Effective vehicle data management of mobile machines

Originally created for use in the passenger car market, ODX has long-established itself in off-the-highway vehicles as well, proving to be an extremely versatile and useful tool. With Sontheim's Communication Life Cycle Manager, the true potential of ODX can be exploited, with the entire vehicle data management residing in just one tool.

The ODX developed by ASAM is an XML-based data format for representing and exchanging diagnostic data in vehicles and ECUs. Due to various extensions of the standard, the creation, verification and management of ODX data has become increasingly complex, which can lead to potential errors and higher development costs. To avoid this, Sontheim has developed a tool that enables simple and high-performance creation and management of ODX data over the entire life cycle of a machine - the Communication Life Cycle Manager (CLCM).

All-in-one solution for ODX applications

The CLCM is a powerful ODX-based software tool chain that serves as a central tool for the complete design, testing, implementation and management of all data in a complex machine system. In addition, an integrated, configurable code generator creates ECU diagnostic communication software directly and automatically from ODX files. The tool is used in the development phase of a machine to define and manage the complete network and internal communication. It also serves as a basis for the creation of source code and documentation.

Diverse functions and user views simplify data handling and ensure an overview of the work machine's system communication at all times.

Individually configurable user views

Multiple user views that can be flexibly configured by the user provide efficiency and ease of use when creating and reviewing ODX files. The "Detail View", for example, provides a user experience similar to a standard ODX editor. As with the entire CLCM, the "Detail View" offers numerous features that increase functionality.

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For example, the Copy/Paste function allows you to copy complete elements together with their references from one file to another, thus reducing the development time enormously. Another useful function is the Used By window. Here, all elements are displayed that refer to the element that is currently being worked on. This helps developers to get a quick overview of complex connections. Through a diff/merge view, the developer is also able to quickly perceive changes to ODX data, to assess and, if necessary, to undo them, which ultimately reduces the debugging effort significantly.

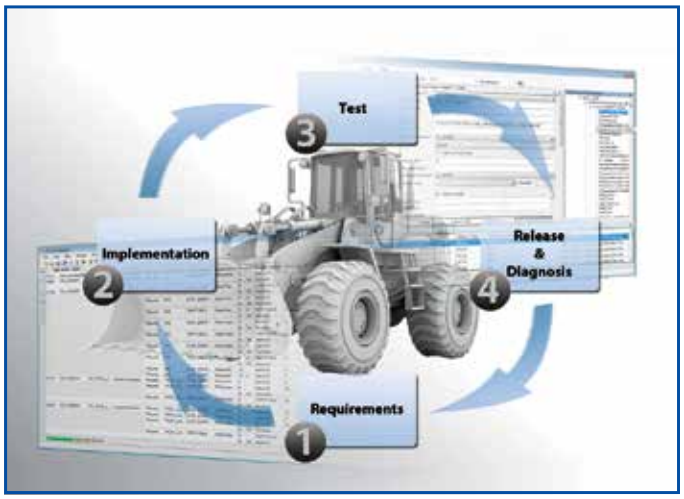
The "Table View" is the main view and is used for creating and managing data. It provides a simple and customizable way to abstract the ODX structure so that the user does not need to have in-depth ODX knowledge to create data. The "Table View" can be configured via stylesheets to show only the information fields that are necessary or relevant for the ODX data being processed. This view hides the ODX complexity and complicated reference structure. The user can make changes to specific elements without needing an overview of all references. If the "Table View" is used when defining ODX data, the CLCM automatically creates the complete underlying structure in the background! In addition, individual user-created stylesheets can be saved for future projects, saving valuable development time in the future.

CLCM Features: Always one step ahead

A multitude of functions allow the user to exploit the full potential that ODX has to offer. This includes independence from specific protocols and communication systems. Support for standard protocols such as CAN, CANopen, K-Line, J1939, KWP2000onCAN, UDS, etc. is already integrated.

In addition, the tool is able to implement customer-specific proprietary systems. This allows users to define all machine data, independent of the specific protocols used.

Another feature is the code generator which can be used to automatically create source code based on ODX files. Thereby stylesheets are created and used to configure the source code generator and allow the user to convert ODX data into any file format and language like .c, .cpp, .h, .lua, .xml, etc. This feature can also be used via a command line call to become an embedded part of the automated build processes. This allows the CLCM to be used directly to generate ECU firmware.



Effective vehicle data management over the entire life cycle of the mobile working machine.

A configurable "Document Generator", similar to the Source Code Generator, enables automatic creation of ODX-based documentation in standard formats such as .doc and .pdf. Implemented functions of control units can also be tested with the CLCM. Queries can be executed and compared with specified responses. The results are stored in test logs. In addition, the CLCM contains extensions to connect created files with file versioning systems to make integration into the normal development process as easy and convenient as possible.

Conclusion

The Communication Life Cycle Manager enables developers to describe and maintain all machine-relevant data over the entire life cycle of the driven machine. Equipped with customizable views, the CLCM is the optimal tool for defining ECU communication in ODX format without having to have in-depth knowledge of the ODX standard. The tool also offers a configurable automatic source code generator that seamlessly and automatically generates ECU software or other software based on ODX files. Thus, all functions are available to become an integral part of the ECU development of mobile working machines, saving valuable time and unnecessary effort in the development phase. Use the true potential of ODX with the Communication Life Cycle Manager from Sontheim. ■

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