

Simulink® Control Design Release Notes

Chapter 1, “Simulink Control Design 1.3 Release Notes” discusses the following topics:

- “New Features” on page 1-2
- “Major Bug Fixes” on page 1-3
- “Known Software and Documentation Problems” on page 1-4

Chapter 2, “Simulink Control Design 1.2 Release Notes” discusses the following topics:

- “New Features” on page 2-2
- “Major Bug Fixes” on page 2-3

Chapter 3, “Simulink Control Design 1.1 Release Notes” discusses the following topics:

- “Major Bug Fixes” on page 3-2

Chapter 4, “Simulink Control Design 1.0 Release Notes” discusses the following topics:

- “Introduction to Simulink Control Design” on page 4-2

Printing the Release Notes. If you would like to print the Release Notes, you can link to a PDF version.

Simulink Control Design 1.3 Release Notes

1

New Features	1-2
Major Bug Fixes	1-3
Known Software and Documentation Problems	1-4

Simulink Control Design 1.2 Release Notes

2

New Features	2-2
Major Bug Fixes	2-3

Simulink Control Design 1.1 Release Notes

3

Major Bug Fixes	3-2
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Simulink Control Design 1.0 Release Notes

4

Introduction to Simulink Control Design	4-2
About Simulink Control Design	4-2
Features	4-2

Simulink Control Design

1.3 Release Notes

New Features

Simulink Control Design contains several new features for Version 1.3:

- Linearize and compute operating points for models that reference other models using the Model block. Linearization of model reference models must use the numerical perturbation linearization algorithm. This algorithm accepts state and input perturbation values in the form of an operating point object. For more information on this feature, see the examples in “Example: Command-Line Numerical Perturbation Linearization of a Model Reference Model” and “Example: Using the Graphical Interface for Numerical Perturbation Linearization of a Model Reference Model”.
- Copy and edit operating points within the Control and Estimation Tools Manager. For more information on this feature, see “Copying Operating Points”.
- Initialize a Simulink model for simulation using operating points from within the Control and Estimation Tools Manager. For more information on this feature, see the example in “Comparing the Linearized and Original Models”.

Major Bug Fixes

To view major bug fixes made in R14SP3 for Simulink Control Design, use the Bug Reports interface on the MathWorks Web site.

Note If you are not already logged in to Access Login, when you link to the Bug Reports interface (see below), you will be prompted to log in or create an Access Login account.

After you are logged in, use this Bug Reports link. You will see the bug report for Simulink Control Design. The report is sorted with fixed bugs listed first, and then open bugs. If you are viewing these release notes in PDF form on the MathWorks Web site, you can refer to the HTML form of the release notes on the MathWorks Web site and use the link provided.

For bug fixes added prior to R14SP2, see “Major Bug Fixes” on page 2-3 in the Simulink Control Design Version 1.2 release notes.

Known Software and Documentation Problems

At publication time, Simulink Control Design had no significant known open bugs. The Bug Reports interface on the MathWorks Web site will be updated if any important bugs become known to the MathWorks after the publication of these release notes.

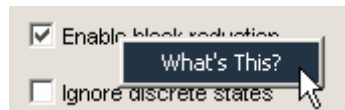
Simulink Control Design

1.2 Release Notes

New Features

Simulink Control Design 1.2 contains several new features including the following:

- Select from three different discretization methods for linearization of multirate and hybrid models
- View state space, transfer function, and zero-pole gain representations of linearized models within the Control and Estimation Tools Manager without exporting to the workspace. These linearized models appear in the linearization summary panel of the Control and Estimation Tools Manager.
- Use either truncated block names or full block names in the state space matrices of a linearized model, and within the LTI Viewer, to improve readability
- Access context sensitive help for the Linearization, Operating Point Search, and Linearization State Ordering Options window of the Control and Estimation Tools Manager. To access help on a field within the options window, right click on the option's label and select **What's this?** from the context menu. Help for the option will appear in this window.



- View a complete list of Simulink blocks indicating which blocks have pre-programmed analytic Jacobians for use with the block by block analytic linearization algorithm. This list is in the “Individual Block Linearization Methods” section of the Simulink Control Design documentation.

Major Bug Fixes

To view major bug fixes made in R14SP2 for Simulink Control Design, use the Bug Reports interface on the MathWorks Web site.

Note If you are not already logged in to Access Login, when you link to the Bug Reports interface (see below), you will be prompted to log in or create an Access Login account.

After you are logged in, use this Bug Reports link. You will see the bug report for Simulink Control Design. The report is sorted with fixed bugs listed first, and then open bugs. If you are viewing these release notes in PDF form on the MathWorks Web site, you can refer to the HTML form of the release notes on the MathWorks Web site and use the link provided.

For bug fixes added prior to R14SP1, see “Major Bug Fixes” on page 3-2 in the Simulink Control Design Version 1.1 release notes.

Simulink Control Design

1.1 Release Notes

Major Bug Fixes

Simulink Control Design 1.1 includes several bug fixes made since Version 1.0. You can see a list of the particularly important Version 1.1 bug fixes.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.

Simulink Control Design 1.0 Release Notes

Introduction to Simulink Control Design

This section provides a brief overview of Simulink Control Design, which is being introduced in Release 14.

About Simulink Control Design

Simulink Control Design provides tools for the linearization of control systems and physical models in Simulink. A Graphical User Interface (GUI) simplifies the tasks of specifying operating conditions, linearizing the model, and analyzing the results. Linearized Simulink models often facilitate system analysis and compensator design. This is useful in many industries and applications, including

- Aerospace: flight control, guidance, navigation
- Automotive: cruise control, emissions control, transmission
- Equipment manufacturing: motors, disk drives, servos

Simulink Control Design improves upon previous Simulink linearization tools by providing more options for computing operating conditions, allowing open loop analysis without the removal of feedback loops, and including a linearization inspector and debugger. Linearization projects are easier to manage with the new Control and Estimation Tools Manager. Furthermore, Control System Toolbox features, such as the LTI Viewer, are integrated with the Control Designer to improve control system analysis and design.

Features

Key features of Simulink Control Design include the ability to

- Specify linearization input, output, and open loop analysis points using right-click menus
- Perform open loop analysis without deleting feedback loops
- Extract operating conditions from a simulation
- Compute operating conditions by optimization (trimming)
- Create output constraints for trim analysis

- Linearize individual blocks using context menus
- Inspect and debug results of the linearization
- Identify blocks in a model that contribute to a linearization
- Export results to the MATLAB workspace
- Manage linearization projects, compute operating conditions, and perform linearization with a Graphical User Interface (GUI)
- Use improved functions at the command line for linearization and trim analysis