

supplier independent configuration of data loggers and measurement modules by use of ASAM GDI device integration

“For the LAPI-project, we have chosen ASAM GDI for device integration, because this standard was optimized for such tasks and defines rules for supplier and operating system independent handling of any device able to communicate with computers.”

Manfred Bartz, BMW AG

H.J. Ohnemüller, DaimlerChrysler AG

Wolf-Dieter Pölsler, Porsche AG

i Summary

Complete vehicle testing will be configured with one software for data loggers and measurement modules of multiple vendors (Figure 1). GDI device drivers make all different devices compatible for the configuration via a Logger-API.

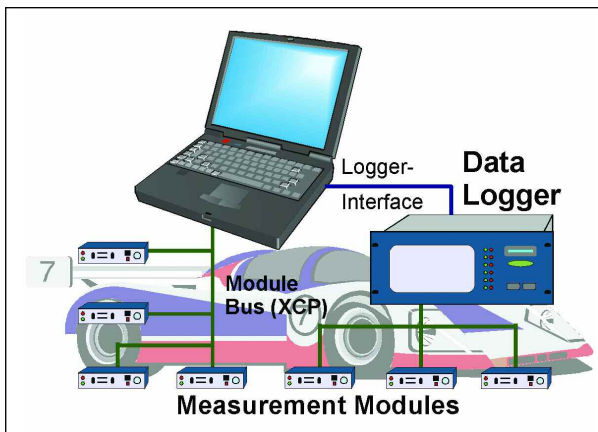


Figure 1: Configuration of data loggers & measurement modules

Optimizing one configurator leads to better software quality and opens the door for comfortable handling of measurement tasks and test scenarios. The reusability of this software with any equipment reduces purchase and teaching costs.

ii Situation

A lot of elaborated data loggers and measurement modules of different suppliers are used in complete vehicle testing for sophisticated measurement tasks. But the different configuration tools of many vendors need specific handling with accordingly teaching effort. This makes the integration of multiple supplier device configuration into standardized methods for task and resource planning too expensive. But the dependencies from choosing only one supplier now may cost an arm and a leg later.

iii Challenges

OEMs need a software library to provide an interface usable with devices of several vendors. But the concept of the library should respect the future development of technology with increasing requirements on data acquisition, evaluation, storage and traceability. Thus the structure has to be open for possibly changing views on technology in the future.

Another requirement is the compatibility of measurement modules used by data loggers. It shall be possible to mix data loggers and measurement modules of different vendors without special agreements.

iv Success strategy

Under the leadership of BMW, DaimlerChrysler and Porsche, a working group of data logger and measurement module specialists of software and hardware suppliers defined an universal application program interface for the configuration of complete vehicle test equipment, called LAPI (Logger-API, Figure 2). This interface will be the base for the development of sophisticated configuration tools being usable for complete vehicle test devices of different suppliers.

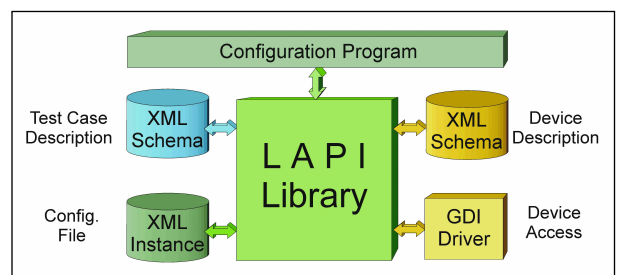


Figure 2: LAPI device integration via GDI

Vendor independence is warranted by integrating devices via ASAM GDI drivers.

supplier independent configuration of data loggers and measurement modules **by use of ASAM GDI device integration**

Test cases, measurement objects and devices are described with XML Schema, being the templates for the configuration of the system. The concrete configuration with defined structures and parameters is stored in a XML file including the selected resources of the XML Schemas. This file may be transferred to the data logger to have all data present while testing the car at any location.

For the compatibility of measurement modules LAPI working group decided to use the standardized XCP protocol (ASAM AE) and LAPI device suppliers have already implemented it.

v **Challenges during the project**

The main challenge was to find a concept, which is really open to any technology development in the future. And to have a resource description which is able to handle very special scenarios for specific devices. Therefore the LAPI-Library was developed neutral to device and test case descriptions defined in XML Schema.

vi **Business benefits**

Using only one configuration tool for all measurement tasks with actual and future equipment of different suppliers opens the way for modern concepts of test and resource planning with tolerable costs. The reusability of optimized software combines increase of quality with decrease of costs.