

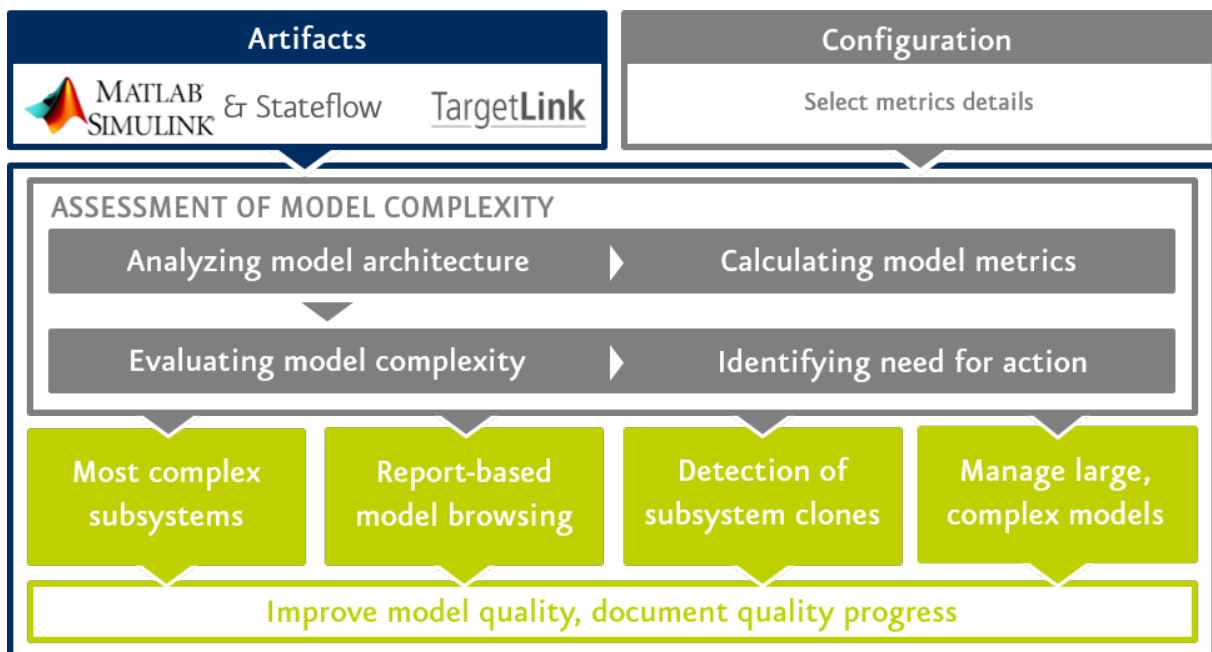


MES M-XRAY®

Complexity Management in Model-Based Development

Assessment of Model Architecture and Model Complexity

MES M-XRAY® is a tool for structural and complexity analysis of Simulink®, Stateflow®, Embedded Coder®, and TargetLink® models, using proven methods for calculating and evaluating model metrics. MES M-XRAY® model analysis delivers all the metrics you need to realistically evaluate the architecture, complexity, and size of your models. By identifying problematic model sections, MES M-XRAY® provides unique tool support for the model refactoring process. Moreover, reasonable and reproducible figures for overall model size support resource allocation for model development, testing, and review. These figures further ensure comparability between model versions and variations.



MES M-XRAY® analyzes model architecture and evaluates model complexity, giving you complete transparency into your model

Key Benefits

- Complexity assessment of Simulink®, Stateflow®, and TargetLink® models
- Provides comparable figures on model size, allowing reliable resource allocation for model development, testing, and review
- Clear visualization of model architecture and structural complexity
- Detection of subsystem clone groups
- Ensure compliance with ISO 26262 and ASPICE



Visualization and Analysis of Model Architecture

An optimal model architecture is a vital prerequisite for ensuring safe software generated from models. MES M-XRAY® helps you analyze the architecture of Simulink®, Stateflow®, and TargetLink® models, thus fulfilling an important ISO 26262 requirement relating to the design of software architecture.

ISO 26262 Compliance

MES M-XRAY® detects overly complex and error-prone model sections, and plays a vital part in keeping model complexity low. The tool provides metrics to evaluate the adherence to model architectural design principles according to ISO 26262 and helps you fulfill the corresponding requirements.

Subsystem Clone Group Detection

Copy-paste subsystems can occur even in the best MBD workflows. A reliable method of detecting cloned subsystems is vital for ensuring software quality. By comparing unique model metrics, MES M-XRAY® detects cloned subsystems even when layout changes or block and parameter variations have been applied.

Supported Artifacts

- MathWorks MATLAB®, Simulink®, Stateflow®, Embedded Coder®
- dSPACE® TargetLink®

Supported Metrics

- Halstead complexity adapted for MBD as model volume (MV)
- Model volume with optional inclusion of model references and libraries (global complexity)
- Halstead complexity on subsystem level (local complexity)
- Incoherence within subsystems
- Classification of structural and functional subsystems
- Complexity of interfaces
- Number of modeling elements (blocks, signal interfaces, Stateflow® elements)

Supported Functionality

- Proven thresholds for assessing complexity on subsystem level (local complexity)
- Complexity computation by using block-specific weighting factors
- Report export (html, xls) with configurable metrics details to support model review
- API support for tool chain integration (Jenkins, MATLAB command line)



Contact

Model Engineering Solutions GmbH, Waldenserstraße 2-4, 10551 Berlin, Germany
T: +49 30 2091 6463 0
Email: info@model-engineers.com