Release Notes for IEC Certification Kit

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Release Notes for IEC Certification Kit

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R2012b

Version: 3.0
New Features: Yes
Bug Fixes: No

ISO 26262:2011 tool prequalification by TÜV SÜD of R2012b versions of supported products

The following versions of MathWorks® products are qualified with TÜV SÜD qualification assessment according to ISO 26262:

- Embedded Coder® Version 6.3 (R2012b)
- Real-Time Workshop® Embedded Coder™ Version 5.6.2 (R2010bSP2)
- Simulink® Design Verifier™ Version 2.3 (R2012b)
- Simulink Verification and Validation™ Version 3.4 (R2012b)
- Polyspace® Client™ for C/C++ and Polyspace Server™ for C/C++ Version 8.4 (R2012b)

For details, see “IEC Certification Kit Components” in the IEC Certification Kit documentation.

IEC 61508:2010 tool certification by TÜV SÜD of R2012b versions of supported products

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Embedded Coder Version 6.3 (R2012b)
- Real-Time Workshop Embedded Coder Version 5.6.2 (R2010bSP2)
- Simulink PLC Coder™ Version 1.4 (R2012b)
- Simulink Design Verifier Version 2.3 (R2012b)
- Simulink Verification and Validation Version 3.4 (R2012b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.4 (R2012b)

For details, see “IEC Certification Kit Components” in the IEC Certification Kit documentation.

EN 50128:2011 tool certification by TÜV SÜD of R2012b versions of supported products

TÜV SÜD certified the following versions of MathWorks products according to EN 50128:

- Embedded Coder Version 6.3 (R2012b)
- Real-Time Workshop Embedded Coder Version 5.6.2 (R2010bSP2)
- Simulink Design Verifier Version 2.3 (R2012b)
- Simulink Verification and Validation Version 3.4 (R2012b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.4 (R2012b)

For details, see “IEC Certification Kit Components” in the IEC Certification Kit documentation.

IEC 61511:2003 tool certification by TÜV SÜD of R2012b versions of supported products

TÜV SÜD certified the following versions of MathWorks products according to IEC 61511:

- Simulink PLC Coder Version 1.4 (R2012b)

For details, see “IEC Certification Kit Components” in the IEC Certification Kit documentation.

Model Advisor checks for bug reports

The IEC Certification Kit now provides Model Advisor bug report checks, allowing you to display bug reports for:

- Simulink Verification and Validation
- Simulink Design Verifier
- IEC Certification Kit
- Polyspace Client for C/C++ and Polyspace Server for C/C++
- Embedded Coder
- Simulink PLC Coder

When you run the individual checks, the Model Advisor lists the bug reports for the products. To access the checks, from the Model Advisor window, select **By Product > IEC Certification Kit**.

New EN 50128 certification artifact

R2012b adds the following certification artifact:

- *Model-Based Design for EN 50128* — Provides suggestions for leveraging MathWorks tools and workflows for Model-Based Design when applying the EN 50128 Standard.

For more information, see “Supporting Artifact for EN 50128”.

Microsoft Word docx files for certification artifacts

The IEC Certification Kit certification artifacts are now available in a smaller file size, Microsoft® Word `.docx`. Previously, the artifacts were available in `RTF` files.

New Simulink default file format

In R2012b, the IEC Certification Kit test models are delivered in the new Simulink model format, with the extension `.slx`. For more information, see "Saving Models in the SLX File Format" in the Simulink documentation.

R2012a

Version: 2.1
New Features: Yes
Bug Fixes: No

ISO 26262 Tool Qualification of New Releases

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Embedded Coder Version 6.2 (R2012a)
- Simulink Design Verifier Version 2.2 (R2012a)
- Simulink Verification and Validation Version 3.3 (R2012a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.3 (R2012a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

IEC 61508 Tool Certification of New Releases

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Embedded Coder Version 6.2 (R2012a)
- Simulink PLC Coder Version 1.3 (R2012a)
- Simulink Design Verifier Version 2.2 (R2012a)
- Simulink Verification and Validation Version 3.3 (R2012a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.3 (R2012a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

Software Tool Validation Tests for Polyspace

The Polyspace materials in the IEC Certification Kit product now include exemplary test cases and test procedures that you can use to automate tool validation tests for Polyspace software.

For more information, see Validate Software Tools.

New ISO 26262 Certification Artifacts

R2012a adds the following certification artifacts:

- *Model-Based Design for ISO 26262* — Provides suggestions for leveraging MathWorks tools and workflows for Model-Based Design when applying the ISO 26262–6 and ISO 26262–8 standards.
- *ISO 26262 Software Tool Inventory* — Provides a template for listing the software tools used in the project under consideration and their corresponding tool classification/qualification documentation.

For more information, see Supporting Artifacts for ISO 26262.

R2011b

Version: 2.0
New Features: Yes
Bug Fixes: No

ISO 26262 Tool Qualification of New Releases

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Embedded Coder Version 6.1 (R2011b)
- Simulink Design Verifier Version 2.1 (R2011b)
- Simulink Verification and Validation Version 3.2 (R2011b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.2 (R2011b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

IEC 61508 Tool Certification of New Releases

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Embedded Coder Version 6.1 (R2011b)
- Simulink PLC Coder Version 1.2.1 (R2011b)
- Simulink Design Verifier Version 2.1 (R2011b)
- Simulink Verification and Validation Version 3.2 (R2011b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.2 (R2011b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

Simulink Verification and Validation Certification Artifacts and Software Tool Validation Tests

R2011b provides the following additional materials for using the Simulink Verification and Validation product in the context of the ISO 26262 standard:

- New certification artifacts: reference workflow, conformance demonstration temple, and ISO 26262 tool qualification package documents
- Software tool validation tests: exemplary test cases and test procedures that you can use to automate tool validation tests for Simulink Verification and Validation software

Certification Artifacts Explorer Display Enhancements

The Certification Artifacts Explorer dialog box has been enhanced in the following ways to support simpler and more flexible viewing of artifacts:

- The display pane previously located on the right-hand side of the dialog box has been removed. Certification artifacts now open and display in a separate window.
- Certification package properties, formerly displayed in the right-hand pane, now are accessible by right-clicking a package and selecting **Properties**.
- Folder and file information now is dynamically displayed in the Certification Artifacts Explorer status bar.

R2011a

Version: 1.4
New Features: Yes
Bug Fixes: No

Certification of Simulink Design Verifier and Simulink Verification and Validation

This release provides certification artifacts for using the Simulink Design Verifier and Simulink Verification and Validation products in the context of the IEC 61508 standard. TÜV SÜD has certified Simulink Design Verifier Version 1.7.1 (R2010bSP1) and Version 2.0 (R2011a) and Simulink Verification and Validation Version 3.0.1 (R2010bSP1) and 3.1 (R2011a) for use in development processes that need to comply with IEC 61508, ISO 26262, EN 50128, or derivative standards. Certification encompasses the test case generation capability of Simulink Design Verifier and the model coverage analysis capability of Simulink Verification and Validation. For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

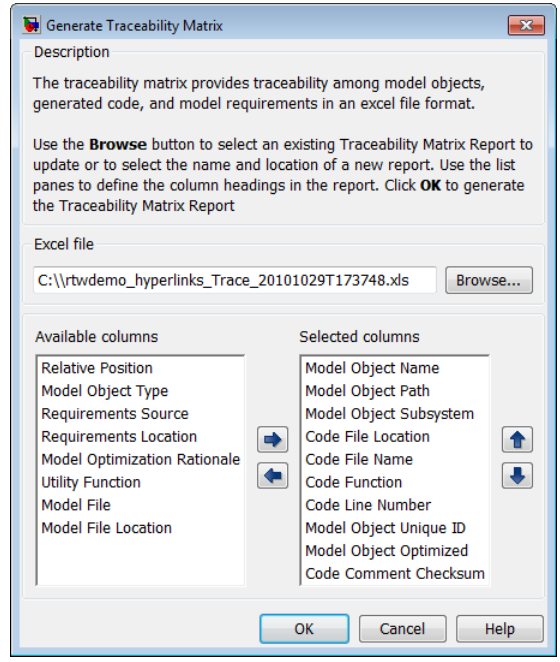
Software Tool Validation Tests for Embedded Coder

The Embedded Coder materials in the IEC Certification Kit product include exemplary test cases and test procedures that you can use to automate tool validation tests for Embedded Coder software. You can modify and extend these test cases to create a test suite that covers the requirements that are relevant for your application, your specific tool configuration, operating environment, and so on. For more information, see Validate Software Tools in the IEC Certification Kit documentation.

Enhanced Dialog for Generating Traceability Matrices

On Windows® systems, you can generate a traceability matrix into Microsoft Excel® format directly from the Embedded Coder code generation report for your model. In previous releases, clicking the **Generate Traceability Matrix** button opened a generic Windows file save dialog box that provided limited control over the updating or creation of a matrix file.

R2011a introduces the Generate Traceability Matrix dialog box, which opens when you click the **Generate Traceability Matrix** button. You can use this dialog box to browse to an existing matrix file to update or specify a new matrix file to create. Optionally, you can also use this dialog box to select and order the columns that appear in the generated matrix. For example, here is the dialog box that appears when you generate a traceability matrix for the example model `rtwdemo_hyperlinks`:



For more information, see Generate a Traceability Matrix in the IEC Certification Kit documentation.

IEC Certification of New Releases

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Embedded Coder Version 6.0 (R2011a)
- Real-Time Workshop Embedded Coder Version 5.6.1 (R2010bSP1)
- Simulink PLC Coder Version 1.2 (R2011a)
- Simulink Design Verifier Version 1.7.1 (R2010bSP1) and 2.0 (R2011a)
- Simulink Verification and Validation Version 3.0.1 (R2010bSP1) and 3.1 (R2011a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.1 (R2011a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

ISO 26262 Tool Qualification of New Releases

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Embedded Coder Version 6.0 (R2011a)
- Real-Time Workshop Embedded Coder Version 5.6.1 (R2010bSP1)
- Simulink Design Verifier Version 1.7.1 (R2010bSP1) and 2.0 (R2011a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.1 (R2011a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

R2010bSP1

Version: 1.3
New Features: Yes
Bug Fixes: No

Using Version 1.3 of the IEC Certification Kit Software with R2010bSP1

Version 1.3 of the IEC Certification Kit software shipping with R2010bSP1 includes documents, templates, artifacts, and software capabilities that have not changed between R2010b and R2010bSP1.

You can use the documents, templates, and artifacts included in Version 1.3 when you use the following MathWorks products in projects involving ISO 26262, IEC 61508, and related standards:

- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.0 (R2010b)
- Simulink PLC Coder Version 1.1 (R2010b, R2010bSP1)

Version 1.3 of the IEC Certification Kit software does not include documents, templates, and artifacts for:

- Real-Time Workshop Embedded Coder Version 5.6.1 (R2010bSP1)

Please check future releases of the IEC Certification Kit software for documents, templates, and artifacts for Real-Time Workshop Embedded Coder Version 5.6.1 (R2010bSP1).

Note You can use the IEC Certification Kit traceability matrix feature to generate traceability matrices for code generated with Real-Time Workshop Embedded Coder Version 5.6.1 (R2010bSP1).

You can use the Certification Artifacts Explorer to explore documents, templates, and artifacts shipping with IEC Certification Kit Version 1.3 and to manage your own collections of certification artifacts.

R2010b

Version: 1.3
New Features: Yes
Bug Fixes: Yes

IEC Certification of Simulink PLC Coder

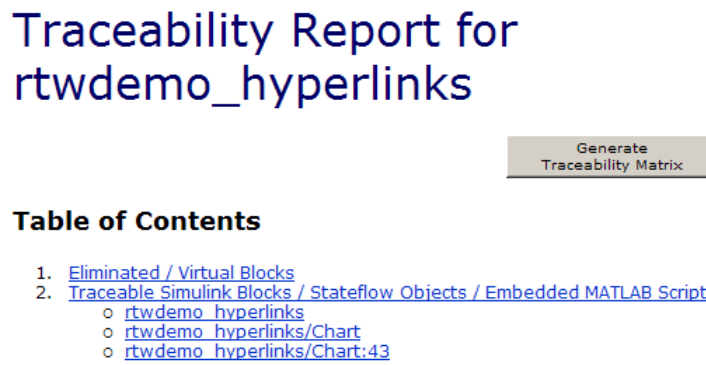
In previous releases, the IEC Certification Kit product provided certification artifacts for using Real-Time Workshop Embedded Coder and Polyspace code verification products in projects involving the IEC 61508 standard. This release additionally provides certification artifacts for using the Simulink PLC Coder product in the context of the IEC 61508 standard. TÜV SÜD has certified Simulink PLC Coder Version 1.0 (R2010a) and 1.1 (R2010b) according to IEC 61508. For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

Traceability Matrix Enhancements

The traceability matrix, which provides traceability among model objects, generated code, and model requirements, has been enhanced in the following ways.

Ability to Export a Traceability Matrix Directly From a Generated HTML Traceability Report

On a Windows host, if your model build generates an HTML code generation report that includes traceability information, you can now export a traceability matrix into Microsoft Excel format directly from the code generation report. To do this, go to the **Traceability Report** section and click the **Generate Traceability Matrix** button.



When you click the button, a Windows file save dialog appears. You can specify either a new or existing Excel file name.

Note If you specify an existing file name, the existing matrix is updated, not overwritten. If your intention is to update or merge information in an existing matrix, you can safely disregard the Windows warning that the file already exists and save the file.

New Code Interface Worksheet

When you generate a traceability matrix, using either the `iec.ExportTraceReport` function or the **Generate Traceability Matrix** button, the matrix now includes a **Code Interface** worksheet. The **Code Interface** worksheet captures information from the **Code Interface Report** section of the HTML code generation report, such as function prototype and timing information for the model initialize and step functions.

IEC Certification of New Releases

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Real-Time Workshop Embedded Coder Version 5.4.1 (R2009bSP1) and 5.6 (R2010b)
- Simulink PLC Coder Version 1.0 (R2010a) and 1.1 (R2010b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.0 (R2010b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

ISO 26262 Tool Qualification of New Releases

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Real-Time Workshop Embedded Coder Version 5.4.1 (R2009bSP1) and 5.6 (R2010b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 8.0 (R2010b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

R2010a

Version: 1.2
New Features: Yes
Bug Fixes: Yes

IEC Certification of New Releases

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Real-Time Workshop Embedded Coder Version 5.5 (R2010a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 7.2 (R2010a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

ISO 26262 Tool Qualification of New Releases

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Real-Time Workshop Embedded Coder Version 5.5 (R2010a)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Version 7.2 (R2010a)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

Access and Manage Certification Artifacts Using Certification Artifacts Explorer

The certification artifacts that are part of the IEC Certification Kit product are in many different locations. Previously, a central access point to the certification artifacts was not available. Now you can use the Certification Artifacts Explorer to access and manage the certification artifacts. Using the Certification Artifacts Explorer, you can:

- Access the certification artifacts that are part of the IEC Certification Kit product.
- Create certification packages containing the certification artifacts that you need to certify your projects.
- Access certification artifacts for editing.

For details, see Access and Manage Certification Artifacts in the IEC Certification Kit documentation. For limitations that apply, see Certification Artifacts Explorer Limitations in the IEC Certification Kit documentation.

R2009b+

Version: 1.1
New Features: Yes
Bug Fixes: No

IEC 61508 Certification of New Versions

TÜV SÜD certified the following versions of MathWorks products according to IEC 61508:

- Real-Time Workshop Embedded Coder Version 5.4 (R2009b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Versions 5.1 (R2008a), 6.0 (R2008b), 7.0.1 (R2009a+), and 7.1 (R2009b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

ISO 26262 Tool Qualification

The following versions of MathWorks products are qualified with TÜV SÜD qualification assessment according to ISO/DIS 26262:

- Real-Time Workshop Embedded Coder Versions 5.3 (R2009a) and 5.4 (R2009b)
- Polyspace Client for C/C++ and Polyspace Server for C/C++ Versions 7.0.1 (R2009a+) and 7.1 (R2009b)

For details, see IEC Certification Kit Components in the IEC Certification Kit documentation.

ISO 26262 Support

The IEC Certification Kit product includes qualification evidence, documents, templates, and tools for certification-related development activities. You can use these certification artifacts and tools when you use the Real-Time Workshop Embedded Coder product in projects involving the ISO 26262 standard.

For details, see theIEC Certification Kit Product Overview in the IEC Certification Kit documentation.

Traceability Among Model Objects, Generated Code, and Model Requirements

When you use Model-Based Design and production code generation to develop application software components, you can generate a *traceability matrix*. The traceability matrix provides traceability among model objects, generated code, and model requirements. You can add comments to the generated traceability matrix. If you change the model and regenerate the traceability matrix, the software retains your comments.

For details, see Generate a Traceability Matrix in the IEC Certification Kit *User's Guide*.

Limitations

The `iec.ExportTraceReport` function that you use to generate traceability matrices has the following limitations:

- The `iec.ExportTraceReport` function does not support generating a traceability matrix for referenced models. When you generate a traceability matrix for a model that contains referenced models, the traceability matrix contains information about the Model block only. The traceability matrix does not contain information about the contents of the referenced model. If your model contains referenced models, generate a traceability matrix for the top-level model and each referenced model separately.
- The `iec.ExportTraceReport` function works with the Microsoft Windows platform only.

R2009a+

Version: 1.0
New Features: No
Bug Fixes: No

Version 1.0 of the IEC Certification Kit

Version 1.0 of the IEC Certification Kit software includes documents, certificates, and templates. You can use these certification artifacts when you use the following MathWorks products in projects involving the IEC 61508 standard:

- Real-Time Workshop Embedded Coder
- Polyspace Code Verification products (for C)

For more information, see:

- IEC Certification Kit User's Guide
- The IEC Certification Kit product page on www.mathworks.com.