration results that are children of the test case result.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get the iteration results from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`iterArray` — Iteration result

`sltest.testmanager.TestIterationResult` object array

Iteration result set, returned as an array of `sltest.testmanager.TestIterationResult` objects.

Examples

Get Test Iteration Results

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Iterations Test File');
ts = getTestSuites(tf);
tc = createTestCase(ts,'simulation','Simulation Iterations');

% Specify model as system under test
setProperty(tc,'Model','sldemo_autotrans');

% Set up table iteration
% Create iteration object
testItr1 = sltestiteration;
% Set iteration settings
```

```
setTestParam(testItr1,'SignalBuilderGroup','Passing Maneuver');
% Add the iteration to test case
addIteration(tc,testItr1);

% Set up another table iteration
% Create iteration object
testItr2 = sltestiteration;
% Set iteration settings
setTestParam(testItr2,'SignalBuilderGroup','Coasting');
% Add the iteration to test case
addIteration(tc,testItr2);

% Run test case that contains iterations
results = run(tc);

% Get iteration results
tcResults = getTestCaseResults(results);
iterResults = getIterationResults(tcResults);
```

See Also

`sltest.testmanager.TestIterationResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getIterations

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test iterations that belong to test case

Syntax

```
iterArray = getIterations(tc)
iterArray = getIterations(tc,iterName)
```

Description

`iterArray = getIterations(tc)` get one or more test iteration objects that belong to the test case.

`iterArray = getIterations(tc,iterName)` get one or more test iteration objects with the specified name that belong to the test case.

Input Arguments

`tc` — Test case to get iteration from

`sltest.testmanager.TestCase` object

Test case that you want to get the iteration from, specified as a `sltest.testmanager.TestCase` object.

`iterName` — Test iteration name

character vector

Test iteration name, specified as a character vector. This is an optional argument.

Example: `'Test Iteration 5'`

Output Arguments

`iterArray` — Test iterations

`sltest.testmanager.TestIteration` object array

Test iterations that belong to the test case, returned as an array of `sltest.testmanager.TestIteration` objects.

Examples

Get Test Iterations in Test Case

```
% Open the model for this example
openExample('sldemo_autotrans');
```

```
% Create test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('Iterations Test File');
ts = getTestSuites(tf);
tc = createTestCase(ts,'simulation','Simulation Iterations');

% Specify model as system under test
setProperty(tc,'Model','sldemo_autotrans');

% Set up table iteration
% Create iteration object
testItr1 = sltestiteration;
% Set iteration settings
setTestParam(testItr1,'SignalBuilderGroup','Passing Maneuver');
% Add the iteration to test case
addIteration(tc,testItr1);

% Set up another table iteration
% Create iteration object
testItr2 = sltestiteration;
% Set iteration settings
setTestParam(testItr2,'SignalBuilderGroup','Coasting');
% Add the iteration to test case
addIteration(tc,testItr2);

% Get iterations
iters = getIterations(tc);
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Test Iterations”

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getLoggedSignals

Class: `sltest.testmanager.LoggedSignalSet`
Package: `sltest.testmanager`

Return logged signals contained in a set

Syntax

```
objs = getLoggedSignals(lgset)
```

Description

`objs = getLoggedSignals(lgset)` returns a vector of the `sltest.testmanager.LoggedSignal` objects contained in an `sltest.testmanager.LoggedSignalSet` object.

Input Arguments

`lgset` — Logged signal set

`sltest.testmanager.LoggedSignalSet` object

Logged signal set object contained in a test case.

Examples

Remove a Signal from a Signal Set

Open a model and create a signal set.

```
openExample('sldemo_absbrake')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
mylgset = tc.addLoggedSignalSet;
```

Select the `Vehicle Speed` block and enter `gcb`. Use the returned path to create a `Simulink.BlockPath` object.

```
% Add signals to set
bPath = Simulink.BlockPath('sldemo_absbrake/Vehicle speed');
sig1 = mylgset.addLoggedSignal(bPath,1);
sig2 = mylgset.addLoggedSignal(bPath,2);

setProperty(tc,'Model','sldemo_absbrake');

% Remove signal
```

```
remove(sig2);

% Check that signal is removed
sigs = mylgset.getLoggedSignals
```

See Also

`gcb`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

getLoggedSignalSets

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get logged signal set from a test case

Syntax

```
objs = getLoggedSignalSets(tc)
objs = getLoggedSignalSets(tc,'SimulationIndex',Value)
```

Description

`objs = getLoggedSignalSets(tc)` creates and returns a vector of the `sltest.testmanager.LoggedSignalSet` objects that are stored in a test case object.

`objs = getLoggedSignalSets(tc,'SimulationIndex',Value)` creates and returns a vector of the `sltest.testmanager.LoggedSignalSet` objects from a specific simulation in an equivalence test.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case object.

`Value` — Value of simulation index for equivalence criteria

1 (default) | 2

When the test case is an equivalence test, this index specifies the simulation that contains the signal set.

Example: `obj = getLoggedSignalSets(tc_equiv,'SimulationIndex',2);`

Examples

Get Signal Sets from a Test Case

Open a model and create a test case.

```
openExample('sldemo_absbrake');

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
```

```
lgset = tc.addLoggedSignalSet;
lgset2 = tc.addLoggedSignalSet;

% Get signal sets from test case
mysets = getLoggedSignalSets(tc)
```

See Also

`sltest.testmanager.EquivalenceCriteria` | `sltest.testmanager.LoggedSignalSet`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

getOptions

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test file options

Syntax

```
opt = getOptions(tc)
```

Description

`opt = getOptions(tc)` returns the test file options object `sltest.testmanager.Options` associated with the test case `tc`.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get test file options from, specified as an `sltest.testmanager.TestCase` object.

Output Arguments

`opt` — Test file options

`sltest.testmanager.Options` object

Test file options, returned as an `sltest.testmanager.Options` object.

Examples

Get Test Case Test File Options

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Get the test file options
opt = getOptions(tc);
```

See Also

`sltest.testmanager.Options` | `getOptions (TestSuite)` | `getOptions (TestFile)`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getOptions

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get and set test file options

Syntax

```
opt = getOptions(tf)
```

Description

`opt = getOptions(tf)` returns the test file options object `sltest.testmanager.Options` associated with the test file `tf`.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file whose options to get, specified as an `sltest.testmanager.TestFile` object.

Output Arguments

`opt` — Test file options

`sltest.testmanager.Options` object

Test file options, returned as an `sltest.testmanager.Options` object.

Examples

Get and Set Test File Options

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Get the test file options
opt = getOptions(tf);

% Set the title for the report and specify to save figures
opt.Title = 'ABC Co. Test Results';
opt.SaveFigures = true;
```

See Also

`sltest.testmanager.Options` | `sltest.testmanager.TestFile`

Topics
“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getOptions

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test file options

Syntax

```
opt = getOptions(ts)
```

Description

`opt = getOptions(ts)` returns the test file options object `sltest.testmanager.Options` associated with the test suite `ts`.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite to get test file options from, specified as an `sltest.testmanager.TestSuite` object.

Output Arguments

`opt` — Test file options

`sltest.testmanager.Options` object

Test file options, returned as an `sltest.testmanager.Options` object.

Examples

Get Test File Options

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Get the test file options
opt = getOptions(ts);
```

See Also

`sltest.testmanager.Options` | `sltest.testmanager.TestSuite`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getInputRuns

Class: `sltest.testmanager.TestCaseResult`, `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get inputs from simulations captured with the test result

Syntax

```
runArray = getInputRuns(result)
```

Description

`runArray = getInputRuns(result)` gets the simulation inputs from the test result.

Input Arguments

`result` — Result

`sltest.testmanager.TestCaseResult` object | `sltest.testmanager.TestiterationResult` object

Test results to get simulation input results from, specified as a `sltest.testmanager.TestCaseResult` or `sltest.testmanager.TestIterationResult` object.

Output Arguments

`runArray` — Simulation run input results

`Simulink.sdi.Run` object

Simulation run input results, returned as a `Simulink.sdi.Run` object array.

Examples

Get Simulation Run Inputs from Test Case

Load the Example Model and Create a New Test File

```
open_system('sltestExcelExample');
tf = sltest.testmanager.TestFile('Input Run Test File');
```

Get the Test Suite and Test Case Objects

```
ts = getTestSuites(tf);
tc = getTestCases(ts);
```

Add the Model as the System Under Test and the Save Input Run

```
setProperty(tc,'Model','sltestExcelExample','SaveInputRunInTestResult',true);
```

Add Excel® Data to Inputs Section and Specify Sheets to Add

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile,'Sheets',["Acceleration","Braking"]);
```

Map the Input Signal for the Sheets by Block Name

```
map(input(1),0);
map(input(2),0);
```

Capture the baseline criteria

```
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);
```

Run the Test Case and Get the Test Case and Iteration Results

```
resultsObj = run(tc);
tcr = getTestCaseResults(resultsObj);
tir = tcr.getIterationResults;
```

Get the Inputs From the Simulation Run

```
inrun = tir(1).getInputRuns;
```

See Also

`Simulink.sdi.Run` | `getOutputRuns`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2017a

getOutputRuns

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test case simulation output results

Syntax

```
runArray = getOutputRuns(result)
```

Description

`runArray = getOutputRuns(result)` gets the test case simulation output results that are direct children of the test case results object.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get simulation output results from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`runArray` — Simulation output results

`Simulink.sdi.Run` object

Test case simulation output results, returned as a `Simulink.sdi.Run` object array.

Examples

Get and Export Simulation Output From Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');
```

```
% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;

% Run the test case and return an object with results data
resultsObj = run(tc);

% Get test case result
tcr = getTestCaseResults(resultsObj);

% Get the Sim Output run dataset
runDataset = getOutputRuns(tcr);

% Export the Sim Output run dataset, which is a
% Simulink.sdi.run object
dataset = export(runDataset);
```

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015a

getOutputRuns

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test iteration simulation output results

Syntax

```
runArray = getOutputRuns(resultObj)
```

Description

`runArray = getOutputRuns(resultObj)` gets the test iteration simulation output results that are direct children of the test iteration results object.

Input Arguments

`resultObj` — Test iteration result

object

Test iteration results object to get results from, specified as a `sltest.testmanager.TestIterationResult` object.

Output Arguments

`runArray` — Simulation output results

object

Test iteration simulation output results, returned as a `Simulink.sdi.Run` object array.

See Also

`sltest.testmanager.TestIterationResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getParameterOverrides

Class: `sltest.testmanager.ParameterSet`
Package: `sltest.testmanager`

Get parameter overrides

Syntax

```
ovrs = getParameterOverrides(ps)
```

Description

`ovrs = getParameterOverrides(ps)` gets the parameter overrides in a parameter set and returns them as an array of parameter override objects, `sltest.testmanager.ParameterOverride`.

Input Arguments

`ps` — Parameter set

`sltest.testmanager.ParameterSet` object

Parameter set that you want to get the override from, specified as a `sltest.testmanager.ParameterSet` object.

Output Arguments

`ovrs` — Parameter overrides

`sltest.testmanager.ParameterOverride` object array

Parameter overrides that are in the parameter set object, returned as an array of `sltest.testmanager.ParameterOverride` objects.

Examples

Add Parameter Override to Parameter Set

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);
```

```
% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Check that the parameter override is applied
ovr = getParameterOverrides(ps);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getParameterSets

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test case parameter sets

Syntax

```
psets = getParameterSets(tc)
psets = getParameterSets(tc,simulationIndex)
```

Description

`psets = getParameterSets(tc)` gets the parameter sets in a test case and returns them as an array of parameter set objects, `sltest.testmanager.ParameterSet`.

`psets = getParameterSets(tc,simulationIndex)` gets the parameter sets in a test case and returns them as an array of parameter set objects, `sltest.testmanager.ParameterSet`. If the test case is an equivalence test case, then specify the simulation index.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get test inputs from, specified as an `sltest.testmanager.TestCase` object.

`simulationIndex` — Test case simulation number

1 | 2

Simulation number that the parameter sets apply to, specified as an integer, 1 or 2. This setting applies to the simulation test case where there are two simulations. For baseline and simulation test cases, the default simulation index is 1.

Output Arguments

`psets` — Parameter set

`sltest.testmanager.ParameterSet` object array

Parameter sets that belong to the test case, returned as an array of `sltest.testmanager.ParameterSet` objects.

Examples

Get Parameter Sets

```
% Open the model for this example
openExample('sldemo_absbrake');
```

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);

% Get and check the parameter set
psets = getParameterSets(tc);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getProperty

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Get test case property

Syntax

```
val = getProperty(tc,propertyName)
val = getProperty( ___ ,simulationIndex)
```

Description

`val = getProperty(tc,propertyName)` gets a test case property.

`val = getProperty( ___ ,simulationIndex)` gets a test case property. If the test case is an equivalence test case, then specify the simulation index.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to get test setting property from, specified as an `sltest.testmanager.TestCase` object.

`propertyName` — Test case property

character vector

Test suite property names, specified as a character vector. The properties are set using the`setProperty` method. The available properties are:

- `'Model'` — name of the model to be tested
- `'SimulationMode'` — simulation mode of the model during the test
- `'OverrideSILPILMode` — override SIL or PIL simulation mode of block to Normal mode
- `'HarnessName'` — harness name used for the test
- `'HarnessOwner'` — harness owner name
- `'OverrideStartTime'` — override start time
- `'StartTime'` — start time override value of simulation
- `'OverrideStopTime'` — override stop time
- `'StopTime'` — stop time override value of simulation
- `'OverrideInitialState'` — override initial state
- `'InitialState'` — character vector evaluated to specify the initial state of the system under test
- `'PreloadCallback'` — character vector evaluated before the model loads and before model callbacks

- `'PostloadCallback'` — character vector evaluated after the system under test loads and `PostLoadFcn` callback completes
- `'PreStartRealTimeApplicationCallback'` — character vector evaluated before the real-time application is started on target computer
- `'CleanupCallback'` — character vector evaluated after simulation completes and model callbacks execute
- `'UseSignalEditorScenarios'` — use signal editor scenarios for test input
- `'SignalEditorScenario'` — signal editor scenario name to use
- `'IsTestDataReferenced'` — create test case using test data from an external file, such as an Excel or MAT file
- `'TestDataPath'` — character vector path to the external file being referenced for creating the test case
- `'OverrideModelOutputSettings'` — override model output settings
- `'SaveOutput'` — save simulation output
- `'SaveState'` — save model states during simulation
- `'SaveFinalState'` — save final state of simulation
- `'SignalLogging'` — log signals
- `'DSMLogging'` — log data store
- `'ConfigsetOverrideSetting'` — value to determine override of configuration set
- `'ConfigsetName'` — configuration set override name
- `'ConfigsetFileLocation'` — path to a MAT-file that contains a configuration set object
- `'ConfigsetVarName'` — name of the variable in `ConfigsetFileLocation` that is a configuration set
- `'IterationScript'` — character vector evaluated for test case iteration script
- `'SimulationIndex'` — determines which simulation a property applies to, applicable to the equivalence test case type
- `'FastRestart'` — indicates if test iterations run using fast restart mode
- `'SaveBaselineRunInTestResult'` — enable saving the baseline run used in the test case, saved in the test result
- `'LoadAppFrom'` — location to load real-time application from
- `'TargetComputer'` — target computer name
- `'TargetApplication'` — target application name

`simulationIndex` — Test case simulation number
1 | 2

Simulation number that the property applies to, specified as an integer, 1 or 2. This setting applies to the simulation test case where there are two simulations. For baseline and simulation test cases, the simulation index is 1.

Output Arguments

`val` — Property content
character vector | logical | scalar

The content of the test case property, returned as a character vector, logical, or scalar value.

Examples

Get Test Case Property

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Get and check the system under test model
getProperty(tc,'Model');
```

See Also

`setProperty`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

getProperty

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get test file property

Syntax

```
val = getProperty(tf,propertyName)
```

Description

`val = getProperty(tf,propertyName)` gets a test file property.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file to get the property from, specified as an `sltest.testmanager.TestFile` object.

`propertyName` — Test file property

`'CleanupCallback'` | `'SetupCallback'` |

Test file property names, specified as:

- `'SetupCallback'` to get the content of the test file setup callback
- `'CleanupCallback'` to get the content of the test file cleanup callback

Output Arguments

`val` — Property content

character vector

The content of the test suite property, returned as a character vector.

Examples

Get Test File Property

```
% Create a test file and test suite
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
```

```
% Get the setup callback property
propName = getProperty(tf,'SetupCallback');
```

See Also

`setProperty`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

getProperty

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test suite property

Syntax

```
val = getProperty(ts,propertyName)
```

Description

`val = getProperty(ts,propertyName)` gets a test suite property.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite object to get the property from, specified as an `sltest.testmanager.TestSuite` object.

`propertyName` — Test suite property

character vector

Test suite property names, specified as a character vector. The available properties are `'SetupCallback'` and `'CleanupCallback'`.

Output Arguments

`val` — Property content

character vector

The content of the test suite property, returned as a character vector.

Examples

Get Test Suite Property

```
% Create a test file and new test suite
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
```

```
% Get the setup callback property
propName = getProperty(ts,'SetupCallback');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getSetupPlots

Class: `sltest.testmanager.TestFileResult`
Package: `sltest.testmanager`

Get plots from setup callbacks

Syntax

```
figs = getSetupPlots(result)
```

Description

`figs = getSetupPlots(result)` returns figure handles of plots from the setup callbacks of the test file associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test file result

`sltest.testmanager.TestFileResult` object

Test file results to get setup plot figure handles from, specified as a `sltest.testmanager.TestFileResult` object

Output Arguments

`figs` — Figures from test file setup callbacks

array of figure handles

Figures from test file setup callbacks, returned as an array of figure handles.

Examples

Get Test File Setup Plots

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile('Get Test File Setup Plots');
ts = createTestSuite(tf,'Setup Plots Test Suite');
tc = createTestCase(ts,'baseline','Setup Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in the test file setup callback
setProperty(tf,'SetupCallback','a = [1,2,3]; f = figure; plot(a);');
```

```
% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);

% Get the setup plot figure handles
figs = tfr.getSetupPlots;
```

See Also

`sltest.testmanager.TestFile` | `sltest.testmanager.TestFileResult` | `setProperty` | `sltest.testmanager.Options`

Topics

"Create, Store, and Open MATLAB Figures"
"Export Test Results"

Introduced in R2017a

getSetupPlots

Class: `sltest.testmanager.TestSuiteResult`
Package: `sltest.testmanager`

Plots from setup callbacks

Syntax

```
figs = getSetupPlots(result)
```

Description

`figs = getSetupPlots(result)` returns figure handles of plots generated from the setup callbacks of the test suite associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

Input Arguments

`result` — Test suite results

`sltest.testmanager.TestSuiteResult` object

Test suite results to get setup plot figure handles from, specified as a `sltest.testmanager.TestSuiteResult` object.

Output Arguments

`figs` — Figures from test suite setup callbacks

array of figure handles

Figures from test suite setup callbacks, returned as an array of figure handles.

Examples

Get Test Suite Setup Plots

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
tf = sltest.testmanager.TestFile('Test Suite Setup Plots');
ts = createTestSuite(tf,'Setup Plots Test Suite');
tc = createTestCase(ts,'baseline','Setup Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in the test suite setup callback
setProperty(ts,'SetupCallback','a = [1,2,3]; f = figure; plot(a);');
```

```
% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);

% Get the setup plot figure handles
figs = tsr.getSetupPlots;
```

See Also

`sltest.testmanager.TestSuite` | `sltest.testmanager.TestSuiteResult` | `setProperty (Test Suite)` | `sltest.testmanager.Options`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getSignalCriteria

Class: `sltest.testmanager.BaselineCriteria`
Package: `sltest.testmanager`

Get signal criteria

Syntax

```
sigCriteria = getSignalCriteria(bc)
```

Description

`sigCriteria = getSignalCriteria(bc)` gets the list of the signal criteria in a baseline criteria set and returns them as an array of signal criteria objects, `sltest.testmanager.SignalCriteria`.

Input Arguments

`bc` — Baseline criteria

`sltest.testmanager.BaselineCriteria` object

Baseline criteria that you want to get signal criteria from, specified as a `sltest.testmanager.BaselineCriteria` object.

Output Arguments

`sigCriteria` — Signal criteria object

object array

Signal criteria that are in the baseline criteria object, returned as an array of `sltest.testmanager.SignalCriteria` objects.

Examples

Add Baseline Criteria and Change Tolerance

In this example, a signal data set is capture for the baseline criteria, and the absolute tolerance is changed from `0` to `9`.

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
```

```
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Set the baseline criteria tolerance for a signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getSignalCriteria

Class: `sltest.testmanager.EquivalenceCriteria`
Package: `sltest.testmanager`

Get signal criteria

Syntax

```
sigCriteria = getSignalCriteria(eq)
```

Description

`sigCriteria = getSignalCriteria(eq)` gets the list of the signal criteria in an equivalence criteria set and returns them as an array of signal criteria objects, `sltest.testmanager.SignalCriteria`.

Input Arguments

eq — Equivalence criteria

`sltest.testmanager.EquivalenceCriteria` object

Equivalence criteria that you want to get criteria from, specified as a `sltest.testmanager.EquivalenceCriteria` object.

Output Arguments

sigCriteria — Signal criteria object

object array

Signal criteria that are in the equivalence criteria object, returned as an array of `sltest.testmanager.SignalCriteria` objects.

Examples

Remove Equivalence Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);
```

```
% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Add a parameter override to Simulation 1 and 2
ps1 = addParameterSet(tc,'Name','Parameter Set 1','SimulationIndex',1);
po1 = addParameterOverride(ps1,'Rr',1.20);

ps2 = addParameterSet(tc,'Name','Parameter Set 2','SimulationIndex',2);
po2 = addParameterOverride(ps2,'Rr',1.24);

% Capture equivalence criteria
eq = captureEquivalenceCriteria(tc);

% Set the equivalence criteria tolerance for one signal
sc = getSignalCriteria(eq);
sc(1).AbsTol = 2.2;

% Check that signal criteria was added
sigCrit = getSignalCriteria(eq);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getSimulationPlots

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get plots from test case callbacks

Syntax

```
figs = getSimulationPlots(result)
figs = getSimulationPlots(result,index)
```

Description

`figs = getSimulationPlots(result)` returns figure handles of plots generated from the callbacks of the test case associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

`figs = getSimulationPlots(result,index)` returns the figure handles from the simulation specified by `index`.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get simulation plot figure handles from, specified as an `sltest.testmanager.TestCaseResult` object.

`index` — Simulation index

1 (default) | 2

Simulation index, specified as 1 or 2.

Output Arguments

`figs` — Figures from test case callbacks

array of figure handles

Figures from test case callbacks, returned as an array of figure handles.

Examples

Get Figure Handles from Test Case Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
```

```
tf = sltest.testmanager.TestFile('Simulation Plots Test Case');
ts = createTestSuite(tf,'Sim Plots Test Suite');
tc = createTestCase(ts,'baseline','Sim Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in a test case callback
setProperty(tc,'PostloadCallback','a = [1,2,3]; f = figure; plot(a);');

% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);

% Get the test case callback plots figure handles
figs = tcr.getSimulationPlots;
```

See Also

`sltest.testmanager.TestCaseResult` | `sltest.testmanager.Options` | `setProperty`

Topics

“Create, Store, and Open MATLAB Figures”
“Export Test Results”

Introduced in R2017a

getTestCaseByName

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get test case object by name

Syntax

```
tc = getTestCaseByName(tf,name)
```

Description

`tc = getTestCaseByName(tf,name)` returns a test case object with the specified name.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file containing the test cases to get, specified as an `sltest.testmanager.TestFile` object.

`name` — Test case name

character vector

Name of the test case with the test file object, specified as a character vector. If the name does not match a test case, then the function returns an empty test case object.

Output Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case, returned as an `sltest.testmanager.TestCase` object. If the name does not match a test case, then the function returns an empty test case object.

Examples

Get Test Cases

```
tf = sltest.testmanager.TestFile('My Test File');
tcArray = getTestCaseByName('testOne');
```

See Also

`sltest.testmanager.TestFile` | `getTestCases`

Introduced in R2020b

getTestCaseByName

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test case object by name

Syntax

```
tc = getTestCaseByName(ts,name)
```

Description

`tc = getTestCaseByName(ts,name)` returns a test case with the specified name.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite with the test case you want to get, specified as an `sltest.testmanager.TestSuite` object.

`name` — Test suite name

character vector

The name of the test case within a test suite object, specified as a character vector. If the name does not match a test case, then the function returns an empty test case object.

Output Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case, returned as an `sltest.testmanager.TestCase` object. If the name does not match a test case, then the function returns an empty test case object.

Examples

Get Test Case Object

```
% Create a test file with default test suite and case
tf = sltest.testmanager.TestFile('My Test File');

% Get test suite
ts = getTestSuites(tf);
```

```
% Get the test case object by test case name
tc = getTestCaseByName(ts,'New Test Case 1');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getIterationResults

Class: `sltest.testmanager.TestIteration`
Package: `sltest.testmanager`

Get test iteration results history

Syntax

```
ti_result = getTestIterationResults(ti)
```

Description

`ti_result = getTestIterationResults(ti)` returns the test iteration results history for the specified test iteration, `ti`. The test iteration history includes the results for all runs of the test iteration in the Test Manager.

Input Arguments

`ti` — Test iteration

`sltest.testmanager.TestIteration` object

Test iteration for which to obtain results, specified as an `sltest.testmanager.TestIteration` object.

Output Arguments

`ti_result` — Test iteration result

array of `sltest.testmanager.TestIterationResult` objects

Test iteration result, returned as an array of `sltest.testmanager.TestIterationResult` objects. Each object in the array contains the results for a single test iteration run.

See Also

`getTestIteration`

Introduced in R2019b

getSimulationPlots

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get plots from callbacks

Syntax

```
figs = getSimulationPlots(result)
figs = getSimulationPlots(result,index)
```

Description

`figs = getSimulationPlots(result)` returns figure handles of plots generated from the callbacks of the test iteration associated with the results. Figures returned using this method are not visible. To see the plots, set the figure handle `Visible` property to `'on'`.

`figs = getSimulationPlots(result,index)` returns the figure handles from the simulation specified by `index`.

Input Arguments

`result` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test case iteration result to get callback figure handles from, specified as an `sltest.testmanager.TestIterationResult` object or a simulation index of the result.

`index` — Simulation index

1 (default) | 2

Simulation index, specified as 1 or 2.

Output Arguments

`figs` — Figures from test case callbacks

array of figure handles

Figures from test case callbacks for the specified iteration, returned as an array of figure handles.

Examples

Get Figure Handles from Test Iteration Results

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, suite, and case
```

```
tf = sltest.testmanager.TestFile...
   ('Simulation Plots for Test Iterations');
ts = createTestSuite(tf,'Sim Plots Test Suite');
tc = createTestCase(ts,'baseline','Sim Plots Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Create a plot in a callback
setProperty(tc,'PostloadCallback',...
   'a = [1,2,3]; f = figure; plot(a);');

% Set option to save figures
opt = getOptions(tf);
opt.SaveFigures = true;

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Define iterations
vars = 32 : 0.5 : 34;

for k = 1 : length(vars)

    % Create test iteration object
    testItr = sltest.testmanager.TestIteration;

    % Set the parameter value for this iteration
    setVariable(testItr,'Name','g','Source',...
       'base workspace','Value',vars(k));

    str = sprintf('Iteration %d',k);

    % Add the iteration object to the test case
    addIteration(tc,testItr,str);
end

% Run the test and capture results
resultset = run(tf);
tfr = getTestFileResults(resultset);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);
tir = getIterationResults(tcr);

% Get the callback plot figure handles from the first iteration
figs = tir(1).getSimulationPlots;
```

See Also

`sltest.testmanager.TestIterationResult` | `setProperty (TestCase)` | `getIterationResults` | `sltest.testmanager.Options`

Topics

“Create, Store, and Open MATLAB Figures”

“Export Test Results”

Introduced in R2017a

getTestCaseResults

Class: `sltest.testmanager.ResultSet`
Package: `sltest.testmanager`

Get test case results object

Syntax

```
testCaseResultArray = getTestCaseResults(result)
```

Description

`testCaseResultArray = getTestCaseResults(result)` gets the test case results that are direct children of the results set object.

Input Arguments

`result` — Results set
`sltest.testmanager.ResultSet` object

Results set to get test case results from, specified as a `sltest.testmanager.ResultSet` object.

Output Arguments

`testCaseResultArray` — Test case results
`sltest.testmanager.TestCaseResult` object array

Test case results, returned as an array of `sltest.testmanager.TestCaseResult` objects. The function returns objects that are direct children of the results set object.

Examples

Get Test Case Result Data

Use the function `sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testFileResultArray = getTestFileResults(result);

% Get the test suite results
testSuiteResultArray = getTestSuiteResults(result);
```

```
% Get the test case results
testCaseResultArray = getTestCaseResults(result);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015a

getTestCaseResults

Class: `sltest.testmanager.TestSuiteResult`
Package: `sltest.testmanager`

Get test case results object

Syntax

```
testCaseResultArray = getTestCaseResults(result)
```

Description

`testCaseResultArray = getTestCaseResults(result)` gets the test case results that are direct children of the test suite results object.

Input Arguments

`result` — Test suite result

`sltest.testmanager.TestSuiteResult` object

Test suite results to get test case results from, specified as a `sltest.testmanager.TestSuiteResult` object.

Output Arguments

`testCaseResultArray` — Test case results

`sltest.testmanager.TestCaseResult` object array

Test case results, returned as an array of `sltest.testmanager.TestCaseResult` objects. The function returns objects that are direct children of the test suite results object.

Examples

Get Test Case Result Data

Use the function`sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testFileResultArray = getTestFileResults(result);

% Get the test suite results
testSuiteResultArray = getTestSuiteResults(testFileResultArray);
```

```
% Get the test case results
testCaseResultArray = getTestCaseResults(testSuiteResultArray);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015a

getTestCases

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get test cases in a test file

Syntax

```
tcArray = getTestCases(tf)
```

Description

`tcArray = getTestCases(tf)` returns an array of test case objects in a test file. Only test cases that are direct children of the test file (that is, not within a test suite) are returned.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file containing the test cases to get, specified as an `sltest.testmanager.TestFile` object.

Output Arguments

`tcArray` — Test case array

`sltest.testmanager.TestCase` objects

Test cases at the top level of the test file, returned as an array of `sltest.testmanager.TestCase` objects.

Examples

Get Test Cases

```
tf = sltest.testmanager.TestFile('My Test File');
tcArray = getTestCases(tf);
```

See Also

`sltest.testmanager.TestFile` | `getTestCaseByName` | `getAllTestCases`

Introduced in R2020b

getAllTestCases

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get all test cases in a test file

Syntax

```
tcArray = getAllTestCases(tf)
```

Description

`tcArray = getAllTestCases(tf)` returns a flat array of all test case objects in a test file.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file containing the test cases to get, specified as an `sltest.testmanager.TestFile` object.

Output Arguments

`tcArray` — Test case array

`sltest.testmanager.TestCase` objects

Test cases in the test file, returned as a flat array of `sltest.testmanager.TestCase` objects.

Examples

Get All Test Cases

```
tf = sltest.testmanager.TestFile('My Test File');
tcArray = getAllTestCases(tf);
```

See Also

`sltest.testmanager.TestFile` | `getTestCases` | `getTestCaseByName`

Introduced in R2021b

getTestCases

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test cases at first level of test suite

Syntax

```
tcArray = getTestCases(ts)
```

Description

`tcArray = getTestCases(ts)` returns an array of test case objects that are at the first level of the specified test suite.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite with the test cases you want to get, specified as an `sltest.testmanager.TestSuite` object.

Output Arguments

`tcArray` — Test case array

object array

Array of test cases at the first level of the specified test suite, returned as an array of `sltest.testmanager.TestCase` objects.

Examples

Get Test Case Object

```
% Create a test file with default test suite and case
tf = sltest.testmanager.TestFile('My Test File');

% Get test suite
ts = getTestSuites(tf);

% Get the test case object
tc = getTestCases(ts);
```

See Also

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

getTestSuiteByName

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get test suite object by name

Syntax

```
ts = getTestSuiteByName(tf,name)
```

Description

`ts = getTestSuiteByName(tf,name)` returns a test suite with the specified name.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file that contains the test suite, specified as a `sltest.testmanager.TestFile` object.

`name` — Test suite name

character vector

The name of the test suite within the test file, specified as a character vector. If the name does not match a test suite, then the function returns an empty test suite object.

Example: `'Test Suite 5'`

Output Arguments

`ts` — Test suite object

object

Test suite, returned as an `sltest.testmanager.TestSuite` object. If the name does not match a test suite, then the function returns an empty test suite object.

Examples

Get Test Suite Object

```
% Create a test file with default test suite
tf = sltest.testmanager.TestFile('My Test File');
```

```
% Get the test suite object by test suite name
ts = getTestSuiteByName(tf,'New Test Suite 1');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getTestFileResults

Class: `sltest.testmanager.ResultSet`
Package: `sltest.testmanager`

Get test suite results object

Syntax

```
testFileResultArray = getTestFileResults(result)
```

Description

`testFileResultArray = getTestFileResults(result)` gets the test file results that are direct children of the results set object.

Input Arguments

`result` — Results set
`sltest.testmanager.ResultSet` object

Results set to get test file results from, specified as a `sltest.testmanager.ResultSet` object.

Output Arguments

`testFileResultArray` — Test file results
`sltest.testmanager.TestFileResult` object array

Test file results, returned as an array of `sltest.testmanager.TestFileResult` objects. The function returns objects that are direct children of the results set input object.

Examples

Get Test File Result Data

Use the function`sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testSFileResultArray = getTestFileResults(result);

% Get the test suite results
testSuiteResultArray = getTestSuiteResults(result);
```

```
% Get the test case results
testCaseResultArray = getTestCaseResults(result);
```

See Also

`sltest.testmanager.ResultSet` | `sltest.testmanager.TestSuiteResult` | `sltest.testmanager.TestCaseResult`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getTestSuiteByName

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test suite object by name

Syntax

```
tsOut = getTestSuiteByName(tsIn,name)
```

Description

`tsOut = getTestSuiteByName(tsIn,name)` returns a test suite with the specified name.

Input Arguments

`tsIn` — Test suite

`sltest.testmanager.TestSuite` object

Test suite, specified as an `sltest.testmanager.TestSuite` object.

`name` — Test suite name

character vector

The name of the test suite within a test suite object, specified as a character vector. If the name does not match a test suite, then the function returns an empty test suite object.

Output Arguments

`tsOut` — Test suite

`sltest.testmanager.TestSuite` object

Test suite, returned as an `sltest.testmanager.TestSuite` object. If the name does not match a test suite, then the function returns an empty test suite object.

Examples

Get Test Suite Object

```
% Create a test file and new test suite
tf = sltest.testmanager.TestFile('API Test File');
ts = getTestSuiteByName(tf,'New Test Suite 1');

% Create new test suite
createTestSuite(ts,'API Test Suite');
```

```
% Get test suite by name
ts2 = getTestSuiteByName(ts,'API Test Suite');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getTestSuites

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Get test suites at first level of test file

Syntax

```
tsArray = getTestSuites(tf)
```

Description

`tsArray = getTestSuites(tf)` returns an array of test suite objects that are at the first level of the test file.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file that contains the test suites, specified as a `sltest.testmanager.TestFile` object.

Output Arguments

`tsArray` — Test suite array

object array

Array of test suites at the first level of the test file, returned as an array of `sltest.testmanager.TestSuite` objects.

Examples

Get Test Suite Object

```
% Create a test file with default test suite
tf = sltest.testmanager.TestFile('My Test File');

% Get the test suite object from the test file
ts = getTestSuites(tf);
```

See Also

Topics

"Create and Run Test Cases with Scripts"

Introduced in R2015b

getTestSuites

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Get test suites at first level of test suite

Syntax

```
tsArray = getTestSuites(ts)
```

Description

`tsArray = getTestSuites(ts)` returns an array of test suite objects that are at the first level of the specified test suite.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite that contains the test suite you want to get, specified as an `sltest.testmanager.TestSuite` object.

Output Arguments

`tsArray` — Test suite array

object array

Array of test suites at the first level of the specified test suite, returned as an array of `sltest.testmanager.TestSuite` objects.

Examples

Get Test Suite Object

```
% Create a test file with default test suite
tf = sltest.testmanager.TestFile('My Test File');

% Get the default test suite
ts1 = getTestSuites(tf);

% Add a test suite to default test suite
ts2 = createTestSuite(ts1,'New Test Suite 2');

% Get the test suite object from the test file
```

```
% as a new object
tsNew = getTestSuites(ts1);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

getTestSuiteResults

Class: `sltest.testmanager.ResultSet`
Package: `sltest.testmanager`

Get test suite results object

Syntax

```
testSuiteResultArray = getTestSuiteResults(result)
```

Description

`testSuiteResultArray = getTestSuiteResults(result)` gets the test suite results that are direct children of the results set object.

Input Arguments

`result` — Results set

`sltest.testmanager.ResultSet` object

Results set to get test suite results from, specified as a `sltest.testmanager.ResultSet` object.

Output Arguments

`testSuiteResultArray` — Test suite results

`sltest.testmanager.TestSuiteResult` object array

Test suite results, returned as an array of `sltest.testmanager.TestSuiteResult` objects. The function returns objects that are direct children of the results set object.

Examples

Get Test Suite Result Data

Use the function`sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testSFileResultArray = getTestFileResults(result);

% Get the test suite results
testSuiteResultArray = getTestSuiteResults(result);
```

```
% Get the test case results
testCaseResultArray = getTestCaseResults(result);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015a

getTestSuiteResults

Class: `sltest.testmanager.TestFileResult`
Package: `sltest.testmanager`

Get test suite results object

Syntax

```
testSuiteResultArray = getTestSuiteResults(result)
```

Description

`testSuiteResultArray = getTestSuiteResults(result)` gets the test suite results that are direct children of the test file results object.

Input Arguments

`result` — Test file results

`sltest.testmanager.TestFileResult` object

Test file results to get test suite results from, specified as a `sltest.testmanager.TestFileResult` object.

Output Arguments

`testSuiteResultArray` — Test suite results

`sltest.testmanager.TestSuiteResult` object array

Test suite results, returned as an array of `sltest.testmanager.TestSuiteResult` objects. The function returns objects that are direct children of the test file results input object.

Examples

Get Test Suite Result Data

Use the function`sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testFileResultArray = getTestFileResults(result);
```

```
% Get the test suite results
testSuiteResultArray = getTestSuiteResults(testFileResultArray);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2016a

getTestSuiteResults

Class: `sltest.testmanager.TestSuiteResult`
Package: `sltest.testmanager`

Get test suite results object

Syntax

```
testSuiteResultArray = getTestSuiteResults(result)
```

Description

`testSuiteResultArray = getTestSuiteResults(result)` gets the test suite results that are direct children of the test suite results object.

Input Arguments

`resultObj` — Test suite results

`sltest.testmanager.TestSuiteResult` object

Test suite results to get test suite results from, specified as a `sltest.testmanager.TestSuiteResult` object.

Output Arguments

`testSuiteResultArray` — Test suite results

`sltest.testmanager.TestSuiteResult` object array

Test suite results, returned as an array of `sltest.testmanager.TestSuiteResult` objects. The function returns objects that are direct children of the test suite results input object.

Examples

Get Test Suite Result Data

Use the function`sltest.testmanager.run` to return a result set that contains test file, test suite, and test case results.

```
% Run tests in the Test Manager
result = sltest.testmanager.run;

% Get the test file results
testFileResultArray = getTestFileResults(result);

% Get the test suite results
testSuiteResultArray = getTestSuiteResults(testFileResultArray);
```

```
% Get the next level of test suite results
testSuite2ResultArray = getTestSuiteResults(testSuiteResultArray);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015a

getVerifyRuns

Class: `sltest.testmanager.TestCaseResult`
Package: `sltest.testmanager`

Get test case verify statement

Syntax

```
dataset = getVerifyRuns(result)
```

Description

`dataset = getVerifyRuns(result)` gets the verify statement dataset from a test case result. Verify statements are constructed in the Test Sequence or Test Assessment blocks in the system under test.

Input Arguments

`result` — Test case result

`sltest.testmanager.TestCaseResult` object

Test case results to get verify statement dataset from, specified as a `sltest.testmanager.TestCaseResult` object.

Output Arguments

`dataset` — Verify statement dataset

`Simulink.sdi.Run` object array

Test case verify statement dataset, returned as an array of `Simulink.sdi.Run` objects.

Examples

Get Verify Output From Test Case

This example shows how to obtain the verify statement dataset from a test case result. You use verify statements in the Test Sequence or Test Assessment blocks in the system under test. You can use the output, which is an array of objects, with `Simulink.sdi.Run`.

```
rollModel = 'TransmissionDownshiftTestSeqVerify';
testHarness = 'TransmissionDownshiftTestSeqVerify_Harness1';
testFile = 'TransmissionDownshiftTestSeqVerify.mldatx';

open_system(rollModel);
testFile =  sltest.testmanager.load(testFile);
sltest.harness.open([rollModel,'/shift_controller'],testHarness);

open_system([testHarness,'/Test Sequence'])
```

```
open_system([testHarness,'/Test Assessment Block'])

ro = run(testFile);
tfr = getTestFileResults(ro);
tsr = getTestSuiteResults(tfr);
tcr = getTestCaseResults(tsr);

verifyOut = getVerifyRuns(tcr);

close_system('TransmissionDownshiftTestSeqVerify_Harness1')
close_system('TransmissionDownshiftTestSeqVerify')
sltest.testmanager.clear
sltest.testmanager.clearResults
sltest.testmanager.close
```

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

getVerifyRuns

Class: `sltest.testmanager.TestIterationResult`
Package: `sltest.testmanager`

Get test iteration verify statement

Syntax

```
dataset = getVerifyRuns(result)
```

Description

`dataset = getVerifyRuns(result)` gets the verify statement dataset from a test iteration result. Verify statements are made in the Test Sequence or Test Assessment blocks in the system under test.

Input Arguments

`result` — Test iteration result

`sltest.testmanager.TestIterationResult` object

Test iteration results to get verify statement dataset from, specified as a `sltest.testmanager.TestIterationResult` object.

Output Arguments

`dataset` — Verify statement dataset

`Simulink.sdi.Run` object

Test iteration verify statement dataset, returned as a `Simulink.sdi.Run` object.

See Also

`Simulink.sdi.Run`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2016a

layoutReport

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

Incorporates parts of report into one document

Syntax

```
layoutReport(obj)
```

Description

`layoutReport(obj)` incorporates the report parts into one document. The report is divided into three main parts: title page, table of contents, and the main body.

This method also calls:

- `addTitlePage`
- `addReportTOC`
- `addReportBody`

Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

See Also

`sltest.testmanager.TestResultReport`

Topics

“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

map

Class: `sltest.testmanager.TestInput`
Package: `sltest.testmanager`

Map test input to system under test

Syntax

```
map(input,Name,Value)
```

Description

`map(input,Name,Value)` maps the test input data `input` to the system under test.

Input Arguments

`input` — Test input

`sltest.testmanager.TestInput` object

The test input to map, specified as a `sltest.testmanager.TestInput` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'Mode',4,'CustomFunction','mapfcn'`

`Mode` — Mapping mode

`0` | `1` | `2` | `3` | `4`

Mapping mode, specified as the comma-separated pair consisting of `'mode'` and an integer corresponding to the desired mapping mode:

- `0` — Block name
- `1` — Block path
- `2` — Signal name
- `3` — Port order (index)
- `4` — Custom

For more information on mapping modes, see “Map Root Inport Signal Data”.

Example: `'Mode',2`

`CustomFunction` — Custom mapping function name

character vector

Name of function used for custom mapping, specified as the comma-separated pair consisting of `'customFunction'` and a character vector. This argument is optional and valid only when `mode` is set to 4.

Example: `'CustomFunction','mapfcn'`

`CompileModel` — Model compilation for mapping
`true` (default) | `false`

Option to compile or not compile the model when performing input mapping, specified as the comma-separated pair consisting of `'CompileModel'` and `false` or `true`.

Example: `'CompileModel',false`

Examples

Add Microsoft® Excel® Data as Input

This example shows how to add data from a Microsoft® Excel® spreadsheet and map it to a test case. Only the two sheets that have data are added and mapped.

Load the Example Model

```
open_system('sltestExcelExample');
```

Create a New Test File

```
tf = sltest.testmanager.TestFile('input_test_file.mldatx');
```

Get the Test Suite and Test Case Objects

```
ts = getTestSuites(tf);
tc = getTestCases(ts);
```

Add the Example Model as the System Under Test

```
setProperty(tc,'Model','sltestExcelExample');
```

Add Excel® Data to Inputs Section and Specify Sheets to Add

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile,'Sheets',["Acceleration","Braking"]);
```

Map the Input Signal for the Sheets by Block Name

```
map(input(1),0);
map(input(2),0);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

plot

Package: `Simulink.SimulationData`

Plot simulation output data in the Simulation Data Inspector

Syntax

```
plot(simOutObj)
runObj = plot(simOutObj)
```

Description

`plot(simOutObj)` plots the simulation output data in the simulation output object, `simOutObj`, in the Simulation Data Inspector and opens the Simulation Data Inspector so you can view the plotted simulation output data. You can use the `plot` function to plot simulation results stored in these simulation output objects:

- `Simulink.SimulationOutput`
- `Simulink.SimulationData.DataStoreMemory`
- `Simulink.SimulationData.Parameter`
- `Simulink.SimulationData.Signal`
- `Simulink.SimulationData.State`
- `Stateflow.SimulationData.Data`
- `Stateflow.SimulationData.State`
- `sltest.Assessment`

These simulation output objects also have plot functions that plot the data in and then open the Simulation Data Inspector:

- `Simulink.SimulationData.Dataset`
- `Simulink.SimulationData.DatasetRef`

When a simulation output object contains fewer than eight signals to plot, the Simulation Data Inspector layout changes to 1-by-`n`, where `n` is the number of signals to plot, and plots one signal on each subplot. When the simulation output object contains more than eight signals to plot, the Simulation Data Inspector layout changes to 1-by-1 and plots the first signal in the simulation output object.

When some or all of the data in a `Simulink.SimulationOutput` object is in a Simulation Data Inspector run, the `plot` function opens the Simulation Data Inspector and plots all the signals in the run. When the data does not correspond to a run in the Simulation Data Inspector, the `plot` function imports the data to a new run. When you use the `plot` function to plot a single signal, the `plot` function always imports the data for the signal to a new run.

`runObj = plot(simOutObj)` returns the `Simulink.sdi.Run` object corresponding to the plotted data.

Examples

Access and Plot Simulation Output Data

The `ex_vdp_simout_plot` model used in this example is configured to log signals, outputs, and states and return all logged data in a single simulation output. The single simulation output is a `Simulink.SimulationOutput` object that contains one or more types of other simulation output objects, depending on the kinds of data you log. This example shows how to access each type of logged data and use the `plot` function to plot the data in the Simulation Data Inspector. To generate the `SimulationOutput` object containing all the logged data, simulate the model.

```
open_system('ex_vdp_simout_plot.slx')
out = sim('ex_vdp_simout_plot.slx');
```

Plot Data in a `SimulationOutput` Object

You can pass the single simulation output, stored in a `Simulink.SimulationOutput` object, to the `plot` function to view the data in the Simulation Data Inspector. When you plot data in a `SimulationOutput` object that corresponds to a run in the Simulation Data Inspector, data in the object that also logs to the Simulation Data Inspector is plotted. The model logs data using the `Dataset` format, so all logged data streams to the Simulation Data Inspector.

When you use the `plot` function to plot the data, the Simulation Data Inspector updates to a 1-by-8 layout and plots one signal on each subplot.

```
plot(out)
```

Plot Data for a Single Signal

When you plot the data for a single signal, the Simulation Data Inspector always imports the data for the signal to a new run. Use the `get` function for the `SimulationOutput` object to access the signal logging `Dataset` object, `logsout`.

```
logsout = get(out,'logsout');
```

Then, use the `get` function for the `Dataset` object to access the data for the first element.

```
sig1 = get(logsout,1);
```

When you plot the data for the signal, the Simulation Data Inspector imports the signal to a new run, updates the layout to 1-by-1, and plots the signal.

```
plot(sig1)
```

Input Arguments

`simOutObj` — Simulation output object containing simulation data to plot

`Simulink.SimulationOutput` | `Simulink.SimulationData.DataStoreMemory` | `Simulink.SimulationData.Parameter` | `Simulink.SimulationData.Signal` | `Simulink.SimulationData.State` | `sltest.Assessment` | `Stateflow.SimulationData.Data` | `Stateflow.SimulationData.State`

Simulation output object containing data you want to plot and view in the Simulation Data Inspector. This `plot` function supports these simulation output objects:

- `Simulink.SimulationOutput`
- `Simulink.SimulationData.DataStoreMemory`
- `Simulink.SimulationData.Parameter`
- `Simulink.SimulationData.Signal`
- `Simulink.SimulationData.State`
- `Stateflow.SimulationData.Data`
- `Stateflow.SimulationData.State`
- `sltest.Assessment`

Example: `plot(out)`

Output Arguments

`runObj` — Run that corresponds to plotted data

`Simulink.sdi.Run` object

Run that corresponds to the plotted data, returned as a `Simulink.sdi.Run` object.

See Also

`plot`

Topics

“View Data in the Simulation Data Inspector”

Introduced in R2019b

plotOneSignalToFile

Class: `sltest.testmanager.TestResultReport`
Package: `sltest.testmanager`

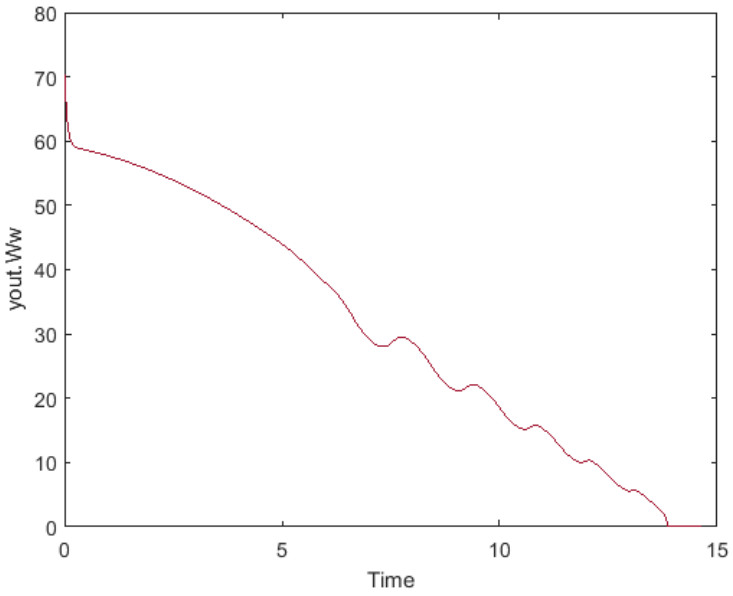
Save signal plot to file

Syntax

```
plotOneSignalToFile(obj,filePath,onesig,isComparison)
```

Description

`plotOneSignalToFile(obj,filePath,onesig,isComparison)` saves a signal plot to a PNG image file. If the signal plot is a comparison, then the baseline signal, the difference, and the tolerance are plotted in the same plot.



Input Arguments

`obj` — Test report object

`sltest.testmanager.TestResultReport` object

Test report, specified as a `sltest.testmanager.TestResultReport` object.

`filePath` — Image file path

character vector

File path and name of the image you want to save, specified as a character vector.

`onesig` — Result signal
`sltest.testmanager.ReportUtility.Signal` object

The result signal, specified as a `sltest.testmanager.ReportUtility.Signal` object.

`isComparison` — Comparison indicator
`true` | `false`

Flag to indicate whether the signal is from a comparison run or not, specified as a Boolean, `true` or `false`.

See Also

`sltest.testmanager.TestResultReport`

Topics
“Export Test Results”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

remove

Class: `sltest.testmanager.BaselineCriteria`
Package: `sltest.testmanager`

Remove baseline criteria

Syntax

```
remove(bc)
```

Description

`remove(bc)` removes the baseline criteria from a test case. The baseline criteria object is empty after a call to this function.

Input Arguments

bc — Baseline criteria

`sltest.testmanager.BaselineCriteria` object

Baseline criteria that you want to remove from a test case, specified as a `sltest.testmanager.BaselineCriteria` object.

Examples

Remove Baseline Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);
```

```
% Remove baseline criteria;
remove(baseline);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.EquivalenceCriteria`
Package: `sltest.testmanager`

Remove equivalence criteria

Syntax

```
remove(eq)
```

Description

`remove(eq)` removes the equivalence criteria from a test case. The equivalence criteria object is empty after a call to this function.

Input Arguments

eq — Equivalence criteria

`sltest.testmanager.EquivalenceCriteria` object

Equivalence criteria that you want to remove from a test case, specified as a `sltest.testmanager.EquivalenceCriteria` object.

Examples

Remove Equivalence Criteria

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'equivalence','Equivalence Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
% for Simulation 1 and Simulation 2
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',1);
setProperty(tc,'Model','sldemo_absbrake','SimulationIndex',2);

% Add a parameter override to Simulation 1 and 2
ps1 = addParameterSet(tc,'Name','Parameter Set 1','SimulationIndex',1);
po1 = addParameterOverride(ps1,'Rr',1.20);

ps2 = addParameterSet(tc,'Name','Parameter Set 2','SimulationIndex',2);
po2 = addParameterOverride(ps2,'Rr',1.24);
```

```
% Capture equivalence criteria
eq = captureEquivalenceCriteria(tc);

% Set the equivalence criteria tolerance for one signal
sc = getSignalCriteria(eq);
sc(1).AbsTol = 2.2;

% Remove second signal criteria from baseline
remove(eq);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.LoggedSignal`
Package: `sltest.testmanager`

Remove a logged signal

Syntax

```
remove(obj)
```

Description

`remove(obj)` removes an `sltest.testmanager.LoggedSignal` object from an `sltest.testmanager.LoggedSignalSet` object and invalidates the `LoggedSignal` object.

Input Arguments

`obj` — Logged signal

`sltest.testmanager.LoggedSignal` object

Logged signal object contained in a logged signal set.

Examples

Remove a Signal from a Signal Set

Open a model and create a signal set.

```
openExample('sldemo_absbrake')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
lgset = tc.addLoggedSignalSet;
```

Select the `Vehicle Speed` block and enter `gcb`. Use the returned path to create a `Simulink.BlockPath` object.

```
% Add signals to set
bPath = Simulink.BlockPath('sldemo_absbrake/Vehicle speed');
sig1 = lgset.addLoggedSignal(bPath,1);
sig2 = lgset.addLoggedSignal(bPath,2);

setProperty(tc,'Model','sldemo_absbrake');

% Remove signal
remove(sig2);
```

```
% Check that signal is removed
sigs = lgset.getLoggedSignals
```

See Also

`gcb`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

remove

Class: `sltest.testmanager.LoggedSignalSet`
Package: `sltest.testmanager`

Remove a logged signal set

Syntax

```
remove(lgset)
```

Description

`remove(lgset)` removes an `sltest.testmanager.LoggedSignalSet` object from an `sltest.testmanager.TestCase` object and invalidates its child signal objects.

Input Arguments

`lgset` — Logged signal set

`sltest.testmanager.LoggedSignalSet` object

Logged signal set object contained in a test case.

Examples

Remove a Signal Set from a Test Case

Open a model and create a test case.

```
openExample('sldemo_absbrake')

% Create test case
tf = sltest.testmanager.TestFile(strcat(pwd,'\mytf.mldatx'));
ts = sltest.testmanager.TestSuite(tf,'myts');
tc = sltest.testmanager.TestCase(ts,'baseline','mytc');

% Create signal set
mylgset = tc.addLoggedSignalSet;

% Remove the signal set
remove(mylgset)
```

See Also

`sltest.testmanager.TestCase`

Topics

“Create and Run Test Cases with Scripts”
“Capture Simulation Data in a Test Case”

Introduced in R2019a

remove

Class: `sltest.testmanager.ParameterOverride`
Package: `sltest.testmanager`

Remove parameter override

Syntax

```
remove(po)
```

Description

`remove(po)` removes the parameter override from the parameter set. The parameter override object is empty after a call to this function.

Input Arguments

po — Parameter override

`sltest.testmanager.ParameterOverride` object

Parameter override that you want to remove from a parameter set, specified as a `sltest.testmanager.ParameterOverride` object.

Examples

Remove Parameter Override from Parameter Set

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

```
% Remove parameter override from parameter set
remove(po);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.ParameterSet`
Package: `sltest.testmanager`

Remove parameter set

Syntax

```
remove(ps)
```

Description

`remove(ps)` removes the parameter set from a test case. The parameter set object is empty after a call to this function.

Input Arguments

ps — Parameter set

`sltest.testmanager.ParameterSet` object

Parameter set that you want to remove from a test case, specified as a `sltest.testmanager.ParameterSet` object.

Examples

Remove Parameter Set from Test Case

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

```
% Remove parameter set from test case
remove(ps);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.SignalCriteria`
Package: `sltest.testmanager`

Remove signal criteria

Syntax

```
remove(sc)
```

Description

`remove(sc)` removes signal criteria from the baseline or equivalence criteria set. The signal criteria object is empty after a call to this function.

Input Arguments

sc — Signal criteria

`sltest.testmanager.SignalCriteria` object

Signal criteria that you want to remove from a baseline or equivalence criteria set, specified as a `sltest.testmanager.SignalCriteria` object.

Examples

Remove Signal from Baseline Criteria Set

```
% Open the model for this example
openExample('sldemo_absbrake');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');

% Capture the baseline criteria
baseline = captureBaselineCriteria(tc,'baseline_API.mat',true);

% Test a new model parameter by overriding it in the test case
% parameter set
ps = addParameterSet(tc,'Name','API Parameter Set');
po = addParameterOverride(ps,'m',55);
```

```
% Set the baseline criteria tolerance for one signal
sc = getSignalCriteria(baseline);
sc(1).AbsTol = 9;

% Remove second signal criteria from baseline
remove(sc(2));
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Remove test case

Syntax

```
remove(tc)
```

Description

`remove(tc)` removes the test case. The test case object is empty after a call to this function. Parameter overrides, baseline criteria, or equivalence criteria associated with the test case become invalid.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to remove, specified as an `sltest.testmanager.TestCase` object.

Examples

Remove Test Case

```
% Create test file
tf = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
ts = sltest.testmanager.TestSuite(tf,'My Test Suite');

% Create test case
tc = sltest.testmanager.TestCase(ts,'equivalence',...
'Eq Test Case');

% Remove the test case
remove(tc);
```

See Also

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.TestInput`
Package: `sltest.testmanager`

Remove test input

Syntax

```
remove
```

Description

`remove` removes the test input from a test case. The test input object is empty after a call to this function.

Input Arguments

`input` — Test input

`sltest.testmanager.TestInput` object

The test input that you want to remove, specified as a `sltest.testmanager.TestInput` object.

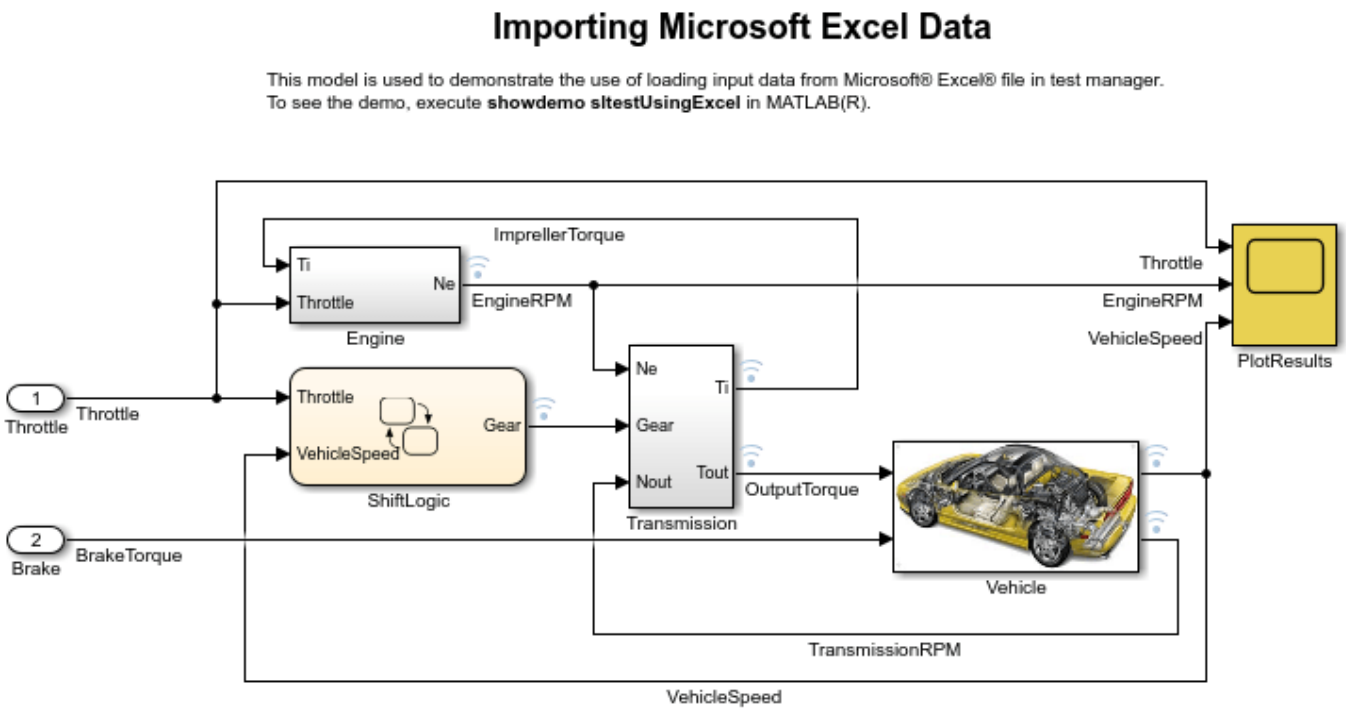
Examples

Remove Test Input Data

Remove an Excel test input sheet

Load Example Model, Create New Test File, and Get Suites and Cases

```
open_system('sltestExcelExample');
tf = sltest.testmanager.TestFile('input_test_file.mldatx');
ts = getTestSuites(tf);
tc = getTestCases(ts);
```



Add the Model as the System Under Test

```
setProperty(tc,'Model','sltestExcelExample');
```

Add Excel Data to Inputs Section

```
excelfile = 'sltestExampleInputs.xlsx';
input = addInput(tc,excelfile);
```

Map the First Input Signal By Block Name

```
map(input(1),0);
```

Remove the Second Input

```
remove(input(2));
```

See Also

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

remove

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Remove test suite

Syntax

```
remove(ts)
```

Description

`remove(ts)` removes the test suite. The test suite object is empty after a call to this function.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite that you want to remove, specified as an `sltest.testmanager.TestSuite` object.

Examples

Remove Test Suite

```
% Create test file
tf = sltest.testmanager.TestFile('C:\MATLAB\test_file.mldatx');

% Create test suite
ts = sltest.testmanager.TestSuite(tf,'My Test Suite');

% Remove the test suite
remove(ts);
```

See Also

Topics

"Create and Run Test Cases with Scripts"

Introduced in R2015b

run

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Run test case

Syntax

```
resultObj = run(tc)
```

Description

`resultObj = run(tc)` runs the test case and returns a results set object.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case you want to run, specified as an `sltest.testmanager.TestCase` object.

Output Arguments

`resultObj` — Results set object

object

Test results, returned as a results set object, `sltest.testmanager.ResultSet`.

Examples

Run a Test Case

```
% Open the model for this example
openExample('sldemo_autotrans');

Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'simulation','Coverage Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Run the test case and return an object with results data
ro = run(tc);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

run

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Run test cases in test file

Syntax

```
resultObj = run(tf)
```

Description

`resultObj = run(tf)` runs the enabled test cases in the test file and returns a results set object.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file with the test cases you want to run, specified as an `sltest.testmanager.TestFile` object.

Output Arguments

`resultObj` — Results set object

`sltest.testmanager.ResultSet` object

Test results, returned as a results set object, `sltest.testmanager.ResultSet`.

Examples

Run a Test File

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('My Test File');
ts = createTestSuite(tf,'My Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Run the test file and return an object with results data
ro = run(tf);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

run

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Run test cases in test suite

Syntax

```
resultObj = run(ts)
```

Description

`resultObj = run(ts)` runs the enabled test cases in the test suite and returns a results set object.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite with the test cases you want to run, specified as an `sltest.testmanager.TestSuite` object.

Output Arguments

`resultObj` — Result set

`sltest.testmanager.ResultSet` object

Test results, returned as a `sltest.testmanager.ResultSet` results set object.

Examples

Run a Test Suite

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('My Test File');
ts = createTestSuite(tf,'My Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Run the test suite and return an object with results data
ro = run(ts);
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

saveToFile

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Save test file

Syntax

```
saveToFile(tf)
saveToFile(tf,filePath)
```

Description

`saveToFile(tf)` saves the changes to the test file.

`saveToFile(tf,filePath)` saves the test file to the specified file path.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file, specified as a `sltest.testmanager.TestFile` object.

`filePath` — File path

character vector

The file path and name to save the test file at, specified as a character vector.

Example: `'C:\MATLAB\New Test File.mldatx'`

Examples

Save Test File With Changes

```
% Open the model for this example
openExample('sldemo_autotrans');

% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('C:\MATLAB\My Test File.mldatx');
ts = createTestSuite(tf,'My Test Suite');
tc = createTestCase(ts,'simulation','Simulation Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_autotrans');
```

```
% Save the test file
saveToFile(tf);

% Save test file object as another test file
saveToFile(tf,'C:\MATLAB\New Test File.mldatx');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

setAssessmentsCallback

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Set test case assessment callback

Syntax

```
setAssessmentsCallback(tc,callback)
```

Description

`setAssessmentsCallback(tc,callback)` specifies the assessment callback to assign to the specified test case. You can use an assessment callback to define variables to use in logical and temporal assessment conditions and expressions. The callback you specify appears in the **Assessment Callback** section of the test case in the Test Manager.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to which the assessment callback is associated, specified as an `sltest.testmanager.TestCase` object.

Data Types: `string`

`callback` — Assessment callback

string

Assessment callback, specified as a string. For a list of predefined variables you can use in a callback, see “Logical and Temporal Assessment Syntax”.

Example: `"test_value = 20; increment_value = 5;"`

Data Types: `string`

Examples

Use a Callback to Set Assessment Variables

1. Specify the test file and get the test suite and test case object in the file. Assume there is only one test suite and one test case in the file. If a test file contains more than one test suite, an array of test suites is returned from the `getTestSuites` method. If the file or suite contains more than one test case, an array of test cases is returned.

```
tf = sltest.testmanager.TestFile('myTestFile.mldatx');
ts = tf.getTestSuites();
tc = ts.getTestCases();
```

2 Specify the callback for the test case object.

```
tc.setAssessmentsCallback("test_value = 20; end_value = 65;");
```

See Also

`getAssessmentsCallback`

Topics

“Logical and Temporal Assessment Syntax”

Introduced in R2020b

setModelParam

Class: `sltest.testmanager.TestIteration`
Package: `sltest.testmanager`

Set model parameter for iteration

Syntax

```
setModelParam(obj,modelObject,paramName,value)
setModelParam(obj,modelObject,paramName,value,'SimulationIndex',sim)
```

Description

`setModelParam(obj,modelObject,paramName,value)` sets a model parameter for the test iteration object.

`setModelParam(obj,modelObject,paramName,value,'SimulationIndex',sim)` sets a model parameter for the specified simulation in an equivalence test.

Input Arguments

`obj` — Test iteration to set model parameter for

`sltest.testmanager.TestIteration` object

Test iteration that you want to set the model parameter for, specified as a `sltest.testmanager.TestIteration` object.

`modelObject` — Name of model or block

character vector | string

Name of a model or block, specified as a character vector or string.

Example: `'vdp/Mu'`

`paramName` — Model or block parameter name

character vector

Model or block parameter name, specified as the comma-separated pair consisting of the parameter name, specified as a character vector, and the value, specified in the format determined by the parameter type. Case is ignored for parameter names. Value character vectors are case sensitive. Values are often character vectors, but they can also be numeric, arrays, and other types. Many block parameter values are specified as character vectors, but two exceptions are these parameters: `Position`, specified as a value vector, and `UserData`, which can be any data type.

For more information on parameter name and value pairs, see `set_param`.

Example: `'Solver','ode15s'`

Data Types: `char`

`sim` — Simulation to set model parameters for

1 | 2

Simulation in an equivalence test to set model parameters for, specified as 1 or 2.

Examples

Override Gain Value

```
setModelParam(obj,[sltest_bdroot '/Mu'],'Gain','1000')
```

See Also

`sltest.testmanager.TestIteration` | `set_param`

Topics

“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

setProperty

Class: `sltest.testmanager.TestCase`
Package: `sltest.testmanager`

Set test case property

Syntax

```
setProperty(tc,Name,Value)
```

Description

`setProperty(tc,Name,Value)` sets a test case property.

Input Arguments

`tc` — Test case

`sltest.testmanager.TestCase` object

Test case to set property, specified as an `sltest.testmanager.TestCase` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'StopTime',100`

`Model` — System Under Test model name

empty character vector (default)

The model name in the System Under Test section, specified as a character vector.

Example: `'sldemo_absbrake'`

`SimulationMode` — Simulation mode

empty character vector (default) | `'Normal'` | `'Accelerator'` | `'Rapid Accelerator'` | `'Software-in-the-Loop (SIL)'` | `'Processor-in-the-Loop (PIL)'`

The simulation mode of the model or harness, specified as a character vector. To return to the default model settings, specify an empty character vector, `''`.

Example: `'SimulationMode','Rapid Accelerator'`

`OverrideSILPILMode` — Override SIL or PIL mode

`false` or `0` (default) | `true` or `1`

Override SIL/PIL simulation mode of model blocks to Normal simulation mode, specified as a numeric or logical `1` (`true`) or `0` (`false`). If this property is `true` or 1, the associated check box in the Simulation Settings Overrides section of the Test Manager is selected.

`OverrideStartTime` — Override model start time
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides the model start time, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`StartTime` — Model start time
`0` (default) | scalar

Model start time, specified as a scalar value.

Data Types: `single` | `double` | `int8` | `int16` | `int32` | `int64` | `uint8` | `uint16` | `uint32` | `uint64`

`OverrideStopTime` — Override model stop time
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides the model stop time, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`StopTime` — Model stop time
`10` (default) | scalar

Model stop time, specified as a scalar value.

Data Types: `single` | `double` | `int8` | `int16` | `int32` | `int64` | `uint8` | `uint16` | `uint32` | `uint64`

`OverrideInitialState` — Override model initial state
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides the model initial state, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`InitialState` — Model initial state
empty character vector (default)

Model initial state from a workspace variable, specified as a character vector.

`HarnessName` — Test harness name
empty character vector (default)

Name of a test harness to use in the System Under Test section, specified as a character vector.

`HarnessOwner` — Test harness owner name
empty character vector (default)

Name of the test harness owner, specified as a character vector.

`UseSignalEditorScenario` — Override Signal Editor scenario
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides the model and uses a different Signal Editor scenario in the Inputs section, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SignalEditorScenario` — Signal Editor scenario name
empty character vector (default)

Signal Editor scenario name, specified as a character vector. To return to the default model settings, specify an empty character vector, `''`.

`IsTestDataReferenced` — Use external file to create test case
`false` or `0` (default) | `true` or `1`

Whether to use test data from an external file, such as an Excel or MAT file, to create the test case, specified as a numeric or logical `1` (`true`) or `0` (`false`). If `isTestDataReferenced` is `true` or `1`, use `TestDataPath` to specify the path to file.

`TestDataPath` — Path to external file for test case
character vector

Path to the external file being referenced for creating the test case, specified as a character vector.

`TestSequenceBlock` — Test Sequence block path
character vector

Test Sequence block path, specified as a character vector. The specified block contains the test sequence scenarios to use in the test case. Specify `TestSequenceBlock` and `TestSequenceScenario` to run a scenario other than the active scenario. If you do not specify a value for `TestSequenceScenario`, the test runs the active scenario in the Test Sequence block. If your Test Sequence block does not have scenarios, the test runs the single test sequence in the block.

`TestSequenceScenario` — Test Sequence scenario name
character vector

Test Sequence scenario name, specified as a character vector. The specified test sequence scenario runs instead of the active scenario or, if you are using iterations, the scenario runs as the default scenario for all iterations. Use `setTestParam` to assign a different scenario to an iteration. You must specify `TestSequenceBlock` to use `TestSequenceScenario`.

`Release` — Release on which to run the test case
`Current` (default) | `string` | `character vector` | `cell array` | `string array`

Release on which to run the test case, specified as a string, character vector, or cell array. For equivalence tests, you can specify only one release for each simulation index, for example, `('Release',releaseNames{1},'SimulationIndex',1)`. For other test types, you can specify multiple releases as a cell or string array, for example, `('Release',releaseNames)`, where `releaseNames` is a cell array, such as `{'Current','R2020a'}`.

`OverrideModelOutputSettings` — Override model output settings
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides the model settings under the Outputs section, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SaveOutput` — Override saving output
`false` or `0` (default) | `true` or `1`

Indicate if the test case overrides saving model output, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SaveState` — Save output state values
`false` or `0` (default) | `true` or `1`

Indicate if the test case is set to save output state values, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SignalLogging` — Log signals
`true` or `1` (default) | `false` or `0`

Indicate if the test case is set to log signals marked for logging in the model, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`DSMLogging` — Log Data Store variables
`true` or `1` (default) | `false` or `0`

Indicate if the test case is set to log Data Store variables, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SaveFinalState` — Save final state
`false` or `0` (default) | `true` or `1`

Indicate if the test case is set to store final state values, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SimulationIndex` — Equivalence test case simulation
`1` (default) | `2`

Simulation number that the property applies to, specified as an integer, `1` or `2`. This setting applies to the simulation test case.

`ConfigSetOverrideSetting` — Configuration setting override
`1` (default) | `2` | `3`

Override the configuration settings, specified as an integer.

- `1` — No override
- `2` — Use a named configuration set in the model
- `3` — Use a configuration set specified in a file

`ConfigSetName` — Configuration set name
empty character vector (default)

Name of the configuration setting in a model, specified as a character vector.

`ConfigSetVarName` — Configuration set variable name
empty character vector (default)

Variable name in a configuration set file, specified as a character vector.

`ConfigSetFileLocation` — Configuration set file path
empty character vector (default)

File name and path of the configuration set, specified as a character vector.

`PreloadCallback` — Pre-load callback script
character vector

Pre-load callback script, specified as a character vector.

`PostloadCallback` — Post-load callback script
character vector

Post-load callback script, specified as a character vector.

`CleanupCallback` — Cleanup callback script
character vector

Test-case level cleanup callback script, specified as a character vector. The function deletes any existing callback script and replaces it with the specified character vector.

Example: `'clear a % clear value from workspace'`

`PreStartRealTimeApplicationCallback` — Real-time pre-start callback
character vector

Character vector evaluated before the real-time application is started on the target computer, specified as a character vector. For more information on real-time testing, see “Test Models in Real Time”.

`IterationScript` — Iteration script
character vector

Iteration script evaluated to create test case iterations, specified as a character vector. For more information about test iteration scripts, see “Test Iterations”.

`FastRestart` — Run iterations using fast restart
`false` or `0` (default) | `true` or `1`

Indicate if the test iterations run using fast restart mode, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SaveBaselineRunInTestResult` — Save baseline in test result
`false` (default) | `true`

Indicate if the test case saves the baseline used in the test result after test execution, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`SaveInputRunInTestResult` — Save input in test result
`false` or `0` (default) | `true` or `1`

Enable saving external input run used in test result, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`StopSimAtLastTimePoint` — Stop simulation at last input time
`false` or `0` (default) | `true` or `1`

Enable stopping the simulation at the final time value of the input, specified as a numeric or logical `1` (`true`) or `0` (`false`).

`LoadAppFrom` — Application location
1 (default) | 2 | 3

Location from which to load the application, specified as an integer. This property is available only in real-time test cases.

- 1 — Model
- 2 — Target application
- 3 — Target computer

For more information on real-time testing, see “Test Models in Real Time”.

`TargetComputer` — Target computer name
character vector

Name of the target computer, specified as a character vector. This property is available only in real-time test cases. For more information on real-time testing, see “Test Models in Real Time”.

`TargetApplication` — Target application name and path
character vector

Name and path of the target application, specified as a character vector. This property is available only in real-time test cases. For more information on real-time testing, see “Test Models in Real Time”.

Examples

Set Model as System Under Test

```
% Create the test file, test suite, and test case structure
tf = sltest.testmanager.TestFile('API Test File');
ts = createTestSuite(tf,'API Test Suite');
tc = createTestCase(ts,'baseline','Baseline API Test Case');

% Remove the default test suite
tsDel = getTestSuiteByName(tf,'New Test Suite 1');
remove(tsDel);

% Assign the system under test to the test case
setProperty(tc,'Model','sldemo_absbrake');
```

See Also

Topics
“Create and Run Test Cases with Scripts”
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2015b

setProperty

Class: `sltest.testmanager.TestFile`
Package: `sltest.testmanager`

Set test file property

Syntax

```
setProperty(tf,Name,Value)
```

Description

`setProperty(tf,Name,Value)` sets a test file property.

Input Arguments

`tf` — Test file

`sltest.testmanager.TestFile` object

Test file object whose property to set, specified as an `sltest.testmanager.TestFile` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'SetupCallback','a = 300; % set nominal value'`

`SetupCallback` — Setup callback script

empty (default) | character vector

Test-file level setup callback script, specified as a character vector. The function replaces any existing callback script with this value.

Example: `'a = 300; % set nominal value'`

`CleanupCallback` — Cleanup callback script

empty (default) | character vector

Test-file level cleanup callback script, specified as a character vector. The function replaces any existing callback script with this value.

Example: `'clear a % clear value from workspace'`

Examples

Set Test File Property

```
% Create a test file
tf = sltest.testmanager.TestFile('API Test File');
```

```
% Set the setup callback property
setProperty(tf,'CleanupCallback','clearvars % Clear variables');
```

See Also

`getProperty`

Topics

“Create and Run Test Cases with Scripts”

Introduced in R2015b

setProperty

Class: `sltest.testmanager.TestSuite`
Package: `sltest.testmanager`

Set test suite property

Syntax

```
setProperty(ts,Name,Value)
```

Description

`setProperty(ts,Name,Value)` sets a test suite property.

Input Arguments

`ts` — Test suite

`sltest.testmanager.TestSuite` object

Test suite object to set the property, specified as an `sltest.testmanager.TestSuite` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'SetupCallback','a = 300; % set nominal value'`

`SetupCallback` — Setup callback script

empty (default) | character vector

Test-suite level setup callback script, specified as a character vector. The function deletes any existing callback script and replaces it with the specified character vector.

Example: `'a = 300; % set nominal value'`

`CleanupCallback` — Cleanup callback script

empty (default) | character vector

Test-suite level cleanup callback script, specified as a character vector. The function deletes any existing callback script and replaces it with the specified character vector.

Example: `'clear a % clear value from workspace'`

Examples

Set Test Suite Property

```
% Create a test file and new test suite
tf = sltest.testmanager.TestFile('API Test File');
```

```
ts = createTestSuite(tf,'API Test Suite');

% Set the setup callback property
setProperty(ts,'CleanupCallback','clearvars % Clear variables');
```

See Also

Topics
“Create and Run Test Cases with Scripts”

Introduced in R2015b

setTestParam

Class: `sltest.testmanager.TestIteration`
Package: `sltest.testmanager`

Set test case parameter

Syntax

```
setTestParam(obj,Name,Value)
```

Description

`setTestParam(obj,Name,Value)` sets the test iteration parameter with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`obj` — Test iteration object

object

Test iteration object that you want to apply the test parameter to, specified as a `sltest.testmanager.TestIteration` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

`ParameterSet` — Parameter set

current test case setting (default) | character vector

Parameter set name, specified as the comma-separated pair consisting of `'ParameterSet'` and a character vector. Parameter set overrides are set up in the **Parameter Overrides** section of the test case.

Example: `'ParameterSet','Param Set 1'`

`Baseline` — Baseline criteria dataset

current test case setting (default) | character vector

Baseline criteria dataset name, specified as the comma-separated pair consisting of `'Baseline'` and a character vector. Baseline criteria datasets are set up in the **Baseline Criteria** section of the test case. It is available only for baseline test cases.

Example: `'Baseline','BaselineSet_High'`

`LoggedSignalSet` — Logged signal set

current test case setting (default) | character vector

Logged signal set name, specified as the comma-separated pair consisting of `'LoggedSignalSet'` and a character vector. Logged signal sets are set up in the **Simulation Outputs** section of the test case.

Example: `'LoggedSignalSet','Logged signal set 1'`

`ExternalInput` — External input
current test case setting (default) | character vector

External input name, specified as the comma-separated pair consisting of `'ExternalInput'` and a character vector. External input overrides are set up in the **Inputs** section of the test case. You can specify a simulation index as the `ExternalInput`, for example, `ti.setTestParam('ExternalInput','input','SimulationIndex',2)`.

Example: `'ExternalInput','Run1'`

`ConfigSet` — Configuration setting
current test case setting (default) | character vector

Configuration setting name, specified as the comma-separated pair consisting of `'ConfigSet'` and a character vector. Configuration setting overrides are set up in the **Configuration Settings Overrides** section of the test case.

Example: `'ConfigSet','Solver 3'`

`SimulationIndex` — Equivalence test simulation index
number of the simulation in an equivalence test case (default) | integer

Simulation index of an equivalence test case, specified as an integer.

Example: `'SimulationIndex',2`

`TestSequenceScenario` — Test Sequence scenario name
character vector

Test Sequence scenario name, specified as a character vector. The specified scenario, which is defined in a Test Sequence block, is used in the iteration. You specify the Test Sequence block by using `setProperty`. The test sequence scenario for an iteration is set up in the test case **Inputs** section of the Test Manager.

`SignalEditorScenario` — Signal Editor scenario
current test case setting (default) | character vector

Signal Editor scenario input name, specified as the comma-separated pair consisting of `'SignalEditorScenario'` and a character vector. Signal Editor scenario overrides are set up in the test case **Inputs** section.

Example: `'SignalEditorScenario','Acceleration'`

`PreLoadFcn` — Pre-load callback script
current test case setting (default) | character vector

Pre-load callback script, specified as the comma-separated pair consisting of `'PreLoadFcn'` and a character vector. The pre-load callback script is set up in the **Callbacks** section of the test case.

`PostLoadFcn` — Post-load callback script
current test case setting (default) | character vector

Post-load callback script, specified as the comma-separated pair consisting of `'PostLoadFcn'` and a character vector. The post-load callback script is set up in the **Callbacks** section of the test case.

`PreStartRealTimeApplicationFcn` — Pre-start real-time application callback script
current test case setting (default) | character vector

Pre-start real-time application callback script, specified as the comma-separated pair consisting of `'PreStartRealTimeApplicationFcn'` and a character vector. The pre-start real-time application callback script is set up in the **Callbacks** section of the test case.

`CleanupFcn` — Cleanup callback script
current test case setting (default) | character vector

Cleanup callback script, specified as the comma-separated pair consisting of `'CleanupFcn'` and a character vector. The cleanup callback script is set up in the **Callbacks** section of the test case.

`Description` — Description
current test case setting (default) | character vector

Test description text, specified as the comma-separated pair consisting of `'Description'` and a character vector. The Description is set up in the **Description** section of the test case.

Example: `'Description','Test the autopilot controller for wind gusts'`

Examples

Set Test Parameter

```
setTestParam(obj,'Description',...
   'Test the autopilot controller for wind gusts');
```

See Also

`sltest.testmanager.TestIteration`

Topics
“Test Iterations”
“Create and Run Test Cases with Scripts”
“Programmatically Create and Run Test Sequence Scenarios”

Introduced in R2016a

setVariable

Class: `sltest.testmanager.TestIteration`
Package: `sltest.testmanager`

Set model variable override

Syntax

```
setVariable(obj,'Name',varName,'Source',srcName,'Value',value,
'SimulationIndex',simIndex)
```

Description

`setVariable(obj,'Name',varName,'Source',srcName,'Value',value,
'SimulationIndex',simIndex)` sets a model variable override for the test iteration. Specify the `sltest.testmanager.TestIteration` object, and then specify the variable name, source, override value, and optionally, the simulation index. The method overrides the variable in the test iteration and does not permanently change the model variable.

Input Arguments

`obj` — Test iteration object

object

The test iteration you want to apply the override to, specified as a `sltest.testmanager.TestIteration` object.

`varName` — Variable name

character vector

Name of the variable you want to override, specified as a character vector.

`srcName` — Variable source

`'base workspace'` | `'model workspace'` | `'mask workspace'` | data dictionary name | model element paths | workspace name

The source of the variable to override, specified as a character vector. For non-real-time test cases, the possible sources can be `'base workspace'`, `'model workspace'`, `'mask workspace'`, or the name of a data dictionary, such as `'data.sldd'` or model workspace name.

For real-time test cases, the possible sources are model element paths, which, if the source is a model parameter, might be an empty character vector.

`value` — Override value

numeric | logical | enum | struct

Value of the variable to override.

`simIndex` — Equivalence test simulation index

1 (default) | 2

Simulation index of an equivalence test case, specified as 1 or 2, where 1 is Simulation 1 and 2 is Simulation 2.

Example: `'SimulationIndex',2`

Examples

Set Variable in Base Workspace

```
setVariable(obj,'Name','g','Source','base workspace','Value',33);
```

See Also

`sltest.testmanager.TestIteration`

Topics

“Test Iterations”
“Create and Run Test Cases with Scripts”

Introduced in R2016a

addModelCoverage

Enable collect model coverage collection for Simulink tests

Syntax

```
addModelCoverage(runner)
addModelCoverage(runner,Name,Value)
```

Description

`addModelCoverage(runner)` enables the specified test runner to add model coverage to MATLAB-based Simulink tests and generates a coverage report. This method adds `sltest.plugins.ModelCoveragePlugin` to the test runner.

Note For MATLAB-based Simulink tests, to include model coverage results in the Simulink Test Manager, you must also use `addSimulinkTestResults`.

`addModelCoverage(runner,Name,Value)` enables model coverage collection with additional options specified by one or more `Name,Value` pair arguments.

Input Arguments

`runner` — Test runner

`matlab.unittest.TestRunner` object

Test runner, specified as a `matlab.unittest.TestRunner` object.

Name-Value Pair Arguments

Specify optional comma-separated pairs of `Name,Value` arguments. `Name` is the argument name and `Value` is the corresponding value. `Name` must appear inside quotes. You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example: `'CollectMetrics',['MCDC','Decision']`

`html-report` — Name of folder to export HTML coverage report

string | character vector

Name of folder to export HTML coverage report, specified as a string or character vector.

Example: `'html-report','mytests/coverage/'`

`cobertura` — Path to export Cobertura coverage report

string | character vector

Path to export Cobertura coverage report, specified as a string or character vector. The report is saved to the specified file location and file name.

Example: `'cobertura','mytests/coverage/test1_coverage.xml'`

`IncludeModelReference` — Collect coverage for model references
`false` (default) | `true`

Collect coverage for model references, specified as a logical `true` or `false`. If `IncludeModelReference` is `true`, the runner collects coverage for the main model and all referenced models.

Example: `'IncludeModelReference',true`

`CollectMetrics` — Collect coverage for metrics
array of strings | array of character vectors

Collect coverage for metrics, specified as an array of strings or an array of character vectors. For supported coverage metrics, see the `sltest.plugins.coverage.CoverageMetrics` properties.

Example: `'CollectMetrics',['MCDC','Decision']`

Examples

Enable Model Coverage Collection

This example shows how to enable collecting model coverage and specify metrics when using the test runner.

Before running this example, create a test file named `myTests.m`. The example creates a test suite for the file, and then creates a test runner with the `'textoutput'` option to output status and diagnostics to the command line. Add `addSimulinkTestResults` to the test runner to enable pushing the results in the Test Manager and exporting the test results to a file named `testmgr_results.mldatx`

Before running this example, create a test file named `myTests.m`.The example creates a test suite for the file, and then creates a test runner with the `'textoutput'` option to output status and diagnostics to the command line. Add `addModelCoverage` to the test runner to enable collecting model coverage that uses MCDC and condition metrics, specify the folder name for the HTML report, and include referenced models. Add `addSimulinkTestResults` to the test runner to enable pushing the test results to the Test Manager.

```
suite = testsuite('myTests');
runner = testrunner('textoutput');
addModelCoverage(runner,...
   "CollectMetrics",["MCDC","Condition"],...
   "html-report","tests/cov/",
   "IncludeModelReference",true);
addSimulinkTestResults(runner);
run(runner,suite);
```

See Also
`matlab.unittest.TestRunner` | `sltest.plugins.coverage.CoverageMetrics` | `addSimulinkTestResults`

Topics
“Collect Coverage Using MATLAB-Based Simulink Tests”
“Test Models Using MATLAB-Based Simulink Tests”

“Using MATLAB-Based Simulink Tests in the Test Manager”

Introduced in R2021a

addSimulinkTestResults

Enable pushing test results to Simulink Test Manager

Syntax

```
addSimulinkTestResults(runner)
addSimulinkTestResults(runner,'ExportToFile',filename)
```

Description

`addSimulinkTestResults(runner)` enables pushing test results from MATLAB to integrate them with Simulink Test Manager. Use `addSimulinkTestResults` for tests that you run using the test runner, including MATLAB-based Simulink tests and

`addSimulinkTestResults` adds a set of plugins to a `matlab.unittest.TestRunner` object. The added plugins are:

- `sltest.plugins.MATLABTestCaseIntegrationPlugin` — Adds simulation and test results to the Simulink Test Manager for MATLAB-based Simulink tests.
- `sltest.plugins.TestManagerResultsPlugin` — Captures Simulink Test Manager results and MATLAB test Results, and allows exporting test results from the Test Manager.
- `matlab.unittest.DiagnosticsOutputPlugin` — Adds diagnostics output to the **Logs** section of the Test Manager. To include log information, see `sltest.plugins.ToTestManagerLog`.

`addSimulinkTestResults(runner,'ExportToFile',filename)` enables exporting test results to an MLDATX file with the specified `filename`. Load this file at the MATLAB command line to view the test results.

Note `addSimulinkTestResults` is not supported for parallel workflows.

Input Arguments

`runner` — Test runner

`matlab.unittest.TestRunner` object

Test runner, specified as a `matlab.unittest.TestRunner` object.

`filename` — Name of test results file

MLDATX file

Name of test results file, specified as an MLDATX file.

Examples

Enable Simulink Test Results

This example shows how to enable a test runner object to push test results to the Simulink Test Manager for a MATLAB-based Simulink test, and then export the results to a data file.

Before running this example, create a test file named `myTests.m`. The example creates a test suite for the file, and then creates a test runner with the `'textoutput'` option to output status and diagnostics to the command line. Add `addSimulinkTestResults` to the test runner to enable pushing the results in the Test Manager and exporting the test results to a file named `testmgr_results.mldatx`.

```
suite = testsuite('myTests');
runner = testrunner('textoutput');
addSimulinkTestResults(runner,"ExportToFile",...
   "testmgr_results.mldatx");
run(runner,suite);
```

See Also

`matlab.unittest.TestRunner` | `testrunner` | `sltest.plugins.MATLABTestCaseIntegrationPlugin` | `sltest.plugins.TestManagerResultsPlugin` | `matlab.unittest.plugins.DiagnosticsOutputPlugin` | `sltest.plugins.ToTestManagerLog`

Topics

“Test Models Using MATLAB-Based Simulink Tests”
“Using MATLAB-Based Simulink Tests in the Test Manager”
“Collect Coverage Using MATLAB-Based Simulink Tests”

Introduced in R2021a

createSandbox

Create sandbox for C code unit testing

Syntax

```
success = createSandbox
createSandbox("Overwrite",overwrite_option)
```

Description

`success = createSandbox` creates a sandbox folder and subfolders, and returns true if the method successfully creates a sandbox. The folder name is `<LibraryFileName>_sandbox`, where `LibraryFileName` is the `LibraryFileName` property of the `sltest.CodeImporter` object. This method applies only if the `TestType` property of the `sltest.CodeImporter` object is `UnitTest`.

The created folder subdirectories are:

- `autostub` — Contains the `auto_stub.h` and `auto_stub.c` files, which are generated only if the imported code has undefined symbols.
- `manualstub` — Contains the `man_stub.h` and `man_stub.c` files, which you can use to manually stub symbols. The `man_stub.h` header file includes the aggregated header if the `Mode` property setting of `sltest.CodeImporter.SandboxSettings` is `GenerateAggregatedHeader`.
- `include` — Contains the header files required by the sandbox. This folder also contains a generated `aggregatedHeader.h` or `interfaceHeader.h` file. An `aggregatedHeader.h` file is generated if the `Mode` property setting of `sltest.CodeImporter.SandboxSettings` is `GenerateAggregatedHeader`. Otherwise, the folder contains an `interfaceHeader.h` file.
- `src` — Contains copies of the code source files if the `CopySource` property of the `sltest.CodeImporter.SandboxSettings` object is `true`.

`createSandbox("Overwrite",overwrite_option)` overwrites the existing sandbox. If `overwrite_option` is `"on"`, the method deletes the existing sandbox directory and creates a new sandbox directory. If `overwrite_option` is `"off"`, the method deletes all folders except `manualstub` and generates a new sandbox. The method does not change the `manualstub` folder or its contents. The default is `"off"`.

Output Arguments

`success` — Whether sandbox creation is successful
`true` | `false`

Whether sandbox creation is successful, returned as a logical value.

Examples

Create Sandbox for Testing Code

This example assumes you have existing C code files to test.

1. Create an `sltest.CodeImporter` object and specify `myCodeTest` as the Simulink library file name.

   ```
   codeimport_obj = sltest.CodeImporter("myCodeTest");
   ```

2. Assign the source files to the `SourceFiles` property.

   ```
   codeimport_obj.CustomCode.SourceFiles = {"myCode1.c","myCode2.c"};
   ```

3. Create the sandbox. To check that the sandbox exists, confirm that `success` is `true`.

   ```
   success = codeimport_obj.createSandbox
   ```

See Also

`sltest.CodeImporter` | `sltest.CodeImporter.SandboxSettings`

Topics

“Conduct Unit Testing on Imported Custom Code by Using the Wizard”
“Import Custom Code for Unit Testing Using API Commands”

Introduced in R2021a

Blocks

Observer Port

Wirelessly link signals to use with verification
Library: Simulink Test

Description

Include the Observer Port block within an Observer model to map signals from a system model to an Observer model. The Observer Port block can only be used within a model that is linked to an Observer Reference block.

Ports

Output

`Port_1` — Mapped signal

scalar | vector

Mapped signal that flows through the Observer Port into the Observer model.

Data Types: `double` | `single` | `Boolean` | `base integer` | `fixed point` | `enumerated` | `non-virtual bus`

Extended Capabilities

C/C++ Code Generation

Generate C and C++ code using Simulink® Coder™.

See Also

Topics

“Access Model Data Wirelessly by Using Observers”
Observer Reference

Introduced in R2019a

Observer Reference

Create and contain an Observer model
Library: Simulink Test

Description

An Observer Reference block, which you add to the top level of your main Simulink model, references a separate model called the Observer model. The Observer model and Observer Reference block enable wireless monitoring of the signals in the main model. The Observer model can contain blocks such as scopes or a verification subsystem to monitor or verify the observed signals, respectively. For an example of using Observers, see “Access Model Data Wirelessly by Using Observers”.

Ports

The Observer Reference block does not have inports or outports. Signals are mapped to the Observer Model through the Observer Port block.

Parameters

`Observer Model name` — File name of Observer model

`''` (default) | character vector

Path to the Observer model. The file name must be a valid MATLAB identifier. The extension, for example, `.slx`, is optional. You enter the Observer model name in the Observer Reference block parameters dialog box, which you access by right-clicking on the block and selecting **Block Parameters**. You can also open the model you specify from the dialog box.

Programmatic Use

Parameter: `ObserverModelName`
Type: character vector
Value: `''` | `'<observer model name>'`
Default: `''`

Extended Capabilities

C/C++ Code Generation

Generate C and C++ code using Simulink® Coder™.

See Also

Topics

“Access Model Data Wirelessly by Using Observers”
Observer Port

Introduced in R2019a

Test Assessment

Assess simulation testing scenarios, function calls, and assessments
Library: Simulink Test

Description

Define test assessments in a tabular series of steps. Like the Test Sequence block, the Test Assessment block uses MATLAB as the action language.

Double-click the Test Assessment block to open the Test Sequence Editor. By default, the Test Assessment block contains a test step Run, configured as a When decomposition sequence. To change the transition type to a standard transition, right-click the top-level step and clear **When decomposition**. For more information, see “Test Sequence Editor”.

Ports

Ports correspond to inputs and outputs defined in the Test Sequence Editor **Symbols** pane.

Parameters

For a description of block parameters, see Subsystem, Atomic Subsystem, CodeReuse Subsystem.

Extended Capabilities

C/C++ Code Generation

Generate C and C++ code using Simulink® Coder™.

See Also

“Test Sequence Editor” | “Test Sequence and Assessment Syntax”

Topics

“Assess Model Simulation Using verify Statements”
“Transitions, Temporal Operators, and Messages in Test Sequence Blocks”
“Generate Test Signals”

Introduced in R2016a

Test Sequence

Create simulation testing scenarios, function calls, and assessments
Library: Simulink Test

Description

Define a test sequence using a tabular series of steps. Like the Test Assessment block, the Test Sequence block uses MATLAB as the action language.

Ports

Ports correspond to inputs and outputs defined in the Test Sequence Editor **Symbols** pane.

Parameters

For a description of block parameters, see Subsystem, Atomic Subsystem, CodeReuse Subsystem.

Extended Capabilities

C/C++ Code Generation

Generate C and C++ code using Simulink® Coder™.

See Also

“Test Sequence Editor” | “Test Sequence and Assessment Syntax”

Topics

“Assess Model Simulation Using verify Statements”
“Transitions, Temporal Operators, and Messages in Test Sequence Blocks”
“Generate Test Signals”

Introduced in R2015a

Sequence Viewer

Display messages, events, states, transitions, and functions between blocks during simulation

Library: Simulink / Messages & Events
Simulink Test
SimEvents
Stateflow

Description

The Sequence Viewer block displays messages, events, states, transitions, and functions between certain blocks during simulation. The blocks that you can display are called lifeline blocks and include:

- Subsystems
- Referenced models
- Blocks that contain messages, such as Stateflow charts
- Blocks that call functions or generate events, such as Function Caller, Function-Call Generator, and MATLAB Function blocks
- Blocks that contain functions, such as Function-Call Subsystem and Simulink Function blocks

To see states, transitions, and events for lifeline blocks in a referenced model, you must have a Sequence Viewer block in the referenced model. Without a Sequence Viewer block in the referenced model, you can see only messages and functions for lifeline blocks in the referenced model.

Note The Sequence Viewer block does not display function calls generated by MATLAB Function blocks and S-functions.

Parameters

`Time Precision for Variable Step` — Digits for time increment precision

3 (default) | scalar

Number of digits for time increment precision. When using a variable step solver, change this parameter to adjust the time precision for the sequence viewer. By default the block supports `3` digits of precision.

Suppose the block displays two events that occur at times `0.1215` and `0.1219`. Displaying these two events precisely requires `4` digits of precision. If the precision is `3`, then the block displays two events at time `0.121`.

Programmatic Use

Block Parameter: `VariableStepTimePrecision`
Type: character vector

Values: `'3'` | scalar
Default: `'3'`

`History` — Maximum number of previous events to display

`5000` (default) | scalar

Total number of events before the last event to display.

For example, if **History** is `5` and there are `10` events in your simulation, then the block displays `6` events, including the last event and the five events prior the last event. Earlier events are not displayed. The time ruler is greyed to indicate the time between the beginning of the simulation and the time of the first displayed event.

Each send, receive, drop, or function call event is counted as one event, even if they occur at the same simulation time.

Programmatic Use

Block Parameter: `History`
Type: character vector
Values: `'1000'` | scalar
Default: `'1000'`

Block Characteristics

Data Types	`Boolean` | `bus` | `double` | `enumerated` | `fixed point` | `integer` | `single`
Direct Feedthrough	`no`
Multidimensional Signals	`yes`
Variable-Size Signals	`no`
Zero-Crossing Detection	`no`

Extended Capabilities

C/C++ Code Generation

Generate C and C++ code using Simulink® Coder™.

This block can be used for visualizing message transitions during simulation, but is not included in the generated code.

HDL Code Generation

Generate Verilog and VHDL code for FPGA and ASIC designs using HDL Coder™.

This block displays messages during simulation when used in subsystems that generate HDL code, but it is not included in the hardware implementation.

See Also

“Use the Sequence Viewer to Visualize Messages, Events, and Entities” (SimEvents)

Introduced in R2015b

Language Operators

after

Elapsed time since beginning of test step

Syntax

```
after(n,timeunits)
```

Description

`after(n,timeunits)` returns true if the amount of time (`n`) in `timeunits` has elapsed since the beginning of the current test step. You must include the `timeunits`.

Valid time units are:

- sec — seconds
- msec — milliseconds
- usec — microseconds

Examples

Specify Time Elapsed After Specified Time

Specify 20 seconds as the time that has elapsed since the beginning of the test step. This statement returns `true` only after 20 seconds has passed.

```
after(20,sec)
```

Tips

`after` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

t | et | before | duration

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

assert

Evaluate logical expression and stop simulation if false

Syntax

```
assert(expression)
assert(expression,errmsg)
```

Description

`assert(expression)` evaluates a logical `expression`. Logical expressions evaluate to `true` or `false`. If the `assert` statement evaluates to `false`, simulation stops and returns an error.

`assert(expression,errmsg)` returns the specified error message string (`errmsg`) for the failed `assert` statement. If you run the test in the Test Manager, the error message appears in the simulation log. If you run the test outside the Test Manager, the message appears in the Diagnostic Viewer.

Examples

Evaluate a Logical Expression

If either `h` or `k` are not 0, this `assert` statement fails and simulation stops.

```
assert(h==0 && k==0)
```

Tips

- `assert` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts. `assert` in Model blocks works in Normal mode, but not in Rapid Accelerator mode simulations.
- When comparing floating-point data in `assert` statements, consider the precision limitations associated with floating-point numbers. If you need to use floating-point data, define a tolerance for the assessment. See “Floating-Point Numbers”. For example, instead of `assert(x == 5)`, assert `x` within a tolerance of 0.001:

  ```
  assert(abs(x-5) < 0.001)
  ```

See Also

verify

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

before

Elapsed time until specified time in test step

Syntax

```
before(n,timeunits)
```

Description

`before(n,timeunits)` returns true until the amount of time (`n`) in `timeunits` has elapsed since the beginning of the current test step. You must include the `timeunits`.

Valid time units are:

- sec — seconds
- msec — milliseconds
- usec — microseconds

Examples

Specify Time Elapsed Until Specified Time

Specify 20 seconds as the time that has elapsed since the beginning of the test step. This statement returns `true` until 20 seconds has passed.

```
before(20,sec)
```

Tips

`before` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

t | et | after | duration

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

duration

Elapsed time since beginning of test step

Syntax

```
elapsed_time = duration(condition)
elapsed_time = duration(condition,timeunits)
```

Description

`elapsed_time = duration(condition)` returns the elapsed time in seconds for which the condition has been `true`. The condition is a logical expression. The `elapsed_time` is reset when the test step is re-entered or when the condition is no longer `true`.

`elapsed_time = duration(condition,timeunits)` returns the elapsed time in `timeunits`.

Valid time units are:

- sec — seconds
- msec — milliseconds
- usec — microseconds

Examples

Specify Time Elapsed For a Duration

Specify the duration after 100 msec from the time when `x` greater than 50 last became true.

```
duration(x > 50,msec) > 100
```

Tips

- `duration` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.
- In Stateflow charts, `duration` statements can be associated only with a single state. You cannot use a `duration` on a transition that has more than one source state connected using a junction.

See Also

t | et | after | before

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

et

Elapsed time of test step

Syntax

```
et(timeunits)
```

Description

`et(timeunits)` returns the elapsed time of the test sequence step in `timeunits`. If you omit `timeunits`, the elapsed time defaults to seconds. `et` is an alias for `elapsed` and both are valid.

Valid time units are:

- sec — seconds
- msec — milliseconds
- usec — microseconds

Examples

Specify Elapsed Step Time in Milliseconds

```
et(msec)
```

Tips

`et` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

t | after | before | duration

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2017a

hasChanged

Detect data change in test step

Syntax

```
hasChanged(u)
```

Description

`hasChanged(u)` returns `true` if the value of `u` changes since the beginning of the test step. Otherwise, `hasChanged` returns `false`.

Examples

Detect Value Change

Detect if `x` has changed value. This statement returns `true` if `x` has changed.

```
hasChanged(x)
```

Detect Value Change in a Bus

For a bus with two signals, `signal_1` and `signal_2`, and `data` as the name of the input to the test sequence, detect when the value of `signal_2` has changed.

```
hasChanged(data.signal2)
```

Tips

`hasChanged` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

hasChangedFrom | hasChangedTo

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

hasChangedFrom

Detect data change from specified value in test step

Syntax

```
hasChangedFrom(u,A)
```

Description

`hasChangedFrom(u,A)` returns `true` if the value of `u` changes from the value `A`. Otherwise, `hasChangedFrom` returns `false`.

Examples

Detect Value Change From Specified Value

Detect if `x` has changed from a value of 15. This statement returns `true` when `x` had a value of 15 in the previous time step and has a value not equal to 15 in the current time step.

```
hasChangedFrom(x,15)
```

Tips

`hasChangedFrom` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

hasChanged | hasChangedTo

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

hasChangedTo

Detect data change to specified value in test step

Syntax

```
hasChangedTo(u,B)
```

Description

`hasChangedTo(u,B)` returns `true` if the value of `u` changes to the value `B`. Otherwise, `hasChangedTo` returns `false`.

Examples

Detect Value Change To Specified Value

Detect if `x` has changed to a value of 10. This statement returns `true` when `x` did not have value of 10 in the previous time step and has a value of 10 in the current time step.

```
hasChangedTo(x,10)
```

Tips

`hasChangedTo` statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

hasChanged | hasChangedFrom

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

heaviside

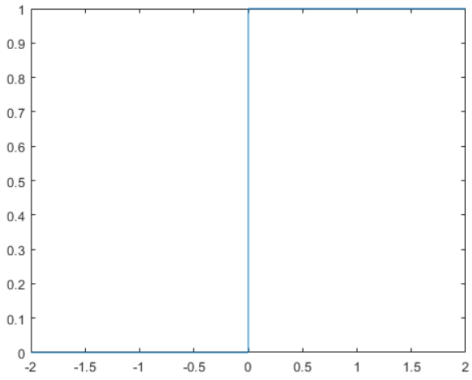
Heaviside step test signal

Syntax

```
heaviside(x)
```

Description

`heaviside(x)` creates a Heaviside step signal. Heaviside signals are also called unit step signals and are discontinuous functions. They return 0 for x < 0 and 1 for x > 0.



To specify when to generate a Heaviside step signal within a test step, use this operator with the elapsed time (`et`) operator.

Examples

Create a Heaviside Signal

Create a Heaviside step signal after 10 seconds.

```
heaviside(et-10)
```

Tips

- `heaviside` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `heaviside` signal generation statements cannot be used in Stateflow charts.

See Also

ramp | sawtooth | square | triangle

Topics

“Test Sequence and Assessment Syntax”

“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

latch

Save value of an expression

Syntax

```
latch(x)
```

Description

`latch(x)` saves the value of `x` when the test step is entered and returns that value of `x`. The `latch(x)` statement reevaluates the next time the step is entered.

Examples

Use latch to Save a Value

Save the value of the torque in the variable `latch_val`.

```
latch_val = latch(torque)
```

Tips

- `latch` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `latch` signal generation statements cannot be used in Stateflow charts.

See Also

Topics
“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”

Introduced in R2015a

ramp

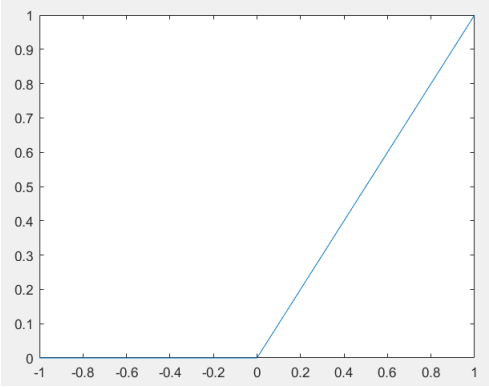
Ramp signal for test signal generation

Syntax

`ramp(x)`

Description

`ramp(x)` creates a ramp signal wave with a slope of 1 and returns the value of the ramp at time `x`.



To specify when to generate a ramp signal within a test step, use this operator with the elapsed time (`et`) operator.

Note `ramp(et)` returns the elapsed time of the test step and is the same as `et`.

Examples

Create a Ramp Signal

Create a ramp signal that increases one unit every 3 seconds in the test step.

```
ramp(et/3)
```

Tips

- `ramp` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `ramp` signal generation statements cannot be used in Stateflow charts.

See Also

heaviside | sawtooth | square | triangle

Topics

“Test Sequence and Assessment Syntax”

“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

sawtooth

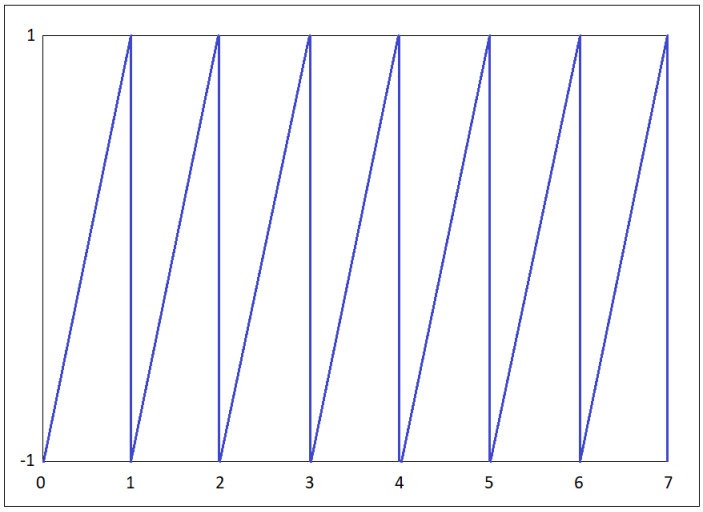
Sawtooth wave test signal

Syntax

```
sawtooth(x)
```

Description

`sawtooth(x)` creates a sawtooth wave with a period of 1 and range -1 to 1. In the interval 0 <= x < 1, square(x) increases. The difference between triangle waves and sawtooth waves is that a triangle wave has equal rise and fall times.



To specify the number of sawtooth wave cycles within a test step, use this operator with the elapsed time (`et`) operator.

Examples

Create a Sawtooth Wave

Create a sawtooth wave with a period of 10.

```
sawtooth(et/10)
```

Tips

- `sawtooth` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `sawtooth` signal generation statements cannot be used in Stateflow charts.

See Also

heaviside | ramp | square | triangle

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

square

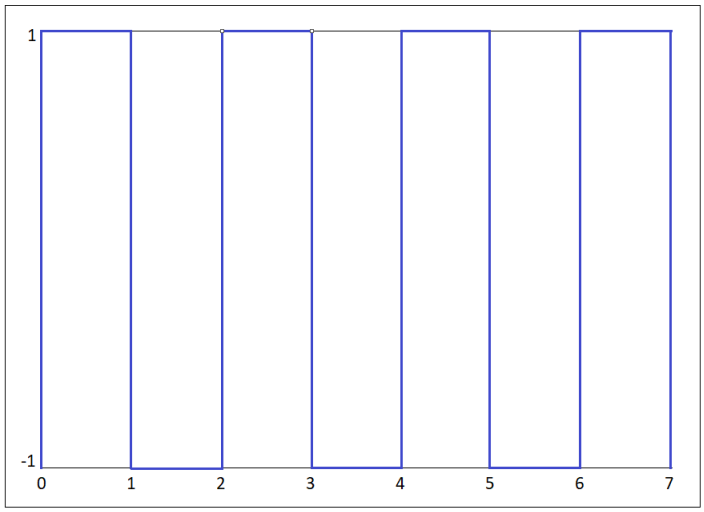
Square wave test signal

Syntax

```
square(x)
```

Description

`square(x)` creates a square wave with a period of 1 and range -1 to 1. In the interval 0 <= x < 1, `square(x)` returns 1 for 0 <= x < 0.5 and -1 for 0.5 <= x < 1.



To specify the number of square wave cycles within a test step, use this operator with the elapsed time (`et`) operator.

Examples

Create a Square Wave

Create a square wave with a period of 10.

```
square(et/10)
```

Tips

- `square` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `square` signal generation statements cannot be used in Stateflow charts.

See Also

heaviside | ramp | sawtooth | triangle

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

t

Elapsed time of simulation

Syntax

```
t(timeunits)
```

Description

`t(timeunits)` returns the simulation time in `timeunits`. If you omit `timeunits`, the elapsed time defaults to seconds. `t` is an alias for `getSimulationTime` and both are valid.

Valid time units are:

- sec — seconds
- msec — milliseconds
- usec — microseconds

Examples

Obtain Simulation Time in Milliseconds

```
t(msec)
```

Tips

Elapsed simulation time (`t`) statements can be used in the Test Sequence and Test Assessment blocks and in Stateflow charts.

See Also

et | before | after | duration

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

triangle

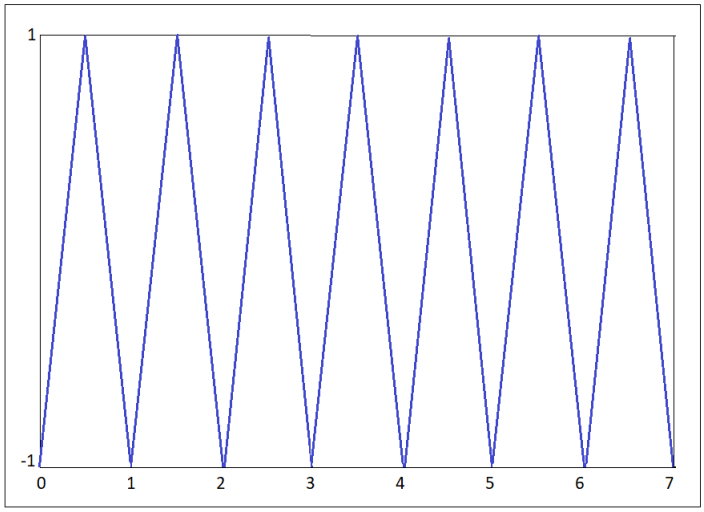
Triangle wave test signal

Syntax

```
triangle(x)
```

Description

`triangle(x)` creates a triangle wave with a period of 1 and range -1 to 1. In the interval 0 <= x < 0.5, `triangle(x)` increases. The difference between triangle waves and sawtooth waves is that a triangle wave has equal rise and fall times.



To specify the number of triangle wave cycles within a test step, use this operator with the elapsed time (`et`) operator.

Examples

Create a Triangle Wave

Create a triangle wave with a period of 10.

```
triangle(et/10)
```

Tips

- `triangle` signal generation statements can be used in the Test Sequence and Test Assessment blocks.
- `triangle` signal generation statements cannot be used in Stateflow charts.

See Also

heaviside | ramp | sawtooth | square

Topics

“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2015a

verify

Assess logical expression and automatically log result

Syntax

```
verify(expression)
verify(expression,errorMessage)
verify(expression,identifier,errorMessage)
```

Description

`verify(expression)` evaluates a scalar logical `expression` to `true` or `false`.

`verify(expression,errorMessage)` returns the specified error message for the failed `verify` statement. If you run the test in the Test Manager, the error message appears in the simulation log. If you run the test outside the Test Manager, the message appears in the Diagnostic Viewer. To format the error message, you can use any `sprintf` format, except strings and chars in Stateflow charts.

`verify(expression,identifier,errorMessage)` uses the `identifier` as a label for the test results. The `identifier` is used as the signal label in the Test Manager. If you run the test outside the Test Manager, the label appears in the Simulation Data Inspector or, for a failure, in the Diagnostic Viewer. The identifier is a string that has at least two colon-separated MATLAB identifiers.

Examples

Verify a Logical Expression

```
verify(x > y && z > 10)
```

Specify Error Message Text for `verify` Result

If this `verify` statement fails, it returns an error message that lists the values of `x`, `y`, and `z`.

```
verify(x > y && z > 10,'x, y, and z are %d,%d,%d',x,y,z)
```

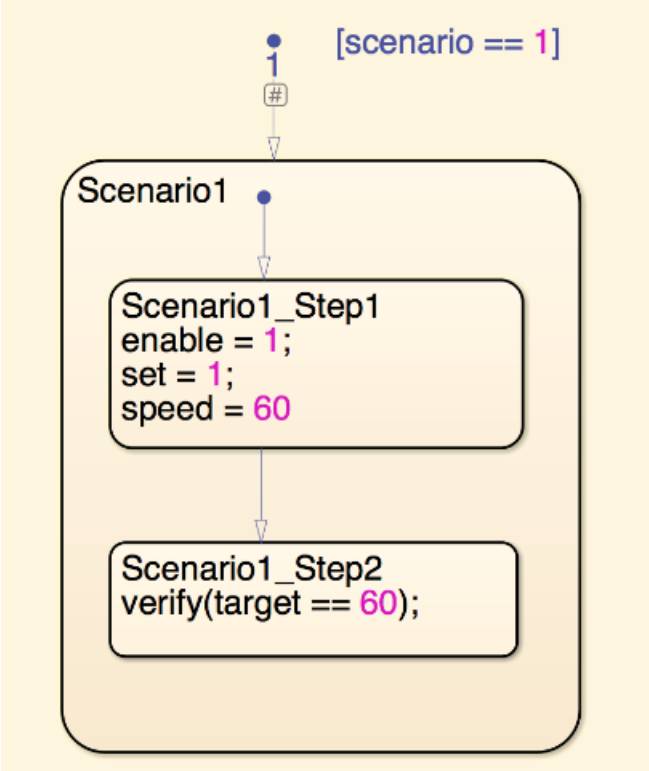
Specify a Label for `verify` Result

The result of this `verify` statement is prefaced by the label, `TestReq1:bothGreater` and, if the test fails, the error message.

```
verify(x > y && z > 10,'TestReq1:bothGreater',...
   'x, y, and z are %d,%d,%d',x,y,z)
```

Using verify in a Stateflow Chart

The second step in the Scenario1 state of this Stateflow chart verifies that the target equals 60.



Tips

- You can use `verify` statements in Test Sequence and Test Assessment blocks and in Stateflow charts. A Stateflow license is required to use a chart. `verify` statements in charts are supported in the same locations, execution modes, and for the same code generation targets as the Test Sequence block.
- You cannot use `verify` statements in:
  - Test Sequence blocks that use continuous-time updating. Test Sequence block data can depend on factors such as the solver step time. Continuous-time updating can cause differences in when block data and `verify` statements update, which can lead to unexpected `verify` statement results. If your model uses continuous time and you use `verify` statements in a Test Sequence or Test Assessment block, consider explicitly setting a discrete block sample time.
  - Moore, Mealy, Discrete Event, or continuous charts
  - Charts that use C as the action language
  - Bind actions in a chart
  - Transition or condition actions in a chart
  - MATLAB functions, graphical functions, or truth tables in a chart
  - MATLAB Function or Truth Table blocks
  - Rapid Accelerator mode simulations

  - Code generation targets other than Simulink Real-Time and HDL Verifier™
  - Standalone Stateflow charts
- If you use parallel test execution to run your tests, then you cannot use the **Highlight in Model** button for in the Test Manager to `verify` results.
- You cannot use `verify` as a condition immediately after `when` in a When decomposition because `verify` statements do not produce output. You can, however, use `verify` statements as actions in When decomposition steps. See “Assess a Model by Using When Decomposition”.
- When comparing floating-point data in `verify` statements, consider the precision limitations associated with floating-point numbers. If you need to use floating-point data, define a tolerance for the verification. For example, instead of `verify(x == 5)`, verify `x` within a tolerance of 0.001:

  ```
  verify(abs(x-5) < 0.001)
  ```

  For more information, see “Floating-Point Numbers”.

See Also

assert

Topics

“Assess Model Simulation Using verify Statements”
“Verify Multiple Conditions at a Time”
“Test Sequence and Assessment Syntax”
“Test Sequence Basics”
“Programmatically Create a Test Sequence”
“Generate Test Signals”

Introduced in R2016a