What is MXAM?

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MES Model Examiner® (MXAM) offers fast and reliable guideline compliance verification for Simulink®, Stateflow®, Embedded Coder®, TargetLink®, ASCET®, and Enterprise Architect® models, as well as Excel® data, using general and company-specific modeling guidelines and data rules.

Certified by TÜV SÜD for IEC 61508, ISO 25119, and ISO 26262

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What's New?

? Read about all new features in the release notes

Highlights in latest versions of MES Model Examiner® (MXAM) v.8.0

Extended Reporting Details
Finding messages referencing additional model elements now include footnotes with link details when model links are not resolvable (e.g. in xlsx or PDF reports).
Report details are consolidated among report formats, adding the architectural metrics table to html and PDF reports, and parameter configuration details to xlsx reports.

Additional Guidelines
New guidelines are added focusing on implicit data type conversions, saturation settings of Integrator blocks, and layouts in Stateflow.

Download Latest Version

MXAM v.7.3

Highlights in MES Model Examiner® (MXAM) v.7.3

Clone Group Check
The clone group check identifies repetitive subsystems in the model and creates a finding for each group of subsystem clones. The finding contains model links to each member of a clone group to simplify navigation and review in the model.

Multiple Linking into the Model
Check findings now support the listing of multiple model links in the findings messages. This simplifies navigation in the model e.g. for findings that may be affected by several different elements in a model.

MXAM v.7.2

Highlights in MES Model Examiner® (MXAM) v.7.2

- The automatic port selection for the web service as well as the MATLAB connection makes installing and configuring MXAM much easier, and supports automated installation scripts.
- Better user feedback and error handling regarding configuration and runtime issues improve the overall MXAM experience.
- Four new checks added to the MAB 5.0 document and the dSPACE TargetLink 5.0/5.1 document has been updated.

MXAM v.7.1

Highlights in MES Model Examiner® (MXAM) v.7.1

Validation of Project Settings
Show validation details in pre-analysis validation in case of warnings/errors. Prevent execution of an analysis if there is any error detected.

New Checks for MAB
Additional MAB 5.0 guidelines are available.

MXAM v.7.0

Highlights in MES Model Examiner® (MXAM) v.7.0

dSPACE TargetLink users will benefit from significant runtime improvements of TargetLink checks and the support of TargetLink 5.1.

Newly available MAB 5.0 guidelines focus on the prevention of division by zero in Simulink and Stateflow.

Installation

Manual Installation

- Installer: Install MXAM by executing the setup file (.exe) and follow the setup instructions.
    - The startup of the installation process might take a while depending on the security settings of the client machine.
    - Installation to a write-protected directory: Right click the setup file and execute as administrator.
- Zip archive: Unzip the archive into any directory

Automatic Headless Installation

- Run the MXAM installation once on a machine and save your automatic installation data in the Finish Panel to auto-install.xml.
  With this data, you will be able to run the same installation on another similar machine.
- Configure the auto-install.xml
- Run the automatic installation: >>[installer-name].exe [ABSOLUTE-PATH/auto-install.xml]

FAQ

License Configuration
Learn more about the MES Quality Tools License Configuration, general license questions and the MES licensing models as well as how to change your MAC-ID.

Update to the Latest Version

- If you added MXAM folders permanently to the MATLAB path, please remove all of these folders from the path.
- If you installed the old version in a folder with a version postfix (e.g. x:\project\matlab\mxam_x_x), you can keep that directory as a backup.
- If you installed without a version postfix, you could rename the old installation directory to one with a version postfix as a backup.

Update from MXAM 1 to a Current Version of MXAM

A migration kit to migrate customer-specific checksets and checks is available upon request.
Please contact sales@model-engineers.com.

Download Latest Version

System Requirements

The following system requirements must be in place to use MXAM:

- Windows Vista, Windows 7, Windows 8, Windows 10 (64-bit versions)
- Java 8 to 15 needs to be installed on your system (the tested version to work with MXAM is AdoptOpenJDK 8).
- System requirements when using MXAM with MATLAB®/Simulink®/Stateflow®, and TargetLink®:
  - MATLAB® version see table below
  - TargetLink® (base suite) version see table below
- System requirements when using MXAM with ASCET: ASCET 6.1 to 6.4.5 Beta
- System requirements when using MXAM with EXCEL: Excel 2003 and higher

Compatibility of each MXAM release with MATLAB and TargetLink releases

MXAM Release	MATLAB Release	TargetLink Release
8.0	R2015b - R2021b	TL 4.1 - TL 5.2
7.3	R2013b - R2021b	TL 3.5 - TL 5.2
7.2	R2013b - R2020b	TL 3.5 - TL 5.1
7.1	R2013b - R2020b	TL 3.5 - TL 5.1
7.0	R2013b - R2020b	TL 3.5 - TL 5.1
6.5	R2011b - R2020b	TL 3.3 - TL 5.0
6.4	R2011b - R2019b	TL 3.3 - TL 5.0
6.3	R2011b - R2019b	TL 3.3 - TL 5.0
6.2	R2011b - R2019b	TL 3.3 - TL 5.0
6.1	R2011b - R2019a	TL 3.3 - TL 4.4

6.0	R2011b - R2019a	TL 3.3 - TL 4.4
5.3	R2011b - R2018b	TL 3.3 - TL 4.4
5.2	R2011b - R2018b	TL 3.3 - TL 4.3
5.1	R2011b - R2018b	TL 3.3 - TL 4.3
5.0	R2011b - R2018a	TL 3.3 - TL 4.3
4.7	R2009b - R2017b	TL 3.2 - TL 4.3
4.6	R2009b - R2017b	TL 3.2 - TL 4.2
4.5	R2009b - R2017a	TL 3.2 - TL 4.2
4.4	R2009b - R2017a	TL 3.2 - TL 4.2
4.3	R2009b - R2016b	TL 3.2 - TL 4.2
4.2	R2009b - R2016b	TL 3.2 - TL 4.2
4.1	R2007b - R2016b	TL 2.2 - TL 4.1
4.0	R2007b - R2016a	TL 2.2 - TL 4.1
3.9	R2007b - R2015b	TL 2.2 - TL 4.1

Quick Start

Starting MXAM

- For MATLAB platform: Open MATLAB, navigate to the MXAM installation directory, and execute >>mxam
- For other platforms: Start MXAM using the program shortcut or go to the MXAM installation directory and execute mxam.exe

Starting an Analysis

For MATLAB platform:

- Open a model in MATLAB
- Press "Analyze" in MXAM
- Select the model in the artifact dialog
- Press "Finish"

For ASCET:

- Press "Analyze" in MXAM
- Press "Open ASCET" in the artifact dialog if it is not yet open
- Press "Refresh" to fetch models from the database
- Press "Finish"

For Others:

- In the Project perspective, press "Add..." in the Artifact Section to add an artifact
- Select the artifact and press "Finish"
- Press "Analyze"

Guidelines

- Go to the "Project Guidelines" perspective to see which guidelines will be checked during the analysis.

- To see the pool of all available guidelines, go to the "Library Browser" perspective and select the "Guidelines" view.

Suggestions

If you have any suggestions to help us improve the MES Model Examiner®, please do not hesitate to contact us:
Email: mxam@model-engineers.com

User Instruction

MXAM User Guide

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User Guide

The MES User Guide presents clear instructions on how to work with the MES Model Examiner® (MXAM). It provides users with information about getting started and working with MXAM. You can easily call the User Guide by clicking on "Help > Help Contents" in the menu (see image).

MXAM Videos

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In this video, Model Engineering Solutions (MES) will demonstrate how to set up an MXAM project as an mxmp-file. You will learn how to create and configure an MXAM project and how to save and load a project. Since this video is focused on the first step of the MXAM workflow, basic knowledge of the workflow is needed in order to watch this video.

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In this video MES will explain how to understand reports and demonstrate how to work with them in order to make your model guideline compliant. You will need to have basic knowledge about the MXAM

workflow to watch this video.

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Release Notes - MXAM v.8.0 (April 2022)

Tool Framework

Improvements

- Improved the display of finding messages that contain references to additional elements by using footnotes in case the links are not navigable (e.g. Excel or PDF reports).
- Added an architectural metrics table to exported HTML and PDF reports.
- Added parameter configuration details to exported Excel reports.

Bug fixes

- MXAM now prevents a false positive MATLAB warning in MATLAB 2017b when the warning ‘MATLAB:subscripting:noSubscriptsSpecified’ is activated. (#9756)
- Fixed the detection of MXAM headless execution mode for the report export when the analysis is triggered from the MATLAB context menu. (#9827)

Guidelines, Checks, and Documents

New MAB Guidelines (Version 5.0) available

- Ensure that the datatypes of all inports and outports of switching blocks are the same with the guideline jc_0650. (#9534)
- Verify the saturation settings of your Discrete-Time Integrator blocks with the guideline jc_0627. (#9444)
- Unify the positioning of comments in Stateflow transition labels with guideline jc_0771. (#9364)

New dSPACE Guideline Document for TargetLink 5.2 available

- All guidelines of the new dSPACE Guideline Document for TargetLink version 5.2 are now available in MXAM. (#9793)

New Functional Safety Solution Guideline and Check Available

- Avoid implicit data type conversion with the new guideline and check sdt_sc008. (#9472)

Improvements

- MXAM's signal tracing routine now supports BusElementPorts. (#9668)
- MXAM's signal tracing routine now supports TL_SWCSender/ReceiverPorts from the TargetLink AUTOSAR library. (#9667)
- The computational overhead introduced by ignoring blocks defined by the global parameter Global.IgnoredLibraries during each check has been significantly reduced now. (#9489)
- The division by zero checks mcheck_jc_0794 and mcheck_jc_0711 now recognize a further division by zero protection pattern, namely where a MinMax block is used to avoid division by zero. (#9736)
- mcheck_jm_0002_b, mcheck_misra_slsf_025_a_5: The checks now include support for Stateflow charts. (#9637)
- Use mcheck_mes_cgtl_9002 to check the correct setting of the new code generation option 'EnableSharingOfSequentialControlVariable' introduced in TargetLink 5.2. (#9735)
- There are now additional links to model elements in the finding messages of some checks. These links simplify the navigation to the affected elements in the model. The finding messages of the following checks now have an additional link: mcheck_sdt_il001_a, mcheck_sdt_sc001, mcheck_sdt_sc005, mcheck_sdt_sc006, mcheck_sdt_sc007_a, mcheck_sdt_sc007_b and mcheck_misra_slsf_027_ab. (#9561)

Changes

- The default parameter setting for the parameter MISRA_SL_SF.misra_slsf_030.IgnoredBlocks has been modified. In the new default setting, this check ignores the following blocks: Constant, From, Goto, TL_Function, Model Info, DocBlock, Data Store Write and Data Store Read. (#9792)

Bug fixes

- Some guidelines of the dSPACE Guideline Documents for TargetLink 5.0 and TargetLink 5.1 referenced an older guideline version. This has been fixed. (#9793)
- mcheck_tl_pr20050222_03: The check no longer omits the first instance of a repeatedly used variable from the findings. (#9723)
- For certain modeling patterns related to nested bus signals, MXAM's signal tracing routine could not properly trace through BusSelector blocks with bus output. This has been fixed. (#9666)
- If both the width and the height of an individual block were faulty, the repair actions of checks mcheck_jm_0002_b and mcheck_misra_slsf_025_a_5 needed to be executed twice. Additionally, in some cases, the checks did not correctly calculate the required width of a block. These issues have been fixed. (#9632)
- The attempt to evaluate model workspace parameters may have led to a compile problem when using model references. This has been fixed. (#9654)
- mcheck_mes_slsf_3106, mcheck_slsf_9102 and mcheck_misra_slsf_026_b: When certain filters were active it was possible that the element described in the MXAM finding was not the actual faulty model element. This has been fixed. (#9731)
- In some cases, the check mcheck_ar_0001 gave a failed finding for files with extensions .slx.autosave or .mdl.autosave. These files were created automatically for a model opened by MXAM to run the check. This has been fixed. (#9526)
- The check mcheck_jc_0232 aborted when analyzing library artifacts. This has been fixed. (#9761)
- In some cases the check matlab_mxray_1306 did not find all usages of a signal in the model. This caused the check to incorrectly mark ports as unused. This has been fixed. (#9623)

- The checks mcheck_jc_0794 and mcheck_jc_0711 were not fully compatible with the Matlab version R2021b. This has been fixed. (#9848)

Complete Release Notes