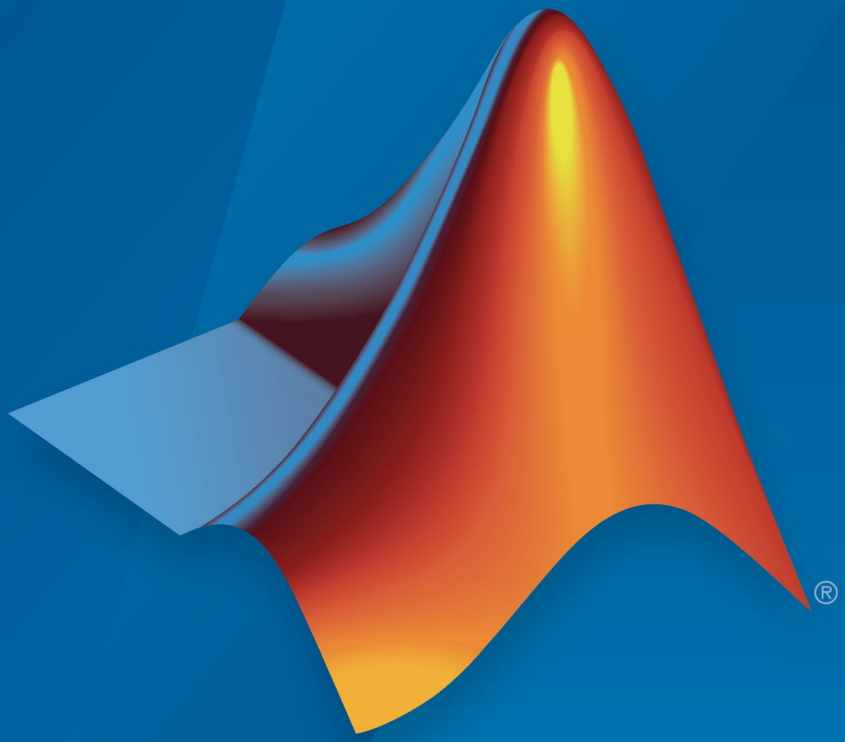
Simulink® Requirements™

Reference



MATLAB® & SIMULINK®

R2017b

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.
3 Apple Hill Drive
Natick, MA 01760-2098

Simulink® Requirements™ Reference

Revision History

September 2017 Online only New for Version 1.0 (Release 2017b)

Contents

Functions — Alphabetical List

rmi

Interact programmatically with Requirements Management Interface

Syntax

```
reqlinks = rmi('createEmpty')
reqlinks = rmi('get', model)
reqlinks = rmi('get', sig_builder, group_idx)
rmi('set', model, reqlinks)
rmi('set', sig_builder, reqlinks, group_idx)
rmi('cat', model, reqlinks)
cnt = rmi('count', object)
rmi('clearAll', object)
rmi('clearAll', object, 'deep')
rmi('clearAll', object, 'noprompt')
rmi('clearAll', object, 'deep', 'noprompt')

cmdStr = rmi('navCmd', object)
[cmdStr, titleStr] = rmi('navCmd', object)
object = rmi('guidlookup', model, guidStr)
rmi('highlightModel', object)
rmi('unhighlightModel', object)
rmi('view', object, index)
dialog = rmi('edit', object)
guidStr = rmi('guidget', object)

rmi('report', model)
rmi('report', matlabFilePath)
rmi('report', dictionaryFile)
rmi('projectreport')

rmi setup
rmi register linktypename
rmi unregister linktypename
rmi linktypelist

number_problems = rmi('checkdoc')
```

```
number_problems = rmi('checkdoc', docName)
rmi('check', matlabFilePath)
rmi('check', dictionaryFile)

rmi('doorssync', model)

rmi('setDoorsLabelTemplate', template)
template = rmi('getDoorsLabelTemplate')
label = rmi('doorsLabel', moduleID, objectID)
totalModifiedLinks = rmi('updateDoorsLabels', model)
```

Description

`reqlinks = rmi('createEmpty')` creates an empty instance of the requirement links data structure.

`reqlinks = rmi('get', model)` returns the requirement links data structure for `model`.

`reqlinks = rmi('get', sig_builder, group_idx)` returns the requirement links data structure for the Signal Builder group specified by the index `group_idx`.

`rmi('set', model, reqlinks)` sets `reqlinks` as the requirements links for `model`.

`rmi('set', sig_builder, reqlinks, group_idx)` sets `reqlinks` as the requirements links for the signal group `group_idx` in the Signal Builder block `sig_builder`.

`rmi('cat', model, reqlinks)` adds the requirements links in `reqlinks` to existing requirements links for `model`.

`cnt = rmi('count', object)` returns the number of requirements links for `object`.

`rmi('clearAll', object)` deletes all requirements links for `object`.

`rmi('clearAll', object, 'deep')` deletes all requirements links in the model containing `object`.

`rmi('clearAll', object, 'noprompt')` deletes all requirements links for `object` and does not prompt for confirmation.

`rmi('clearAll', object, 'deep', 'noprompt')` deletes all requirements links in the model containing `object` and does not prompt for confirmation.

`cmdStr = rmi('navCmd', object)` returns the MATLAB® command `cmdStr` used to navigate to `object`.

`[cmdStr, titleStr] = rmi('navCmd', object)` returns the MATLAB command `cmdStr` and the title `titleStr` that provides descriptive text for `object`.

`object = rmi('guidlookup', model, guidStr)` returns the object name in `model` that has the globally unique identifier `guidStr`.

`rmi('highlightModel', object)` highlights all of the objects in the parent model of `object` that have requirement links.

`rmi('unhighlightModel', object)` removes highlighting of objects in the parent model of `object` that have requirement links.

`rmi('view', object, index)` accesses the requirement numbered `index` in the requirements document associated with `object`.

`dialog = rmi('edit', object)` displays the Requirements dialog box for `object` and returns the handle of the dialog box.

`guidStr = rmi('guidget', object)` returns the globally unique identifier for `object`. A globally unique identifier is created for `object` if it lacks one.

`rmi('report', model)` generates a Requirements Traceability report in HTML format for `model`.

`rmi('report', matlabFilePath)` generates a Requirements Traceability report in HTML format for the MATLAB code file specified by `matlabFilePath`.

`rmi('report', dictionaryFile)` generates a Requirements Traceability report in HTML format for the Simulink® data dictionary specified by `dictionaryFile`.

`rmi('projectreport')` generates a Requirements Traceability report in HTML format for the current Simulink Project. The master page of this report has HTTP links to reports for each project item that has requirements traceability associations. For more information, see “Create Requirements Traceability Report for Simulink Project”.

`rmi setup` configures RMI for use with your MATLAB software and installs the interface for use with the IBM® Rational® DOORS® software.

`rmi register linktypename` registers the custom link type specified by the function `linktypename`. For more information, see “Custom Link Type Registration”.

`rmi unregister linktypename` removes the custom link type specified by the function `linktypename`. For more information, see “Custom Link Type Registration”.

`rmi linktypelist` displays a list of the currently registered link types. The list indicates whether each link type is built-in or custom, and provides the path to the function used for its registration.

`number_problems = rmi('checkdoc')` checks validity of links to Simulink from a requirements document in Microsoft® Word, Microsoft Excel®, or IBM Rational DOORS. It prompts for the requirements document name, returns the total number of problems detected, and opens an HTML report in the MATLAB Web browser. For more information, see “Validate Requirements Links in a Requirements Document”.

`number_problems = rmi('checkdoc', docName)` checks validity of links to Simulink from the requirements document specified by `docName`. It returns the total number of problems detected and opens an HTML report in the MATLAB Web browser. For more information, see “Validate Requirements Links in a Requirements Document”.

`rmi('check', matlabFilePath)` checks consistency of traceability links associated with MATLAB code lines in the `.m` file `matlabFilePath`, and opens an HTML report in the MATLAB Web browser.

`rmi('check', dictionaryFile)` checks consistency of traceability links associated with the Simulink data dictionary `dictionaryFile`, and opens an HTML report in the MATLAB Web browser.

`rmi('doorssync', model)` opens the DOORS synchronization settings dialog box, where you can customize the synchronization settings and synchronize your model with an open project in an IBM Rational DOORS database.

`rmi('setDoorsLabelTemplate', template)` specifies a new custom template for labels of requirements links to IBM Rational DOORS. The default label template contains the section number and object heading for the DOORS requirement link target. To revert the link label template back to the default, enter `rmi('setDoorsLabelTemplate', '')` at the MATLAB command prompt.

`template = rmi('getDoorsLabelTemplate')` returns the currently specified custom template for labels of requirements links to IBM Rational DOORS.

`label = rmi('doorsLabel', moduleID, objectID)` generates a label for the requirements link to the IBM Rational DOORS object specified by `objectID` in the DOORS module specified by `moduleID`, according to the current template.

`totalModifiedLinks = rmi('updateDoorsLabels', model)` updates all IBM Rational DOORS requirements links labels in `model` according to the current template.

Examples

Requirements Links Management in Example Model

Get a requirement associated with a block in the `slvnvdemo_fuelsys_htmreq` model, change its description, and save the requirement back to that block. Define a new requirement link and add it to the existing requirements links in the block.

Get requirement link associated with the Airflow calculation block in the `slvnvdemo_fuelsys_htmreq` example model.

```
slvnvdemo_fuelsys_htmreq;
blk_with_req =  ['slvnvdemo_fuelsys_htmreq/fuel rate' 10 'controller/...
   Airflow calculation'];
reqts = rmi('get', blk_with_req);
```

Change the description of the requirement link.

```
reqts.description = 'Mass airflow estimation';
```

Save the changed requirement link description for the Airflow calculation block.

```
rmi('set', blk_with_req, reqts);
```

Create new requirement link to example document `fuelsys_requirements2.htm`.

```
new_req = rmi('createempty');
new_req.doc = 'fuelsys_requirements2.htm';
new_req.description = 'A new requirement';
```

Add new requirement link to existing requirements links for the Airflow calculation block.

```
rmi('cat', blk_with_req, new_req);
```

Requirements Traceability Report for Example Model

Create HTML report of requirements traceability data in example model.

Create an HTML requirements report for the `slvnvdemo_fuelsys_htmreq` example model.

```
rmi('report', 'slvnvdemo_fuelsys_htmreq');
```

The MATLAB Web browser opens, showing the report.

Labels for Requirements Links to IBM Rational DOORS

Specify a new label template for links to requirements in DOORS, and update labels of all DOORS requirements links in your model to fit the new template.

Specify a new label template for requirements links to IBM Rational DOORS so that new links to DOORS objects are labeled with the corresponding module ID, object absolute number, and the value of the 'Backup' attribute.

```
rmi('setDoorsLabelTemplate', '%m:%n [backup=%<Backup>]');
```

Specify a new label template for requirements links to IBM Rational DOORS and set the maximum label length to (for example) 200 characters.

```
rmi('setDoorsLabelTemplate', '%h %200');
```

Update existing DOORS requirements link labels to match the new specified template in your model `example_model`. When updating labels, DOORS must be running and all linked modules must be accessible for reading.

```
rmi('updateDoorsLabels', example_model);
```

Input Arguments

`model` — Simulink or Stateflow® model with which requirements can be associated

name | handle

Simulink or Stateflow model with which requirements can be associated, specified as a character vector or handle.

Example: `'slvnvdemo_officereq'`

Data Types: `char`

`object` — Model object with which requirements can be associated

name | handle

Model object with which requirements can be associated, specified as a character vector or handle.

Example: `'slvnvdemo_fuelsys_htmreq/fuel rate controller/Airflow calculation'`

Data Types: `char`

`sig_builder` — Signal Builder block containing signal group with requirements traceability associations

name | handle

Signal Builder block containing signal group with requirements traceability associations, specified as a character vector or handle.

Data Types: `char`

`group_idx` — Signal Builder group index

integer

Signal Builder group index, specified as a scalar.

Example: 2

Data Types: `char`

`matlabFilePath` — MATLAB code file with requirements traceability associations
path

MATLAB code file with requirements traceability associations, specified as the path to the file.

Example:

Data Types: `char`

`dictionaryFile` — Simulink data dictionary with requirements traceability associations
character vector

Simulink data dictionary with requirements traceability associations, specified as a character vector containing the file name and, optionally, path of the dictionary.

Example:

Data Types: `char`

`guidStr` — Globally unique identifier for model object
character vector

Globally unique identifier for model object `object`, specified as a character vector.

Example: `GIDa_59e165f5_19fe_41f7_abc1_39c010e46167`

Data Types: `char`

`index` — Index number of requirement linked to model object
integer

Index number of requirement linked to model object, specified as an integer.

`docName` — Requirements document in external application
file name | path

Requirements document in external application, specified as a character vector that represents one of the following:

- IBM Rational DOORS module ID.
- path to Microsoft Word requirements document.
- path to Microsoft Excel requirements document.

For more information, see “Validate Requirements Links in a Requirements Document”.

`label` — Label for links to requirements in IBM Rational DOORS
character vector

Example:

Data Types: `char`

`template` — Template label for links to requirements in IBM Rational DOORS
character vector

Template label for links to requirements in IBM Rational DOORS, specified as a character vector.

You can use the following format specifiers to include the associated DOORS information in your requirements links labels:

`%h`	Object heading
`%t`	Object text
`%p`	Module prefix
`%n`	Object absolute number
`%m`	Module ID
`%P`	Project name
`%M`	Module name
`%U`	DOORS URL
`%<ATTRIBUTE_NAME>`	Other DOORS attribute you specify

Example: `'%m:%n [backup=%<Backup>]'`

Data Types: `char`

`moduleID` — IBM Rational DOORS module
DOORS module ID

IBM Rational DOORS module, specified as the unique DOORS module ID.

Example:

Data Types: `char`

`objectID` — IBM Rational DOORS object
DOORS object ID

IBM Rational DOORS object in the DOORS module `moduleID`, specified as the locally unique DOORS ID.

Example:

Data Types: `char`

Output Arguments

`reqlinks` — Requirement links data
`struct`

Requirement links data, returned as a structure array with the following fields:

`doc` Character vector identifying requirements document

`id` Character vector defining location in requirements document. The first character specifies the identifier type:

First Character	Identifier	Example
`?`	Search text, the first occurrence of which is located in requirements document	`'?Requirement 1'`
`@`	Named item, such as bookmark in a Microsoft Word file or an anchor in an HTML file	`'@my_req'`
`#`	Page or item number	`'#21'`
`>`	Line number	`'>3156'`
`$`	Worksheet range in a spreadsheet	`'$A2:C5'`

`linked`	Boolean value specifying whether the requirement link is accessible for report generation and highlighting: `1` (default). Highlight model object and include requirement link in reports. `0`
`description`	Character vector describing the requirement
`keywords`	Optional character vector supplementing `description`
`reqsys`	Character vector identifying the link type registration name; `'other'` for built-in link types

`cmdStr` — Command used to navigate to model object
character vector

Command used to navigate to model object `object`, returned as a character vector.

Example: `rmiobjnavigate('slvnvdemo_fuelsys_officereq.slx', 'GIDa_59e165f5_19fe_41f7_abc1_39c010e46167');`

`titleStr` — Textual description of model object with requirements links
character vector

Textual description of model object with requirements links, returned as a character vector.

Example: `slvnvdemo_fuelsys_officereq/.../Airflow calculation/Pumping Constant (Lookup2D)`

`guidStr` — Globally unique identifier for model object
character vector

Globally unique identifier for model object `object`, returned as a character vector.

Example: `GIDa_59e165f5_19fe_41f7_abc1_39c010e46167`

`dialog` — Requirements dialog box for model object
handle

Requirements dialog box for model object `object`, returned as a handle to the dialog box.

`number_problems` — Total count of invalid links detected in external document
integer

Total count of invalid links detected in external document `docName`.

For more information, see “Validate Requirements Links in a Requirements Document”.

`totalModifiedLinks` — Total count of DOORS requirements links updated with new label template
integer

Total count of DOORS requirements links updated with new label template.

See Also

`rmipref` | `rmiobjnavigate` | `rmidocrename` | `rmitag` | `rmimap.map` | `RptgenRMI.doorsAttribs`

Topics

“Requirements Management Interface Setup”
“Maintenance of Requirements Links”

Introduced in R2006b

rmidata.export

Move requirements traceability data to external `.req` file

Syntax

```
[total_linked,total_links] = rmidata.export
[total_linked,total_links] = rmidata.export(model)
```

Description

`[total_linked,total_links] = rmidata.export` moves requirements traceability data associated with the current Simulink model to an external file named *`model_name`*`.req`. `rmidata.export` saves the file in the same folder as the model. `rmidata.export` deletes the requirements traceability data stored in the model and saves the modified model.

`[total_linked,total_links] = rmidata.export(model)` moves requirements traceability data associated with `model` to an external file named *`model_name`*`.req`. `rmidata.export` saves the file in the same folder as `model`. `rmidata.export` deletes the requirements traceability data stored in the model and saves the modified model.

Input Arguments

`model`

Name or handle of a Simulink model

Output Arguments

`total_linked`

Integer indicating the number of objects in the model that have linked requirements

`total_links`

Integer indicating the total number of requirements links in the model

Examples

Move the requirements traceability data from the `slvnvdemo_fuelsys_officereq` model to an external file:

```
rmidata.export('slvnvdemo_fuelsys_officereq');
```

See Also

`rmi` | `rmidata.save` | `rmimap.map`

Topics

"Specify Storage for Requirements Links"
"Requirements Link Storage"

Introduced in R2011b

rmimap.map

Associate externally stored requirements traceability data with model

Syntax

```
rmimap.map(model,reqts_file)
rmimap.map(model,'undo')
rmimap.map(model,'clear')
```

Description

`rmimap.map(model,reqts_file)` associates the requirements traceability data from `reqts_file` with the Simulink model `model`.

`rmimap.map(model,'undo')` removes from the `.req` file associated with `model` the requirements traceability data that was most recently saved in the `.req` file.

`rmimap.map(model,'clear')` removes from the `.req` file associated with `model` all requirements traceability data.

Input Arguments

`model`

Name, handle, or full path for a Simulink model

`reqts_file`

Full path to the `.req` file that contains requirements traceability data for the model

Alternatives

To load a file that contains requirements traceability data for a model:

1. Open the model.
2. Select **Analysis** > **Requirements** > **Load Links**.

   Note The **Load Links** menu item appears only when your model is configured to store requirements data externally. To specify external storage of requirements data for your model, in the Requirements Settings dialog box under **Storage** > **Default storage location for requirements links data**, select **Store externally (in a separate *.req file)**.

3. Browse to the `.req` file that contains the requirements links.
4. Click **OK**.

Examples

Associate an external requirements traceability data file with a Simulink model. After associating the information with the model, view the objects with linked requirements by highlighting the model.

```
open_system('slvnvdemo_powerwindowController');
reqFile = fullfile(matlabroot, 'toolbox', 'slvnv', ...
    'rmidemos', 'powerwin_reqs', ...
    'slvnvdemo_powerwindowRequirements.req');
rmimap.map('slvnvdemo_powerwindowController', reqFile);
rmi('highlightModel', 'slvnvdemo_powerwindowController');
```

To clear the requirements you just associated with that model, run this `rmimap.map` command:

```
rmimap.map('slvnvdemo_powerwindowController','clear');
```

See Also

`rmi` | `rmidata.save` | `rmidata.export`

Topics

"Specify Storage for Requirements Links"
"Requirements Link Storage"

Introduced in R2015a

rmidata.save

Save requirements traceability data in external `.req` file

Syntax

```
rmidata.save(model)
```

Description

`rmidata.save(model)` saves requirements traceability data for a model in an external `.req` file. The model must be configured to store requirements traceability data externally. This function is equivalent to **Analysis** > **Requirements** > **Save Links** in the Simulink Editor.

Examples

Create New Requirement Link and Save Externally

Add a requirement link to an existing example model, and save the model requirements traceability data in an external file.

Open the example model, `slvnvdemo_powerwindowController`.

```
open_system('slvnvdemo_powerwindowController');
```

Specify that the model store requirements data externally.

```
rmipref('StoreDataExternally',1);
```

Create a new requirements link structure.

```
newReqLink = rmi('createEmpty');
newReqLink.description = 'newReqLink';
```

Specify the requirements document that you want to link to from the model. In this case, an example requirements document is provided.

```
newReqLink.doc = [matlabroot '\toolbox\slvnv\rmidemos\' ...
        'powerwin_reqs\PowerWindowSpecification.docx'];
```

Specify the text of the requirement within the document to which you want to link.

```
newReqLink.id = '?passenger input consists of a vector' ...
        'with three elements';
```

Specify that the new requirements link that you created be attached to the Mux4 block of the `slvnvdemo_powerwindowController` example model.

```
rmi('set', 'slvnvdemo_powerwindowController/Mux4', newReqLink);
```

Save the new requirement link that you just created in an external `.req` file associated with the model.

```
rmidata.save('slvnvdemo_powerwindowController');
```

This function is equivalent to the Simulink Editor option **Analysis** > **Requirements** > **Save Links**.

To highlight the Mux4 block, turn on requirements highlighting for the `slvnvdemo_powerwindowController` example model.

```
rmi('highlightModel', 'slvnvdemo_powerwindowController');
```

You can test your requirements link by right-clicking the Mux4 block. In the context menu, select **Requirements** > **1. “newReqLink”**.

Close the example model.

```
close_system('slvnvdemo_powerwindowController', 0);
```

You are not prompted to save unsaved changes because you saved the requirements link data outside the model file. The model file remains unchanged.

Input Arguments

`model` — Name or handle of model with requirements links

character vector | handle

Name of model with requirements links, specified as a character vector, or handle to model with requirements links. The model must be loaded into memory and configured to store requirements traceability data externally.

If you have a new model with no existing requirements links, configure it for external storage as described in "Specify Storage for Requirements Links". You can also use the `rmipref` command to specify storage settings.

If you have an existing model with internally stored requirements traceability data, convert that data to external storage as described in "Move Internally Stored Requirements Links to External Storage". You can also use the `rmidata.export` command to convert existing requirements traceability data to external storage.

Example: `'slvnvdemo_powerwindowController'`

Example: `get_param(gcs,'Handle')`

See Also

`rmimap.map` | `rmidata.export`

Topics

"Requirements Link Storage"

Introduced in R2013b

rmidocrename

Update model requirements document paths and file names

Syntax

```
rmidocrename(model_handle, old_path, new_path)
rmidocrename(model_name, old_path, new_path)
```

Description

`rmidocrename(model_handle, old_path, new_path)` collectively updates the links from a Simulink model to requirements files whose names or locations have changed. `model_handle` is a handle to the model that contains links to the files that you have moved or renamed. `old_path` is a character vector that contains the existing full or partial file or path name. `new_path` is a character vector with the new full or partial file or path name.

`rmidocrename(model_name, old_path, new_path)` updates the links to requirements files associated with `model_name`. You can pass `rmidocrename` a model handle or a model file name.

When using the `rmidocrename` function, make sure to enter specific character vectors for the old document name fragments so that you do not inadvertently modify other links.

Examples

For the current Simulink model, update all links to requirements files that contain the character vector `'project_0220'`, replacing them with `'project_0221'`:

```
rmidocrename(gcs, 'project_0220', 'project_0221')
Processed 6 objects with requirements, 5 out of 13 links were modified.
```

Alternatives

To update the requirements links one at a time, for each model object that has a link:

1. For each object with requirements, open the Requirements Traceability Link Editor by right-clicking and selecting **Requirements Traceability > Open Link Editor**.
2. Edit the **Document** field for each requirement that points to a moved or renamed document.
3. Click **Apply** to save the changes.

See Also

`rmi`

Introduced in R2009b

rmiobjnavigate

Navigate to model objects using unique Requirements Management Interface identifiers

Syntax

```
rmiobjnavigate(modelPath, guId)
rmiobjnavigate(modelPath, guId, grpNum)
```

Description

`rmiobjnavigate(modelPath, guId)` navigates to and highlights the specified object in a Simulink model.

`rmiobjnavigate(modelPath, guId, grpNum)` navigates to the signal group number `grpNum` of a Signal Builder block identified by `guId` in the model `modelPath`.

Input Arguments

`modelPath`

A full path to a Simulink model file, or a Simulink model file name that can be resolved on the MATLAB path.

`guId`

A unique identifier that the RMI uses to identify a Simulink or Stateflow object.

`grpNum`

Integer indicating a signal group number in a Signal Builder block

Examples

Open the `slvnvdemo_fuelsys_officereq` example model and get the unique identifier for the MAP Sensor block:

```
% Open example model
slvnvdemo_fuelsys_officereq;
% Get the Simulink Identifier of the MAP Sensor Block
targetSID = Simulink.ID.getSID('slvnvdemo_fuelsys_officereq/MAP sensor');
```

Navigate to the MAP Sensor block using `rmiobjnavigate` and the unique identifier returned in the previous step:

```
% Split targetSID into two components
[targetModel, targetObj] = strtok(targetSID,':');
% Navigate to the MAP sensor using the model name and model guID
rmiobjnavigate(targetModel, targetObj)
```

See Also

`rmi`

Topics

“Use the rmiobjnavigate Function”

Introduced in R2010b

rmipref

Get or set RMI preferences stored in `prefdir`

Syntax

```
rmipref

currentVal = rmipref(prefName)

previousVal = rmipref(Name,Value)
```

Description

`rmipref` returns list of `Name,Value` pairs corresponding to Requirements Management Interface (RMI) preference names and accepted values for each preference.

`currentVal = rmipref(prefName)` returns the current value of the preference specified by `prefName`.

`previousVal = rmipref(Name,Value)` sets a new value for the RMI preference specified by `Name`, and returns the previous value of that RMI preference.

Examples

References to Simulink Model in External Requirements Documents

Choose the type of reference that the RMI uses when it creates links to your model from external requirements documents. The reference to your model can be either the model file name or the full absolute path to the model file.

The value of the `'ModelPathReference'` preference determines how the RMI stores references to your model in external requirements documents. To view the current value of this preference, enter the following code at the MATLAB command prompt.

```
currentVal = rmipref('ModelPathReference')
```

The default value of the `'ModelPathReference'` preference is `'none'`.

```
currentVal =

none
```

This default value specifies that the RMI uses only the model file name in references to your model that it creates in external requirements documents.

Automatic Application of User Tags to Selection-Based Requirements Links

Configure the RMI to automatically apply a specified list of user tag keywords to new selection-based requirements links that you create.

Specify that the user tags `design` and `reqts` apply to new selection-based requirements links that you create.

```
previousVal = rmipref('SelectionLinkTag','design,reqts')
```

When you specify a new value for an RMI preference, `rmipref` returns the previous value of that RMI preference. In this case, `previousVal` is an empty character vector, the default value of the `'SelectionLinkTag'` preference.

```
previousVal =

     ''
```

View the currently specified value for the `'SelectionLinkTag'` preference.

```
currentVal = rmipref('SelectionLinkTag')
```

The function returns the currently specified comma-separated list of user tags.

```
currentVal =

design,reqts
```

These user tags apply to all new selection-based requirements links that you create.

Internal Storage of Requirements Traceability Data

Configure the RMI to embed requirements links data in the model file instead of in a separate `.req` file.

Note If you have existing requirements links for your model that are stored internally, you need to move these links into an external `.req` file before you change the storage settings for your requirements traceability data. See "Move Internally Stored Requirements Links to External Storage" for more information.

If you would like to embed requirements traceability data in the model file, set the `'StoreDataExternally'` preference to `0`.

```
previousVal = rmipref('StoreDataExternally',0)
```

When you specify a new value for an RMI preference, `rmipref` returns the previous value of that RMI preference. By default, the RMI stores requirements links data externally in a separate `.req` file, so the previous value of this preference was `1`.

```
previousVal =

     1
```

After you set the `'StoreDataExternally'` preference to `0`, your requirements links are embedded in the model file.

```
currentVal = rmipref('StoreDataExternally')

currentVal =

     0
```

Input Arguments

`prefName` — RMI preference name

`'BiDirectionalLinking'` | `'FilterRequireTags'` | `'CustomSettings'` | ...

RMI preference name, specified as the corresponding `Name` character vector listed in "Name-Value Pair Arguments" on page 1-29.

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 single quotes (`' '`).

Example: `'BiDirectionalLinking',true` enables bidirectional linking for your model, so that when you create a selection-based link to a requirements document, the RMI creates a corresponding link to your model from the requirements document.

`BiDirectionalLinking` — Bidirectional selection linking preference
`false` (default) | `true`

Bidirectional selection linking preference, specified as a logical value.

This preference specifies whether to simultaneously create return link from target to source when creating link from source to target. This setting applies only for requirements document types that support selection-based linking.

Data Types: `logical`

`DocumentPathReference` — Preference for path format of links to requirements documents from model
`'modelRelative'` (default) | `'absolute'` | `'pwdRelative'` | `'none'`

Preference for path format of links to requirements documents from model, specified as one of the following values.

Value	Document reference contains...
`'absolute'`	full absolute path to requirements document.
`'pwdRelative'`	path relative to MATLAB current folder.
`'modelRelative'`	path relative to model file.
`'none'`	document file name only.

For more information, see “Document Path Storage”.

Data Types: `char`

`ModelPathReference` — Preference for path format in links to model from requirements documents
`'none'` (default) | `'absolute'`

Preference for path format in links to model from requirements documents, specified as one of the following values.

Value	Model reference contains...
`'absolute'`	full absolute path to model.
`'none'`	model file name only.

Data Types: `char`

`LinkIconFilePath` — Preference to use custom image file as requirements link icon
empty character vector (default) | full image file path

Preference to use custom image file as requirements link icon, specified as full path to icon or small image file. This image will be used for requirements links inserted in external documents.

Data Types: `char`

`FilterEnable` — Preference to enable filtering by user tag keywords
`false` (default) | `true`

Preference to enable filtering by user tag keywords, specified as a logical value. When you filter by user tag keywords, you can include or exclude subsets of requirements links in highlighting or reports. You can specify user tag keywords for requirements links filtering in the `'FilterRequireTags'` and `'FilterExcludeTags'` preferences. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `logical`

`FilterRequireTags` — Preference for user tag keywords for requirements links
empty character vector (default) | comma-separated list of user tag keywords

Preference for user tag keywords for requirements links, specified as a comma-separated list of words or phrases in a character vector. These user tags apply to all new requirements links you create. Requirements links with these user tags are included in model highlighting and reports. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `char`

`FilterExcludeTags` — Preference to exclude certain requirements links from model highlighting and reports
empty character vector (default) | comma-separated list of user tag keywords

Preference to exclude certain requirements links from model highlighting and reports, specified as a comma-separated list of user tag keywords. Requirements links with these user tags are excluded from model highlighting and reports. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `char`

`FilterMenusByTags` — Preference to disable labels of requirements links with designated user tags
`false` (default) | `true`

Preference to disable labels of requirements links with designated user tags, specified as a logical value. When set to `true`, if a requirement link has a user tag designated in `'FilterExcludeTags'` or `'FilterRequireTags'`, that requirements link will be disabled in the Requirements context menu. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `logical`

`FilterConsistencyChecking` — Preference to filter Model Advisor requirements consistency checks with designated user tags
`false` (default) | `true`

Preference to filter Model Advisor requirements consistency checks with designated user tags, specified as a logical value. When set to `true`, Model Advisor requirements consistency checks include requirements links with user tags designated in `'FilterRequireTags'` and excludes requirements links with user tags designated in `'FilterExcludeTags'`. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `logical`

`KeepSurrogateLinks` — Preference to keep DOORS surrogate links when deleting all requirements links
empty (default) | `false` | `true`

Preference to keep DOORS surrogate links when deleting all requirements links, specified as a logical value. When set to `true`, selecting **Requirements > Delete All**

Links deletes all requirements links including DOORS surrogate module requirements links. When not set to `true` or `false`, selecting **Requirements > Delete All Links** opens a dialog box with a choice to keep or delete DOORS surrogate links.

Data Types: `logical`

`ReportFollowLibraryLinks` — Preference to include requirements links in referenced libraries in generated report
`false` (default) | `true`

Preference to include requirements links in referenced libraries in generated report, specified as a logical value. When set to `true`, generated requirements reports include requirements links in referenced libraries.

Data Types: `logical`

`ReportHighlightSnapshots` — Preference to include highlighting in model snapshots in generated report
`true` (default) | `false`

Preference to include highlighting in model snapshots in generated report, specified as a logical value. When set to `true`, snapshots of model objects in generated requirements reports include highlighting of model objects with requirements links.

Data Types: `logical`

`ReportNoLinkItems` — Preference to include model objects with no requirements links in generated requirements reports
`false` (default) | `true`

Preference to include model objects with no requirements links in generated requirements reports, specified as a logical value. When set to `true`, generated requirements reports include lists of model objects that have no requirements links.

Data Types: `logical`

`ReportUseDocIndex` — Preference to include short document ID instead of full path to document in generated requirements reports
`false` (default) | `true`

Preference to include short document ID instead of full path to document in generated requirements reports, specified as a logical value. When set to `true`, generated

requirements reports include short document IDs, when specified, instead of full paths to requirements documents.

Data Types: `logical`

`ReportIncludeTags` — Preference to list user tags for requirements links in generated reports

`false` (default) | `true`

Preference to list user tags for requirements links in generated reports, specified as a logical value. When set to `true`, generated requirements reports include user tags specified for each requirement link. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `logical`

`ReportDocDetails` — Preference to include extra detail from requirements documents in generated reports

`false` (default) | `true`

Preference to include extra detail from requirements documents in generated reports, specified as a logical value. When set to `true`, generated requirements reports load linked requirements documents to include additional information about linked requirements. This preference applies to Microsoft Word, Microsoft Excel, and IBM Rational DOORS requirements documents only.

Data Types: `logical`

`ReportLinkToObjects` — Preference to include links to model objects in generated requirements reports

`false` (default) | `true`

Preference to include links to model objects in generated requirements reports, specified as a logical value. When set to `true`, generated requirements reports include links to model objects. These links work only if the MATLAB internal HTTP server is active.

Data Types: `logical`

`SelectionLinkWord` — Preference to include Microsoft Word selection link option in Requirements context menu

`true` (default) | `false`

Preference to include Microsoft Word selection link option in Requirements context menu, specified as a logical value.

Data Types: `logical`

`SelectionLinkExcel` — Preference to include Microsoft Excel selection link option in Requirements context menu

`true` (default) | `false`

Preference to include Microsoft Excel selection link option in Requirements context menu, specified as a logical value.

Data Types: `logical`

`SelectionLinkDoors` — Preference to include IBM Rational DOORS selection link option in Requirements context menu

`true` (default) | `false`

Preference to include IBM Rational DOORS selection link option in Requirements context menu, specified as a logical value.

Data Types: `logical`

`SelectionLinkTag` — Preference for user tags to apply to new selection-based requirements links

empty character vector (default) | comma-separated list of user tag keywords

Preference for user tags to apply to new selection-based requirements links, specified as a comma-separated list of words or phrases in a character vector. These user tags automatically apply to new selection-based requirements links that you create. For more information about requirements filtering, see “Filter Requirements with User Tags”.

Data Types: `char`

`StoreDataExternally` — Preference to store requirements links data in external `.req` file

`false` (default) | `true`

Preference to store requirements links data in external `.req` file, specified as a logical value. This setting applies to all new models and to existing models that do not yet have requirements links. For more information about storage of requirements links data, see “Requirements Link Storage” and “Specify Storage for Requirements Links”.

Data Types: `logical`

`UseActiveXButtons` — Preference to use legacy ActiveX® buttons in Microsoft Office requirements documents
`false` (default) | `true`

Preference to use legacy ActiveX buttons in Microsoft Office requirements documents, specified as a logical value. The default value of this preference is `false`; requirements links are URL-based by default. ActiveX requirements navigation is supported for backward compatibility. For more information on legacy ActiveX navigation, see "Navigate with Objects Created Using ActiveX in Microsoft Office 2007 and 2010".

Data Types: `logical`

`CustomSettings` — Preference for storing custom settings
`inUse: 0` (default) | structure array of custom field names and settings

Preference for storing custom settings, specified as a structure array. Each field of the structure array corresponds to the name of your custom preference, and each associated value corresponds to the value of that custom preference.

Data Types: `struct`

Output Arguments

`currentVal` — Current value of the RMI preference specified by `prefName`
`true` | `false` | `'absolute'` | `'none'` | ...

Current value of the RMI preference specified by `prefName`. RMI preference names and their associated possible values are listed in "Name-Value Pair Arguments" on page 1-29.

`previousVal` — Previous value of the RMI preference specified by `prefName`
`true` | `false` | `'absolute'` | `'none'` | ...

Previous value of the RMI preference specified by `prefName`. RMI preference names and their associated possible values are listed in "Name-Value Pair Arguments" on page 1-29.

See Also
`rmi`

Topics

"Requirements Settings"

Introduced in R2013a

rmiref.insertRefs

Insert links to models into requirements documents

Syntax

```
[total_links, total_matches, total_inserted] = rmiref.insertRefs(
model_name, doc_type)
```

Description

`[total_links, total_matches, total_inserted] = rmiref.insertRefs( model_name, doc_type)` inserts ActiveX controls into the open, active requirements document of type `doc_type`. These controls correspond to links from `model_name` to the document. With these controls, you can navigate from the requirements document to the model.

Input Arguments

`model_name`

Name or handle of a Simulink model

`doc_type`

A character vector that indicates the requirements document type:

- `'word'`
- `'excel'`

Examples

Remove the links in an example requirements document, and then reinsert them:

1. Open the example model:

   ```
   slvnvdemo_fuelsys_officereq
   ```

2. Open the example requirements document:

   ```
   open([matlabroot strcat('/toolbox/slvnv/rmidemos/fuelsys_req_docs/',...
       'slvnvdemo_FuelSys_DesignDescription.docx')])
   ```

3. Remove the links from the requirements document:

   ```
   rmiref.removeRefs('word')
   ```

4. Enter `y` to confirm the removal.

5. Reinsert the links from the requirements document to the model:

   ```
   [total_links, total_matches, total_inserted] = ...
       rmiref.insertRefs(gcs, 'word')
   ```

See Also

`rmiref.removeRefs`

Introduced in R2011a

rmiref.removeRefs

Remove links to models from requirements documents

Syntax

```
rmiref.removeRefs(doc_type)
```

Description

`rmiref.removeRefs(doc_type)` removes all links to models from the open, active requirements document of type `doc_type`.

Input Arguments

`doc_type`

A character vector that indicates the requirements document type:

- `'word'`
- `'excel'`
- `'doors'`

Examples

Remove the links in this example requirements document:

```
open([matlabroot strcat('/toolbox/slvnv/rmidemos/fuelsys_req_docs/', ...
    'slvnvdemo_FuelSys_DesignDescription.docx')])
rmiref.removeRefs('word')
```

See Also

`rmiref.insertRefs`

Introduced in R2011a

rmitag

Manage user tags for requirements links

Syntax

```
rmitag(model, 'list')
rmitag(model, 'add', tag)
rmitag(model, 'add', tag, doc_pattern)
rmitag(model, 'delete', tag)
rmitag(model, 'delete', tag, doc_pattern)
rmitag(model, 'replace', tag, new_tag)
rmitag(model, 'replace', tag, new_tag, doc_pattern)
rmitag(model, 'clear', tag)
rmitag(model, 'clear', tag, doc_pattern)
```

Description

`rmitag(model, 'list')` lists all user tags in `model`.

`rmitag(model, 'add', tag)` adds `tag` as a user tag for all requirements links in `model`.

`rmitag(model, 'add', tag, doc_pattern)` adds `tag` as a user tag for all links in `model`, where the full or partial document name matches the regular expression `doc_pattern`.

`rmitag(model, 'delete', tag)` removes the user tag, `tag` from all requirements links in `model`.

`rmitag(model, 'delete', tag, doc_pattern)` removes the user tag, `tag`, from all requirements links in `model`, where the full or partial document name matches `doc_pattern`.

`rmitag(model, 'replace', tag, new_tag)` replaces `tag` with `new_tag` for all requirements links in `model`.

`rmitag(model, 'replace', tag, new_tag, doc_pattern)` replaces `tag` with `new_tag` for links in `model`, where the full or partial document name matches the regular expression `doc_pattern`.

`rmitag(model, 'clear', tag)` deletes all requirements links that have the user tag, `tag`.

`rmitag(model, 'clear', tag, doc_pattern)` deletes all requirements links that have the user tag, `tag`, and link to the full or partial document name specified in `doc_pattern`.

Input Arguments

`model`

Name of or handle to Simulink or Stateflow model with which requirements are associated.

`tag`

Character vector specifying user tag for requirements links.

`doc_pattern`

Regular expression to match in the linked requirements document name. Not case sensitive.

`new_tag`

Character vector that indicates the name of a user tag for a requirements link. Use this argument when replacing an existing user tag with a new user tag.

Examples

Open the `slvnvdemo_fuelsys_officereq` example model, and add the user tag `tmptag` to all objects with requirements links:

```
open_system('slvnvdemo_fuelsys_officereq');
rmitag(gcs, 'add', 'tmptag');
```

Remove the user tag `test` from all requirements links:

```
open_system('slvnvdemo_fuelsys_officereq');
rmitag(gcs, 'delete', 'test');
```

Delete all requirements links that have the user tag `design`:

```
open_system('slvnvdemo_fuelsys_officereq');
rmitag(gcs, 'clear', 'design');
```

Change all instances of the user tag `tmptag` to `safety requirement`, where the document filename extension is `.docx`:

```
open_system('slvnvdemo_fuelsys_officereq');
rmitag(gcs, 'replace', 'tmptag', ...
       'safety requirements', '\.docx');
```

See Also

`rmi` | `rmidocrename`

Topics

"User Tags and Requirements Filtering"

Introduced in R2010a

RptgenRMI.doorsAttribs

IBM Rational DOORS attributes in requirements report

Syntax

```
RptgenRMI.doorsAttribs (action,attribute)
```

Description

`RptgenRMI.doorsAttribs (action,attribute)` specifies which DOORS object attributes to include in the generated requirements report.

Input Arguments

`action`

Character vector that specifies the desired action for what content to include from a DOORS record in the generated requirements report. Valid values for this argument are as follows.

Value	Description
`'default'`	Restore the default settings for the DOORS system attributes to include in the report. The default configuration includes the **Object Heading** and **Object Text** attributes, and all other attributes, except: • **Created Thru** • System attributes with empty string values • System attributes that are false
`'show'`	Display the current settings for the DOORS attributes to include in the report.

Value	Description
`'type'`	Include or omit groups of DOORS attributes from the report. If you specify `'type'` for the first argument, valid values for the second argument are: • `'all'` — Include all DOORS attributes in the report. • `'user'` — Include only user-defined DOORS in the report. • `'none'` — Omit all DOORS attributes from the report.
`'remove'`	Omit specified DOORS attributes from the report.
`'all'`	Include specified DOORS attributes in the report, even if that attribute is currently excluded as part of a group.
`'nonempty'`	Enable or disable the empty attribute filter: • Enter `RptgenRMI.doorsAttribs('nonempty', 'off')` to omit all empty attributes from the report. • Enter `RptgenRMI.doorsAttribs('nonempty', 'on')` to include empty user-defined attributes. The report never includes empty system attributes.

Default:

`attribute`

Character vector that qualifies the `action` argument.

Output Arguments

`result`

- True if `RptgenRMI.doorsAttribs` modifies the current settings.
- For `RptgenRMI.doorsAttribs('show')`, this argument is a cell array of character vectors that indicate which DOORS attributes to include in the requirements report, for example:

```
>> RptgenRMI.doorsAttribs('show')
```

```
ans =

    'Object Heading'
    'Object Text'
    '$AllAttributes$'
    '$NonEmpty$'
    '-Created Thru'
```

- The **Object Heading** and **Object Text** attributes are included by default.
- `'$AllAttributes$'` specifies to include all attributes associated with each DOORS object.
- `'$Nonempty$'` specifies to exclude all empty attributes.
- `'-Created Thru'` specifies to exclude the **Created Thru** attribute for each DOORS object.

Examples

Limit the DOORS attributes in the requirements report to user-defined attributes:

```
RptgenRMI.doorsAttribs('type', 'user');
```

Omit the content of the **Last Modified By** attribute from the requirements report:

```
RptgenRMI.doorsAttribs('remove', 'Last Modified By');
```

Include the content of the **Last Modified On** attribute in the requirements report, even if system attributes are not included as a group:

```
RptgenRMI.doorsAttribs('add', 'Last Modified On');
```

Include empty system attributes in the requirements report:

```
RptgenRMI.doorsAttribs('nonempty', 'off');
```

Omit the **Object Heading** attribute from the requirements report. Use this option when the link label is always the same as the **Object Heading** for the target DOORS object and you do not want duplicate information in the requirements report:

```
RptgenRMI.doorsAttribs('remove', 'Object Heading');
```

See Also

`rmi`

Introduced in R2011b

slwebview_req

Export Simulink system to Web views with requirements

Syntax

```
filename = slwebview_req(sysname)
filename = slwebview_req(sysname,Name,Value)
```

Description

`filename = slwebview_req(sysname)` exports the system `sysname` and its children to a web page `filename` with contextual requirements information for the system displayed on a separate panel of the layered model structure Web view.

`filename = slwebview_req(sysname,Name,Value)` uses additional options specified by one or more `Name,Value` pair arguments.

Note You can use `slwebview_req` only if you have also installed Simulink Report Generator™.

Examples

Export All Layers

Export all the layers (including libraries and masks) from the system `gcs` to the file `filename`

```
filename = slwebview_req(gcs, 'LookUnderMasks', 'all',
'FollowLinks', 'on')
```

Input Arguments

`sysname` — The system to export to a Web view file

character vector containing the path to the system | handle to a subsystem or block diagram | handle to a chart or subchart

Exports the specified system or subsystem and its child systems to a Web view file, with contextual requirements information for the system displayed on a separate panel of the layered model structure Web view. By default, child systems of the `sysname` system are also exported. Use the `SearchScope` name-value pair to export other systems, in relation to `sysname`.

Example: 'sysname'

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 single quotes (`' '`). You can specify several name and value pair arguments in any order as `Name1,Value1,...,NameN,ValueN`.

Example:

`SearchScope` — Systems to export, relative to the `sysname` system

`'CurrentAndBelow'` (default) | `'Current'` | `'CurrentAndAbove'` | `'All'`

`'CurrentAndBelow'` exports the Simulink system or the Stateflow chart specified by `sysname` and all systems or charts that it contains.

`'Current'` exports only the Simulink system or the Stateflow chart specified by `sysname`.

`'CurrentAndAbove'` exports the Simulink system or the Stateflow chart specified by the `sysname` and all systems or charts that contain it.

`'All'` exports all Simulink systems or Stateflow charts in the model that contains the system or chart specified by `sysname`.

Data Types: `char`

`LookUnderMasks` — Specifies whether to export the ability to interact with masked blocks
`'none'` (default) | `'all'`

`'none'` does not export masked blocks in the Web view. Masked blocks are included in the exported systems, but you cannot access the contents of the masked blocks.

`'all'` exports all masked blocks.

Data Types: `char`

`FollowLinks` — Specifies whether to follow links into library blocks
`'off'` (default) | `'on'`

`'off'` does not allow you to follow links into library blocks in a Web view.

`'on'` allows you to follow links into library blocks in a Web view.

Data Types: `char`

`FollowModelReference` — Specifies whether to access referenced models in a Web view
`'off'` (default) | `'on'`

`'off'` does not allow you to access referenced models in a Web view.

`'on'` allows you to access referenced models in a Web view.

Data Types: `char`

`ViewFile` — Specifies whether to display the Web view in a Web browser when you export the Web view
`'on'` (default) | `'off'`

`'on'` displays the Web view in a Web browser when you export the Web view.

`'off'` does not display the Web view in a Web browser when you export the Web view.

Data Types: `char`

`ShowProgressBar` — Specifies whether to display the status bar when you export a Web view
'on' (default) | 'off'

`'on'` displays the status bar when you export a Web view.

`'off'` does not display the status bar when you export a Web view.

Data Types: `char`

Output Arguments

`filename` — The name of the HTML file for displaying the Web view
character vector

Reports the name of the HTML file for displaying the Web view. Exporting a Web view creates the supporting files, in a folder.

Tips

A Web view is an interactive rendition of a model that you can view in a Web browser. You can navigate a Web view hierarchically to examine specific subsystems and to see properties of blocks and signals.

You can use Web views to share models with people who do not have Simulink installed.

Web views require a Web browser that supports Scalable Vector Graphics (SVG).

See Also

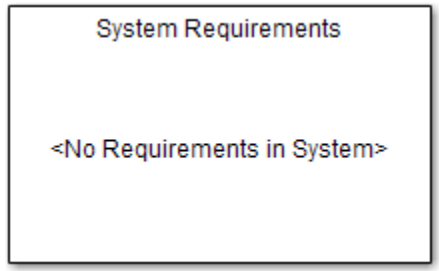
`slwebview_cov`

Introduced in R2015a

Block Reference

System Requirements

List system requirements in Simulink models



Library

Simulink Verification and Validation

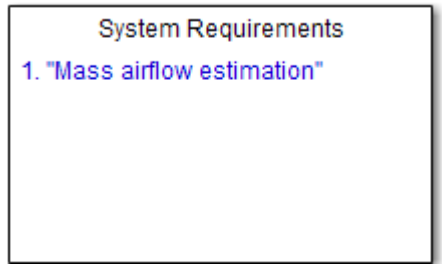
Description

The System Requirements block lists the system-level requirements associated with a model or subsystem. This block is dynamically populated. It displays system requirements associated with the level of hierarchy in which the block appears in the model. It does not list requirements associated with individual blocks in the model. To ensure that all requirement links are listed in the System Requirements block:

1. Right-click the background of your model.
2. Select **Requirements Traceability at This Level**.
3. From the top of the context menu, verify that all the requirements you want to list appear in the System Requirements block.

You can place this block anywhere in your model. It does not connect to other Simulink blocks. You can have only one System Requirements block in a given subsystem.

When you insert this block into your Simulink model, it is populated with the system requirements, as shown in the `Airflow Calculation` subsystem of the `slvnvdemo_fuelsys_officereq` example.



Each of the listed requirements is an active link to the requirements document. When you double-click a requirement label, the associated requirements document opens in its editor window, scrolled to the target location.

Parameters

Block Title

The title of the system requirements list in the model. The default title is `System Requirements`. You can enter a customized title, for example, `Engine Requirements`.

Introduced before R2006a