# Simulink® Code Inspector™ Release Notes

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*Simulink® Code Inspector™ Release Notes*



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# Contents

# Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using Release Notes" on page 1.

| Version (Release) | New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---|---|---|---|
| **Latest Version V1.1 (R2012a)** | Yes<br>Details | No | Bug Reports<br>Includes fixes |
| V1.0 (R2011b) | Yes<br>Details | No | No |

## Using Release Notes

Use release notes when upgrading to a newer version to learn about:

- New features
- Changes
- Potential impact on your existing files and practices

Review the release notes for other MathWorks® products required for this product (for example, MATLAB® or Simulink®). Determine if enhancements, bugs, or compatibility considerations in other products impact you.

If you are upgrading from a software version other than the most recent one, review the current release notes and all interim versions. For example, when you upgrade from V1.0 to V1.2, review the release notes for V1.1 and V1.2.

## What Is in the Release Notes

### New Features and Changes

- New functionality
- Changes to existing functionality

### Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product release appear under Bug Reports at the MathWorks Web site. Bug fixes can sometimes result in incompatibilities, so review the fixed bugs in Bug Reports for any compatibility impact.

### Fixed Bugs and Known Problems

MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release time and as more information becomes available. Bug Reports include provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

## Documentation on the MathWorks Web Site

Related documentation is available on `mathworks.com` for the latest release and for previous releases:

- Latest product documentation
- Archived documentation

# Version 1.1 (R2012a) Simulink Code Inspector Software

This table summarizes what's new in V1.1 (R2012a):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---|---|---|
| Yes<br>Details below | No | Bug Reports<br>Includes fixes |

New features and changes introduced in this version are



## Support for Additional Simulink Blocks

Code inspection is now supported for the following Simulink blocks:

- Atomic Subsystem (inlined)
- Enabled Subsystem (inlined)
- Enable Port
- 1-D Lookup Table
- 2-D Lookup Table
- n-D Lookup Table (1 or 2-D only)
- Rounding Function
- Ground

For detailed block support information, see "Block Constraints".

## Enhanced Sum, MinMax, and Logical Operator Block Support

Code inspection now supports greater than two inputs for Sum, MinMax, and Logical Operator blocks.

## Support for Enumerated Types

Code inspection now supports enumerated types used in models.

## Support for Nonencapsulated C++ Code

Code inspection now supports models for which the selected target language is `C++`, as well as `C`. The target language `C++ (Encapsulated)` remains unsupported.

## Traceability Matrix Generation

On Windows® systems, R2012a allows you to generate a *traceability matrix* for your model. For a given model, a generated traceability matrix provides information about traceability of model objects between the model and generated code. The traceability matrix is a Microsoft® Excel® file that contains **Model Information**, **Code Interface**, **Code Files**, and **Report** worksheets.

After generating code and inspecting a model, you can generate a traceability matrix using the `slci.ExportTraceReport` function from the MATLAB Command Window. For example:

```
>>
slci.ExportTraceReport('slcidemo_roll','slcidemo_roll_tracereport')
```

For more information, see Traceability Matrices.

## DO-178 Qualification Support (Requires DO Qualification Kit)

The DO Qualification Kit product now provides documents, templates, test cases, and test procedures that you can use to qualify the Simulink Code Inspector™ tool for DO-178B certification.

## Enhanced Support for Code Optimizations

Code inspection now supports any setting for the following code optimizations, which are located on the **Optimization** and **Optimization > Signals and Parameters** panes of the Configuration Parameters dialog box. Previously, their values were constrained to either `on` or `off`.

- **Remove root level I/O zero initialization** (`ZeroExternalMemoryAtStartup`)
- **Remove internal data zero initialization** (`ZeroInternalMemoryAtStartup`)
- **Use memset to initialize floats and doubles to 0.0** (`InitFltsAndDblsToZero`)
- **Use memcpy for vector assignment** (`EnableMemcpy`)

# Version 1.0 (R2011b) Simulink Code Inspector Software

This table summarizes what's new in V1.0 (R2011b):

| New Features and Changes | Version Compatibility Considerations | Fixed Bugs and Known Problems |
|---|---|---|
| Yes<br>Details below | No | No |



## Introducing Simulink Code Inspector

Simulink Code Inspector automatically compares generated code with its source model to satisfy code-review objectives in DO-178B and other high-integrity standards. The Code Inspector systematically examines blocks, parameters, and settings in a model to determine whether they are structurally equivalent to operations, operators, and data in the generated code. Simulink Code Inspector provides detailed model-to-code and code-to-model traceability analysis. It generates structural equivalence and traceability reports that you can submit to certification authorities to satisfy DO-178 software coding verification objectives.

## Features

Key features of Simulink Code Inspector Version 1.0 include:

- Structural equivalence analysis and reports
- Bidirectional traceability analysis and reports
- Compatibility checker to restrict model, block, and coder usage to operations typically used in high-integrity applications
- Tool independence from Simulink code generators

Use Simulink Code Inspector tooling to:

- Prepare for code inspection during model development.
- Run inspections on code generated from models and review reported results.
- Automatically generate code verification reports to support software certification.

## Introductory Demo

The Simulink Code Inspector product provides the following introductory demo.

| Demo | Shows How You Can... |
|---|---|
| `slcidemo_intro` | Use MATLAB commands to:<br>• Prepare a model hierarchy for code generation and code inspection.<br>• Automatically generate code for the model hierarchy.<br>• Verify the generated code independently of the code generation tool.<br>• Purposely introduce an error into the generated code and inspect for failure. |

**Note** "Inspect Generated Code for a Sample Model" in the Simulink Code Inspector documentation provides an equivalent demonstration using the Simulink Code Inspector dialog box to control the code inspection workflow.

# Compatibility Summary for Simulink Code Inspector

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

| Version (Release) | New Features and Changes with Version Compatibility Impact |
|---|---|
| **Latest Version V1.1 (R2012a)** | None |
| V1.0 (R2011b) | None |