



MES Model Examiner[®] with Excel Adapter Gives Consistent Data Formats and Efficient System Integration

Embedded systems in vehicles are becoming increasingly complex. Individual components are developed in a distributed manner and subsequently integrated into a functional overall system by the OEM or first-tier supplier. This distributed process makes the need for consistent data formats and interfaces essential. The application of MES Model Examiner[®] with the MS Excel[®] Adapter allows inconsistencies to be detected and rectified automatically, resulting in shorter development cycles and making the embedded system less susceptible to error.

The challenge

In software and system development, a multitude of proprietary data is used to describe interfaces and data formats and enable exchange between development partners. In this context MS Excel[®] is a powerful tool that allows data to be saved in a structured manner and exchanged automatically to a degree. In practice however, the tables become increasingly complex and unwieldy as the project progresses, so verifying accuracy and consistency manually is no longer feasible. In particular analysis across multiple spreadsheets, which is crucial in revealing the most serious errors, must be executed with the support of tools.

Consistent data thanks to MES Model Examiner[®] with MS Excel[®] Adapter

MES offers a solution that automates complex checks with Excel data: MES Model Examiner[®]. This tool was developed to evaluate and improve the quality of a software model early in the development process using modeling guidelines. The MES Model Examiner[®] development team has now applied this methodology to checking data within MS Excel[®] tables. With the help of the MS Excel[®] Adapter, the consistency of the data can be assessed within a single Excel table or across multiple spreadsheets. This way, inconsistencies and deviations from defined data formats are identified and eliminated early on in the development process.

Guidelines as a basis for checking Excel tables

In order for the MES Model Examiner[®] and the Excel Adapter to be used efficiently in a project, guidelines for Excel data are defined according to the project requirements and subsequently implemented. The MES Model Examiner[®] can then perform automated analysis of the changing Excel data status at any time. To ensure that

guidelines can be reused, they are integrated and function independently from the position of the data in the columns and spreadsheets. It is possible to modify or insert a new column at a later stage. Furthermore, a guideline check may be carried out across multiple Excel files. The Excel Adapter also provides the option of adding comments on guideline violations within MS Excel® to aid error correction. These are inserted directly into the erroneous Excel cell for improved readability.

Obtained results

The MES Model Examiner® with the Excel Adapter allows large amounts of specified Excel data to be automatically checked for consistency, either within one spreadsheet or across multiple Excel documents. The high degree of automation means these checks can be applied early and often in the development process. As a result, the quality of the data pool and the system under development is increased.

Examples of current application in industry

Bernd Kunkel, Director of Gateway Development and Data Definition at Volkswagen AG sums up the benefits based on his experience, “We employed MES’s tools and expertise to improve the integration of software components in software development. Being able to quickly check the consistency of our specifications means an increase in efficiency.” As data consistency is key in many aspects of system development, MES can already visualize many more application examples for the MS Excel® Adapter.

Model Engineering Solutions: Software Quality. In Control.

Model Engineering Solutions GmbH (MES) is a software company that offers solutions for the quality assurance of software projects. MES supports its customers in developing model-based embedded software that complies with industry standards such as IEC 61508, ISO 26262 or ASPICE.

Headquartered in Berlin (Germany), MES was founded in 2006. Dr. Hartmut Pohlheim, one of the most eminent experts in model-based development, has been the managing director of MES since 2008. With subsidiaries in the U.S. and China, international sales partners, and major industrial customers such as Bosch, Daimler, Ford, Geely, Stihl, and VW, MES maintains a strong worldwide presence. All but a few of the world's top-selling manufacturers and suppliers in the automotive industry rely on MES' solutions in their development environments.

MXAM, MTest, MoRe, and MQC are the four MES quality tools. Together they form a toolchain for the comprehensive quality assurance of all phases of the model-based software development process. With the MES Jenkins Plugin, the toolchain can also be used in a continuous integration environment. The main application is the MATLAB® Simulink® platform. The MES Test Center and the MES Academy's main service areas are quality assurance and the optimization of development processes.

MES is a dSPACE Strategic Partner, MathWorks, and ETAS product partner, and cooperates with SAE International.