

Simulink Performance Tools Release Notes

The “Simulink Performance Tools 1.2 Release Notes” on page 1-1 describe the changes introduced in the latest version of the Simulink Performance Tools. The following topics are discussed in these Release Notes:

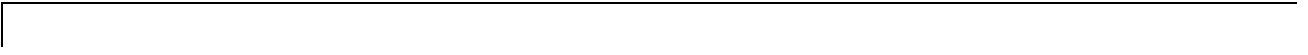
- “New Features” on page 1-2
- “Platform Limitations for HP and IBM” on page 1-4

If you are upgrading from a release earlier than Release 12.1, you should also see these sections:

- “Simulink Performance Tools 1.1 Release Notes” on page 2-1
- “Simulink Performance Tools 1.0 Release Notes” on page 3-1

Printing the Release Notes

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



Simulink Performance Tools 1.2 Release Notes

1

New Features	1-2
Graphical Merge Tool Enhancements	1-2
Model Coverage Tool Enhancements	1-2
Platform Limitations for HP and IBM	1-4
Limited Support Model Coverage Tool	1-4
Graphical Merge Tool Not Supported	1-4

Simulink Performance Tools 1.1 Release Notes

2

New Features	2-2
Model Coverage Tool	2-2
Graphical Merge Tool	2-4

Simulink Performance Tools 1.0 Release Notes

3

Introduction to the Simulink Performance Tools	3-2
The Simulink Accelerator	3-2
The Model Coverage Tool	3-2
The Graphical Merge Tool	3-2
The Model Profiler	3-2
Known Software and Documentation Problems	3-3
Simulink Model Differences Tool	3-3

Simulink Performance Tools 1.2 Release Notes

New Features	1-2
Graphical Merge Tool Enhancements	1-2
Model Coverage Tool Enhancements	1-2
Platform Limitations for HP and IBM	1-4
Limited Support Model Coverage Tool	1-4
Graphical Merge Tool Not Supported	1-4

New Features

Note The Simulink Performance Tools 1.2 incorporates changes introduced in the Simulink Performance Tools 1.1.1, which was initially released in Web-downloadable form after Release 12.1 was released, but before Release 13. These Release Notes describe those changes, as well as changes introduced after Version 1.1.1.

If you are upgrading from a release earlier than Release 12.1, then you should also see “New Features” on page 2-2 in the Simulink Performance Tools 1.1 Release Notes.

Graphical Merge Tool Enhancements

This release provides the following enhancements to the Graphical Merge tool:

- Performance enhancements
The enhancements reduce the time required to compare models.
- Support for SimMechanics and SimPowerSystems models
This release recognizes and compares instances of SimMechanics and SimPowerSystems blocks
- Heuristic comparisons
The heuristic comparison enables the tool to recognize block naming differences (i.e., instances of the same block that occur in the same place in both of the models being compared but under a different name in each case).

Model Coverage Tool Enhancements

Simulink Performance Tools 1.2 includes several enhancements to the Model Coverage Tool.

Redesigned Coverage Settings Dialog Box

The redesign groups related settings into tabbed panes, thereby improving the readability of the settings.

Multirun Coverage Reports

To display results for a series of runs, select **Cumulative runs** on the on the **Report** pane of the **Coverage Settings** dialog box.

Coverage of Additional Objects

In addition to the blocks covered in previous releases, this release covers the following blocks:

- Discrete-Time Integrator
Instrumented for decision coverage when saturation limits enabled.
- Fcn
Instrumented for condition coverage when root operator is a logical operator (&&, ||, and !).
- Rate Limiter
Instrumented for decision coverage with respect to slew rates specified.

This release also extends coverage to Stateflow event and state temporal decisions

Cyclomatic Complexity Coverage

The Model Coverage Tool now computes the cyclomatic complexity of covered objects and includes the result by default in the summary and detail sections of the coverage report. See “Coverage Analysis” in the online documentation for more information.

Platform Limitations for HP and IBM

Note The Release 12.1 platform limitations for the Simulink Performance Tools for the HP and IBM platforms still apply to Release 13. Those limitations are summarized below.

Limited Support Model Coverage Tool

On the HP and IBM platforms, you must use the command line commands, for example, `cvsim`, `cvtest`, and `cvhtml`, to generate and display coverage data. The tool displays coverage reports in your system's default browser. The hyperlinks from the report to the model do no work.

Graphical Merge Tool Not Supported

The **Graphical Merge Tool** is not supported on the HP and IBM platforms.

Simulink Performance Tools 1.1 Release Notes

New Features	2-2
Model Coverage Tool	2-2
Graphical Merge Tool	2-4

New Features

This section introduces the new features and enhancements added in Simulink Performance Tools 1.1 since Simulink Performance Tools 1.0 (Release 12.0). The following tools were enhanced:

- “Model Coverage Tool” on page 2-2
- “Graphical Merge Tool” on page 2-4

For an overview of the Simulink Performance Tools, see “Introduction to the Simulink Performance Tools” on page 3-2.

Model Coverage Tool

This section describes features and enhancements added to the **Model Coverage Tool**.

Additional Coverage Types

This version adds the following types of coverage analysis:

- Condition coverage
Examines blocks that output the logical combination of their inputs, e.g., the Logic block, and Stateflow transitions. A test case achieves full coverage if it causes each input to each instance of a logic block in the model and each condition on a transition to be true at least once during the simulation and false at least once during the simulation.
- Modified condition/decision coverage (MC/DC)
Examines blocks that output the logical combination of their inputs, e.g., the Logic block, and Stateflow transitions to determine the extent to which the test case tests the independence of logical inputs and transition conditions.
- Look-up table (LUT) coverage
Examines blocks, such as the Look-Up Table block, that output the result of looking up one or more inputs in a table of inputs and outputs, interpolating between or extrapolating from table entries as necessary. Lookup table coverage records the frequency that table lookups use at each interpolation interval.

See “Coverage Analysis” in the “Model Coverage Tool” section of Using Simulink for more information.

Additional Covered Block Types

This version covers the following additional block types:

- Look-Up Table
- Look-Up Table (2-D)
- Combinatorial Logic
- For
- If
- Logic
- MinMax
- Relay
- SwitchCase
- While

See “Covered Blocks” in the “Model Coverage Tool” section of *Using Simulink* for more information.

Additional Coverage Reporting Options

This version provides the following additional coverage reporting options:

- Include each test in the model summary
- Produce bar graphs in the model summary
- Use two color bar graphs
- Display hit/count ratio in the model summary
- Don't report fully covered model objects

See “HTML Settings” in the “Model Coverage Tool” section *Using Simulink* for more information.

Hyperlink Enhancements

When you click a hyperlink to the model in a coverage report, the tool now opens the model, if it is not already open. Hyperlinks to the model in the coverage report now persist across Simulink sessions. This means that you no longer have to regenerate a report in order to use its hyperlinks.

Graphical Merge Tool

This section describes features and enhancements added to the **Graphical Merge Tool** since Simulink Performance Tools 1.0 (Release 12.0).

Name Change

The Graphical Merge Tool was known as the Model Differencing Tool in the previous version. The name was changed to reflect the tool's new model merging capability.

Merging Models

This version not only detects differences between two models but can also optionally merge the differences into either or both models. The merge capability simplifies collaborative development of models. For example, colleagues can each work on separate copies of a model and, when done, use the Graphical Merge Tool to combine the separate versions. See “Merging Model Differences” in Using Simulink for more information.

Additional Model Comparison Options

The Simulink Performance Tools 1.0 allowed you to compare two models that both reside in your file system. The Simulink Performance Tools 1.1 allows you to compare an in-memory version of a model to the version last saved on your file system or to a version stored in a source control system. This allows you to determine what modifications you have made to a model before saving it. You can also compare two versions of a model stored in a source control system to determine how they differ. See “Comparing Models” in Using Simulink for more information.

Show and Hide Parameters Panel

This version allows you to show or hide the tool's **Parameters** panel. Hiding the panel provides more room for the tool's color-coded differences display.

Single Scrollbar

The previous version provided separate scrollbars to scroll the difference panels for each model being compared. This version provides a single scrollbar that scrolls both panels simultaneously. This keeps the displays in the two panels aligned, making it easier to compare the two models.

Aligned Model Content Displays

This version aligns the display of the contents of the two models so that an item that appears in both models appears at the same relative position in the content pane for each model. If an item appears in only one of the two models, the corresponding position in the other model's content pane is empty. This visual alignment of the content panels makes it easy to spot differences between the two models. See "Differences Panes" in *Using Simulink* for more information.

Model History List

This release adds model history lists at the top of each model content pane in the **Graphical Merge Tool**. Each list displays the four models that have most recently appeared in the associated pane. To compare a model on the list to the model that appears in the other content pane, select the model in the history list and press **Return**.

Simulink Performance Tools 1.0 Release Notes

Introduction to the Simulink Performance Tools . . .	3-2
The Simulink Accelerator	3-2
The Model Coverage Tool	3-2
The Model Differences Tool	3-2
The Model Profiler	3-2
Known Software and Documentation Problems	3-3
Simulink Model Differences Tool	3-3

Introduction to the Simulink Performance Tools

The Simulink Performance Tools are an optional, separately priced, set of tools that enhance your Simulink development environment. The Simulink Performance Tools are new with Release 12. The Simulink Performance Tools consist of:

- The Simulink Accelerator
- The Model Coverage Tool
- The Model Differences Tool
- The Model Profiler

The Simulink Accelerator

The Simulink Accelerator speeds simulation of a Simulink model. It does this by first compiling a model into executable code, and then running the compiled version.

The Model Coverage Tool

The Model Coverage Tool reports the extent to which simulation of a model exercises possible execution pathways through the model. See “Performance Tools” in the online help for Simulink.

The Graphical Merge Tool

The Graphical Merge Tool displays differences between two Simulink models. For example, the tool displays all blocks that exist in both models but have different attributes and all blocks that are present in only one of the two models. The tool documentation does not document the following feature. You can use the `mdl_diff` command to compare two libraries. Type `help mdl_diff` at the MATLAB command prompt for more information.

The Model Profiler

The Model Profiler generates and displays a profile of a simulation run. The profile shows how much time Simulink spent in each function required to simulate the model.

Known Software and Documentation Problems

This section updates the Simulink Performance Tools 1.0 documentation, reflecting known Simulink Performance Tools 1.0 software and documentation problems.

Simulink Model Differences Tool

The Simulink Model Differences Tool has these problems:

- Comparing models with the same name will not work. Rename one of the model before doing the comparison.
- The contents of masked subsystems are not shown.
- Help is not available.

