

Softing Automotive Electronics GmbH

# Introduction of ASAM SOVD from a development perspective

**Featured Standards:**  
**ASAM SOVD,**  
**ASAM MCD-2 D,**  
**ASAM MCD-3 D**

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## AT A GLANCE

ASAM SOVD (Service Oriented Vehicle Diagnostics) is the first definition of a remote-capable programming interface for accessing a diagnostic system integrated in the vehicle. However, the introduction of a new diagnostic standard must be designed with a view to the producibility and reparability of a vehicle. So when the system is introduced at a German OEM, it is essential to have a powerful safeguarding. The answer is to use an extended engineering tester in which the existing remote capability is extended with ASAM SOVD. All use cases can therefore be covered with reliable processes, and today's ECU diagnostics are available at any time with regard to legacy systems in after-sales, but also as a failsafe.

## CURRENT SITUATION

Current vehicles have up to 150 ECUs, which are addressed directly via the OBD jack and the ISO 14229 (UDS) protocol. Individual information is processed outside the vehicle in the test system. In future, information will be consolidated directly in the vehicle via the integrated diagnostics system (ASAM SOVD server). Vehicle diagnostics are then carried out wirelessly via the cloud. However, the development and release of ECU diagnostics will continue to take place via UDS. Ideally, a multi-stage approach should therefore be taken to the increasing integration of vehicle systems – with established processes for tools and data. Deviations would increase costs enormously over the entire life cycle.

## SOLUTION CONCEPT

Today, ECU engineering and release is carried out using a standardized engineering tester (Softing DTS.monaco). The tester is parameterized via ODX data (ASAM MCD-2D, ISO 22901); many tasks that can be automated are implemented via OTX sequences (ISO 13209, ASAM OTX Extensions). A wide variety of display methods allows information to be displayed to suit the specific application. Examples include displays for the error memory, a quick test, flash programming and various ways of displaying measurement values.

The functional basis of the tester is a diagnostic system (Softing SDE) that implements the ASAM MCD-3 standard (ISO 22900) on the one hand, but also OTX sequences and functional diagnostics similar to the ASAM SOVD standard on the other. The solution is remote-capable, with vehicle access usually taking place in the classic way via a VCI (Vehicle Communication Interface).

The ASAM SOVD server is integrated into the system as an additional source of information to enable the customer to diagnose ECUs and entire vehicles in parallel. In principle, four different approaches to diagnosis are possible:

- ECU diagnostics via ODX data, UDS and a VCI: Development and release of ECU or ECU network diagnostics

- Vehicle diagnostics via ODX data, UDS and a VCI: Diagnosis of functions that are not available via ASAM SOVD or if the communication between the ASAM SOVD server and ECUs does not work
- Vehicle diagnostics over ASAM SOVD: Release of vehicle diagnostics and execution of functions required during engineering/development (e.g. flash programming)
- Vehicle diagnostics via the Softing diagnostics system with integrated ASAM SOVD server: Execution of engineering/development functions that are not to be included in the production vehicle via remote access

meterization will also make sense because it is impractical to implement the ASAM SOVD server individually for each series and the ECU variants can change during runtime. It makes sense to choose ODX here, also with regard to process consistency from the ECU to the complete vehicle, but this is not mandatory. Irrespective of this, the mapping of the parameterization data to the ASAM SOVD API must be defined in each project. The standard makes no stipulations here, which is unproblematic for a generic tester. As soon as GUI configurations are to be specified or automatic processes, for example in OTX scripts, are used, a high degree of consistency is required. This is the only way diagnostic services and diagnostic results be clearly assigned.

## ADVANTAGES

The solution is suitable for bringing high-quality diagnostics to the field. It makes it possible both to test ECU diagnostics in detail and to test and release ASAM SOVD functionality relevant for vehicle diagnostics in the customer's vehicle.

It is of great importance to our customer that this is possible without any great learning effort on the part of the user: Tool operation is familiar and only a few new terms need to be learned. The underlying data processes are also tried, tested and familiar – perhaps the biggest cost advantage. In addition, the solution offers maximum flexibility for the customer to migrate to fully ASAM SOVD-compliant vehicle architectures in the OEM-specific sequence.

*“The concept developed by our colleagues for implementing the ASAM SOVD standard in new vehicle developments fulfils all the customer's requirements in both the old and the new world. The migration solution as an extension to the existing Softing DTS.monaco tool is not only extremely attractive in terms of technology, but also in terms of price.”*

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