

VectorCAST MATLAB TOOLBOX

Version 2.0

2025-11-10

Application Note AN-ACT-1-014

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Restrictions	Public Document
Abstract	Information on the VectorCAST Toolbox, an integration with MATLAB & Simulink

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1 Overview

The VectorCAST Toolbox is a MATLAB add-on that integrates VectorCAST and Simulink to automate the process of measuring code coverage or coupling data for auto-generated code with VectorCAST. Simulink can exercise the code through Software-in-the-loop (SIL) or Processor-in-the-loop (PIL) execution while the VectorCAST Toolbox provides the capability to measure code coverage/coupling metrics to generate evidence for testing completeness and satisfy testing activities in safety critical systems for industries such as Automotive (ISO 26262), Avionics (DO-178B), Industrial Automation (IEC 61508), Medical Device (FDA MED or IEC 62304) or Railway (EN 50128).

1.1 Features

- VectorCAST Toolstrip menu
- VectorCAST Coverage Options user interface
- Auto-detect VectorCAST installation
- Auto-generate VectorCAST Configuration
- Auto-generate setup and start scripts
- Auto-generate VectorCAST Coverage Environment
- Toolbox API for control via MATLAB Command Window or M-file script
- VectorCAST/Coupling support
- Integrate with Simulink's SIL or PIL execution
- Support for Simulink models that generate C++ code
- Support for adding Coverage Environment to VectorCAST Project for coverage aggregation
- Documentation of Toolbox's API and workflows with example M-files and models
- Regression files generation for storing in configuration management

1.2 Software Version Requirements

- Windows Operating System
- MATLAB 2021b and newer
- VectorCAST 2021 Service Pack 5 and newer

2 Installation

Open the MATLAB Add-on Explorer.

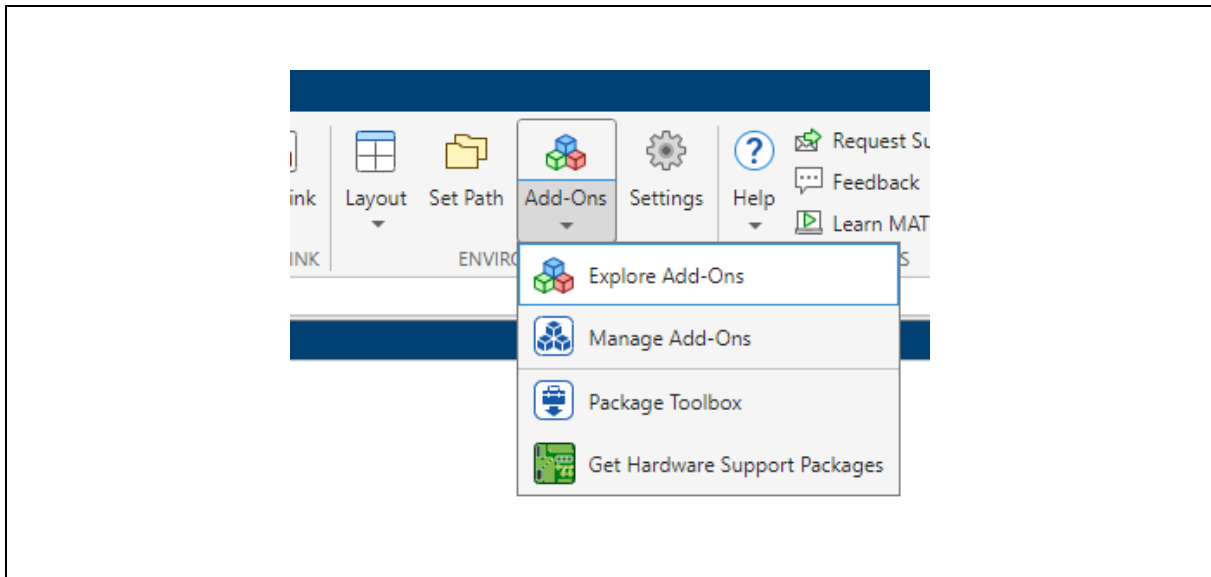


Figure 1-MATLAB Add-on Explorer

Use the keyword “VectorCAST” to search for the VectorCAST Toolbox.



Figure 2-Search for the VectorCAST Toolbox

Click “Add” to install the VectorCAST Toolbox.

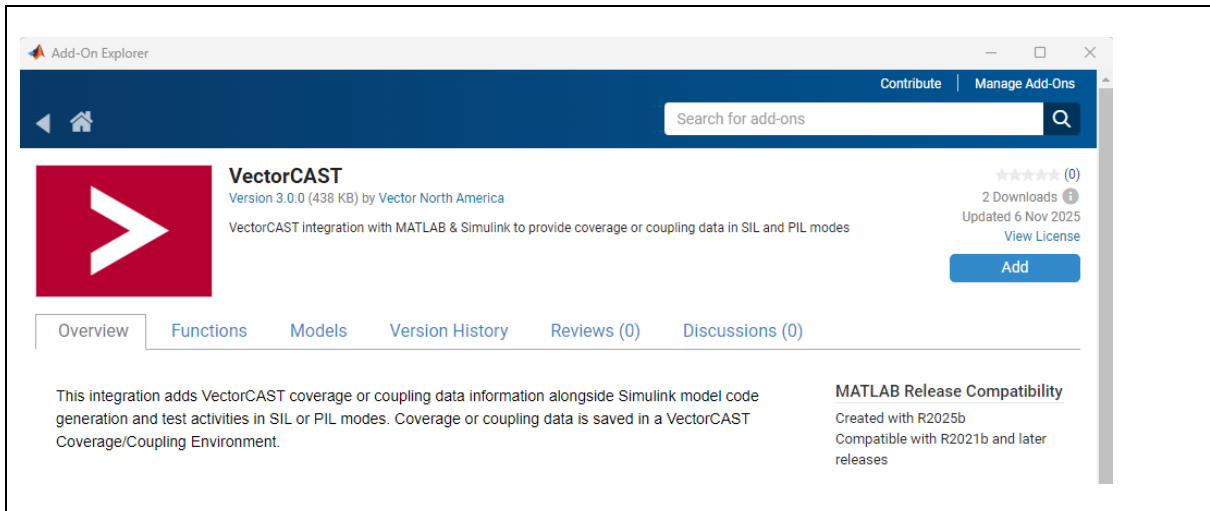


Figure 3-Add VectorCAST Toolbox

Once installed, the Add-On Explorer will now show the toolbox as “Installed”.

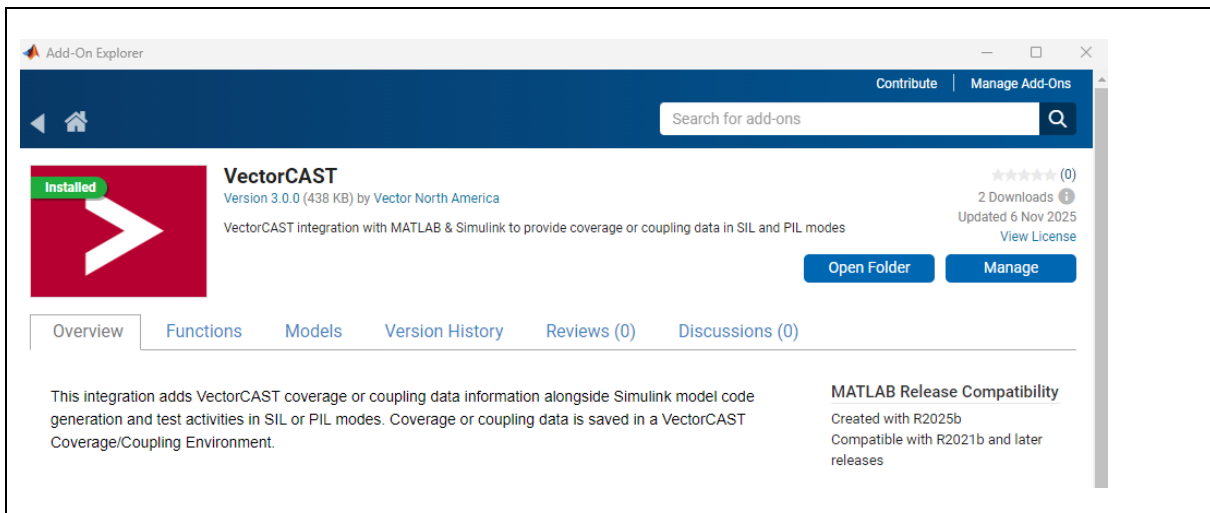


Figure 4-Installed VectorCAST Toolbox

The toolbox installation within MATLAB can vary. Refer to this [MATLAB page](#) for details.

3 Getting Started

After installing, the documentation may open automatically. If not, then click the Help button located in the top right or press F1 to open the Help Browser in MATLAB.

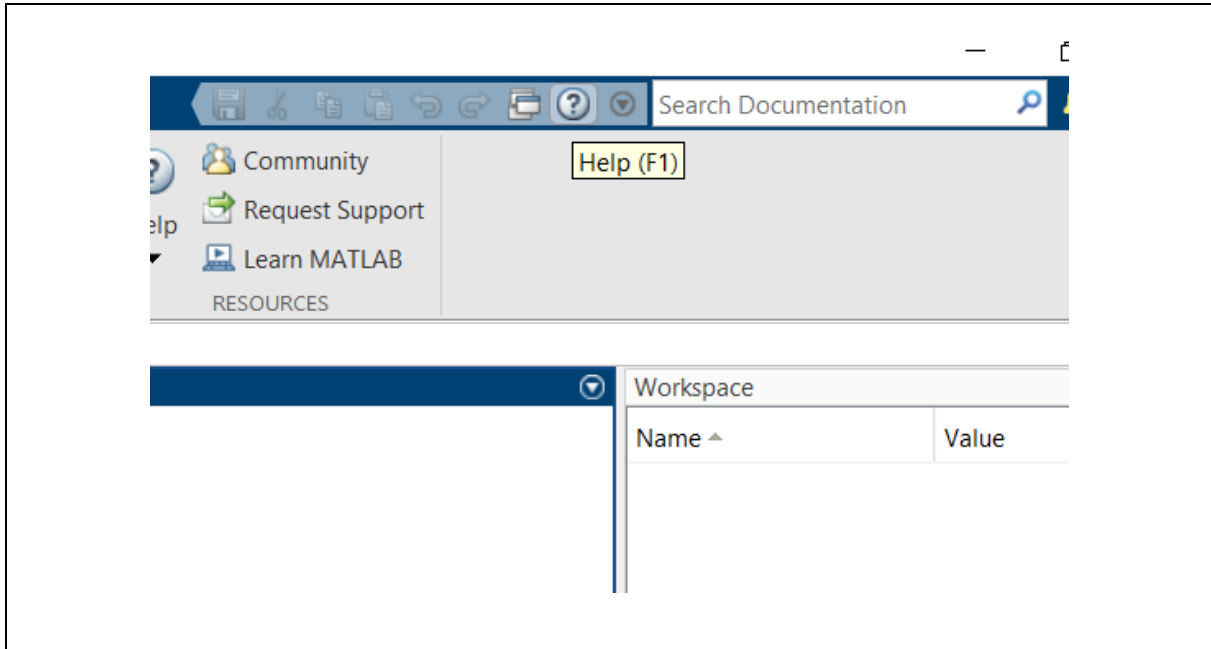


Figure 5-Help Documentation

When the Help Browser is open, the documentation will have a link on the left navigation pane. Click the link "VectorCAST Toolbox" under the "Supplemental Software" section.

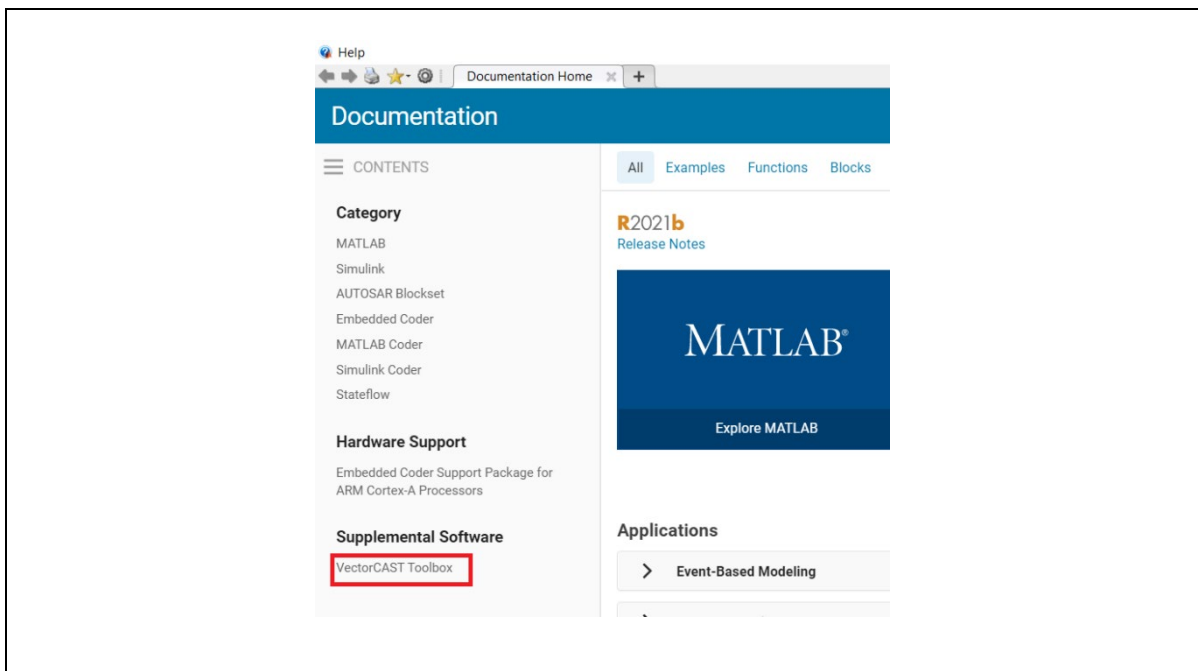


Figure 6-Supplemental Software: VectorCAST Toolbox – Alternative 1

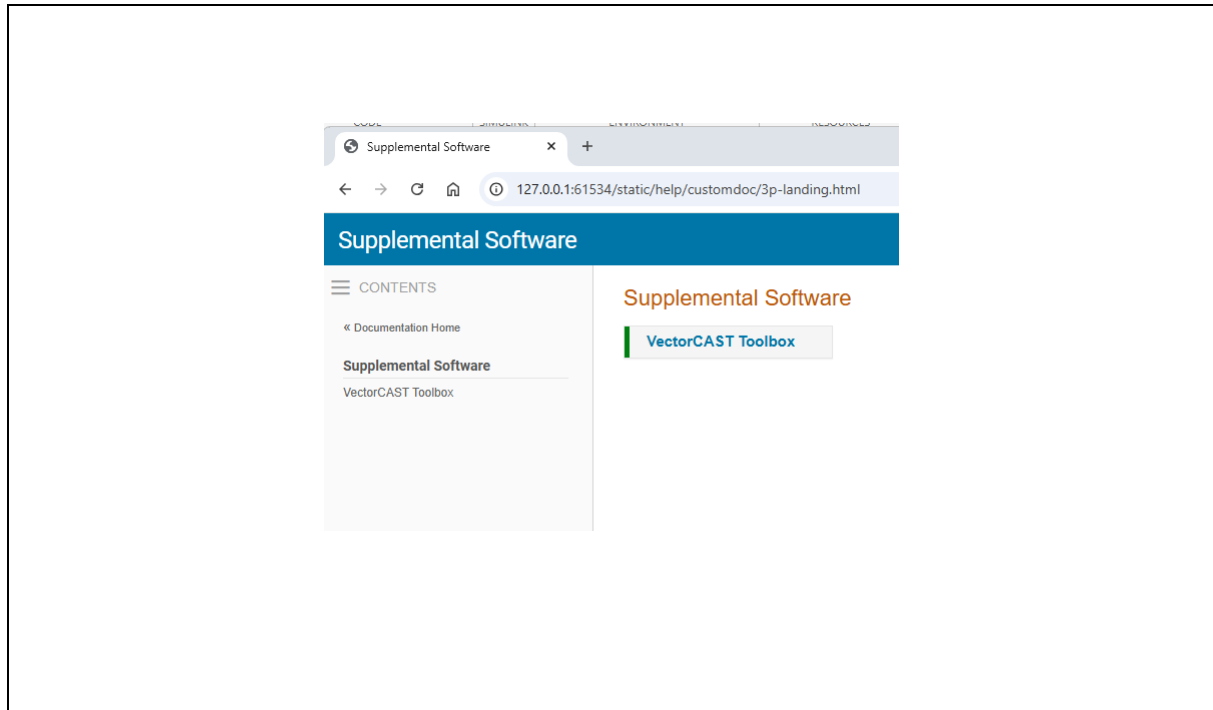


Figure 7-Supplemental Software: VectorCAST Toolbox – Alternative 2

4 Version History

The table below summarizes the version history, highlighting key features and enhancements for each release.

Version	Release Date	Major features/changes
3.0.0	2025-11-06	- Released through MathWorks File Exchange/MATLAB add-on Explorer - New API for adding a VectorCAST Coverage Environment to a Project for aggregate coverage - New API for determining possibility of VectorCAST Coupling Environment - New API for determining absolute file path to the M-file report generation script - Add support for Simulink Models that generate C++ code - Add support for setting the base directory to create the VectorCAST Environment files - New API for setting new directories for individual test executions and instrumented code - Create documentation for APIs - Create documentation for regression files generation and storage in configuration management
2.0.0	2023-09-06	- Released in VectorCAST version 2023 SP3 - Installer located in <VectorCAST_Install_Dir>/simulink/VectorCAST.mltbx - New VectorCAST toolstrip menu - New VectorCAST Coverage Options - Auto-generate the VectorCAST Configuration - Auto-generate setup and start scripts for VectorCAST instrumentation - New Toolbox API - New debugging capabilities - New exceptions and exception handling - Auto-detect VectorCAST installation - Generate links to VectorCAST reports - Generate script for VectorCAST report generation - VectorCAST/Coupling support

5 Additional Resources

- Achieving DO-178C/DO-331 Conformance in Simulink Environments: https://youtu.be/soGb62_TRVA?si=W8xuNkUQzKICsWKe
- VectorCAST Toolbox Tutorial: <https://www.youtube.com/watch?v=ErdQDQPkJ3o>
- Achieving Coverage in Simulink Workflows: <https://vector-group.webex.com/vector-group/jdr.php?RCID=1107c749153500689c849257ffcd8a18>

6 Trademarks

All mentioned names are either registered or unregistered trademarks of their respective owners.

7 Contacts

For a full list with all Vector locations and addresses worldwide, please visit <http://vector.com/contact/>.