

## New: TestCASE 4.0

### Areas of implementation and applications

TestCASE is a test automation tool for validating embedded systems in the automotive sector. It is used to design, realize, run, and evaluate ECU tests in terms of function, communication, and diagnostics. One of its particular strengths is the combination of these test methods as well as the generation of test reports that can be evaluated easily and intuitively. A wide range of interfaces to components and software tools is integrated to cover the entire test and integration sector in the V-model. Of course, the relevant automotive standards are used in this process.



Test automation with TestCASE

### User friendliness

The user interface now features a completely new design. It can be customized to suit your purposes thanks to the different views for test creation, configuration, and project management, as well as the fact that all display windows, including multi-monitor systems, can be built exactly as you require.

New structuring possibilities ensure even greater clarity in the organization and administration of test cases. In addition, all configuration settings can also be changed during test case creation. Any components that become necessary will be incorporated dynamically as they are required.

*Continued on page 5*

### What's new: an overview

- Generic test case creation
- Cross-mapping concept for all test variables
- Newly created user interfaces
- Extended port concept for simple integration of new components
- Utility wizard for fast creation of user-specific test step templates
- Test reports with a new layout
- Test case and configuration data entirely in XML

### Automotive News

#### **MOST integration**

TestCASE automates the MOST test system **Page 2**

#### **The right VCI for your application**

Powerful vehicle interfaces from Softing AG **Page 2**

#### **TestCUBE –**

Instead of an ECU **Page 3**

#### **MOST 150**

Fast introduction to MOST150 technology **Page 3**

#### **ODX author guidelines of OEM satisfied!**

Adhering to author guidelines with Venice **Page 4**

#### **Fast series production**

The flexible fleet solution with Tedradis **Page 4**

#### **EDICmobil**

Discontinuation **Page 5**

#### **VAS 5066 – new version**

“Small diagnostic tester” with new features **Page 6**

### Seminars

At [www.softing.com](http://www.softing.com)

### Events

**Page 3**

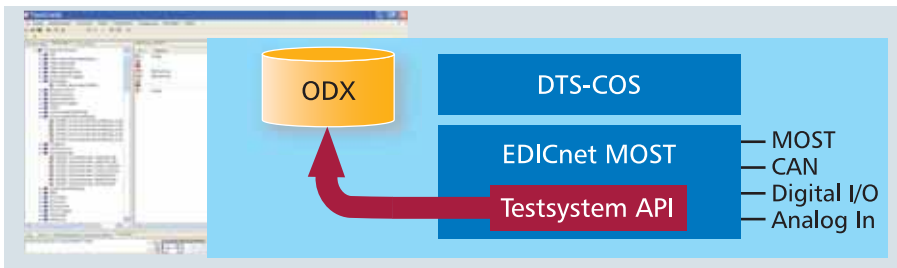
# MOST integration Test system in TestCASE

In the following application example, TestCASE is used to automate the Softing MOST test system. This makes it possible to reach a comprehensive level of test coverage as well as to be able to run precise regression tests. Unlike standard systems, the MOST test system provides extended test possibilities, e.g. on the MOST bus with CMS and ADS messages (e.g. stress tests). In addition to the MOST

interface, the CAN interface, digital I/O, and analog-in signals are also supported. Event monitoring and precise time measurements can be carried out for all interfaces using a standardized time base.

## Configuring instead of programming

The command interface of the MOST test system API is imported into an



ODX database for integration into TestCASE. This makes it easy to provide functionality extensions of the test system for test automation. ODX data is integrated into TestCASE via the ASAM MCD-3 interface. This is integrated by default into TestCASE and can be used there as a library.

This allows users to quickly configure, parameterize, and automate test sequences by drag-and-drop using TestCASE.

## Saving money

The import function allows the extensive capabilities of the MOST test system (we are, after all, talking about several hundred methods) to be integrated simply into test automation. This shortens the initial effort by several weeks. Using the MOST test system early in the engineering development phase ensures the necessary stability of the MOST bus at an early stage.

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# The right VCI for your application



Modern vehicle communication applications require a powerful connection to vehicle bus systems. Depending on the particular application, there are various criteria to be considered when selecting hardware. In addition to factors such as whether the hardware supports the necessary bus systems and PC interfaces, criteria such as the suitable form, robustness, and simple integration into the application are also important. Softing has a wide range of hardware products in various forms perfectly catering to the various needs of mobile and stationary applications.

CAN hardware interfaces are available for pure CAN applications. Softing's

active interface boards relieve the PC of time-critical tasks and provide powerful APIs for CAN communication. Extensive driver support enables a large number of uses. The CAN API supplied is perfect for use with test beds in which only a few CAN frames have to be sent or a few signals are evaluated. The optional D-PDU API extends this particular use to include diagnostic applications with lower performance requirements and real-time demands. This is, for example, the case when only identification and fault memory have to be read.

Multibus applications are linked to all important automotive bus systems with EDIC interfaces. For EDIC inter-

faces, there are many standardized and customized diagnostic protocols, such as UDS, KWP2000, and TP2.0. The direct handling of protocols on the hardware guarantees stable real-time behavior even when communication is taking place with several ECUs. In addition to standard PC interfaces, wireless interfaces such as WLAN and Bluetooth are available for mobile use. Particularly for the Service sector, Softing has developed customized VCIs based on these EDIC interfaces. They have proven their quality in service testers of leading OEMs for many years. For most EDIC interfaces, the D-PDU API (ISO22900-2) is also available for the simple integration of diagnostics and flash programming of ECUs.

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# TestCUBE – instead of an ECU

## Availability of ECUs

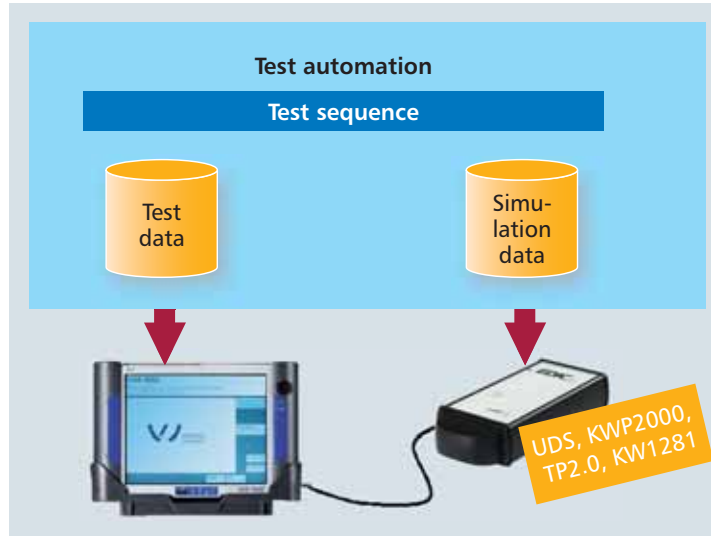
The whole process of creating test sequences often is associated with a large number of issues: for example, the ECU required as a counterpart to the test may be missing. The issues start with the development tester and continue through production systems right through to service.

A good example of this is the service process faced by automotive manufacturers. At regular intervals, software updates are required to ensure that the repair shop testers used are assigned with all the latest functions. A basic requirement for smooth operation in the repair shops is top quality when it comes to repair shop testers. Automated testing of the new tester versions is a good way of guaranteeing this.

## Use in regression tests

However, ECUs with which the tester can communicate are required to execute automated regression "tester tests." These must be available in entirety and in all variants to be able to ensure sufficient test coverage. If there is no ECU available as a diagnostic counterpart, Softing has the answer: The TestCUBE!

The TestCUBE is a configurable communication partner for "tester tests". Both the configuration parameters of the transport protocol (e.g. tester address, timings) and the responses to diagnostic services sent by the



Testing  
a repair  
shop tester

tester and fault memory entries can be set and simulated. Furthermore, operations can be used to make the rigid assignment between request and response diagram dynamic. For example, a response telegram can be dynamically assigned to a request telegram, depending on certain conditions.

## Automated loading of configurations

All configuration variables are written in configuration files and loaded into the simulation device. This means that real CAN communication is used for the "tester test"; the tests take place under real-world conditions. By automatically loading different configuration files, different ECUs can be simulated consecutively in an automatic test. The necessary test cover-

age is therefore easy to attain and can always be adapted quickly to the latest ECU variants.

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## Fast introduction to MOST150 technology

With the launch of the OS81110 (INIC@150) controller by the company SMSC, audio and video signals, data, and control information can be transferred at a speed of 150 Mbit/s. Softing provides direct access to this latest MOST technology with the EDICnet MOST platform. As with its predecessors with the MOST controllers OS8104, OS81050 (INIC@25) and OS81082 (INIC@50), EDICnet MOST is a universal device for ECU simulation and verification. Existing applications, from simple tests to complex communication systems, can be used or be extended to suit your particular purposes.

## Events

<b>Automotive Testing Expo Europe 2008 (Stuttgart, Germany)</b>	May 6 – 8, 2008
<b>Progress in Automotive Electronics (Ludwigsburg, Germany)</b>	June 17 – 18, 2008
<b>FISITA 2008 World Automotive Congress (Munich, Germany)</b>	Sept. 14 – 19, 2008
<b>Automotive Testing Expo China 2008 (Shanghai, China)</b>	Sept. 17 – 19, 2008
<b>Second AutoTest (Stuttgart, Germany)</b>	Oct. 22 – 23, 2008

## Venice – ODX author guidelines of OEM satisfied!

Softing's latest DTS-Venice version ensures that author guidelines of a vehicle manufacturer (OEM A) are adhered to – even while the diagnostic data is being entered.

The quality and input speed for diagnostic data has been increased considerably thanks to newly added automated mechanisms. Top-quality databases can now be created very quickly and automatically. In addition, repair script functions allow automatic correction of incorrect and non-compliant datasets.

The relevant mechanisms are:

- Editing templates
  - XMLfiles
  - Visual Basic scripts

- User classes
  - ECU Developer
  - Database Administrator
- Views
  - Expert view
  - ECU view

The editing templates (SDG trees) automatically enter data and provide a mechanism for easy extension (pre- and post-fixing).

Data is also inexpensive to repair or convert if it already satisfies other authoring guidelines (e.g. OEM B). The user interface provides the mechanism to modify the objects approved for the relevant user class.

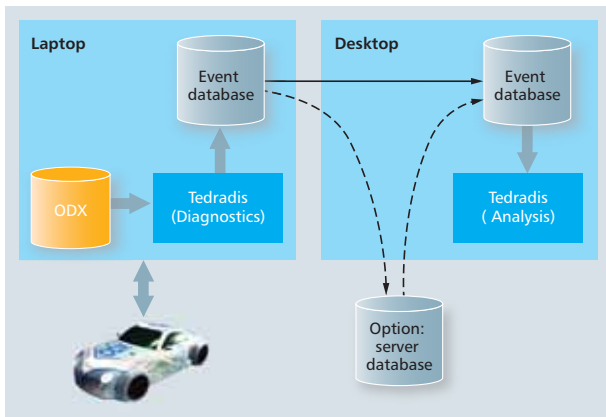
The non-modifiable objects are “read-only.”

This results in top-quality datasets that are ready to be approved, avoiding expensive and time-consuming approval recursions.

Diagnostic data is displayed in views to best suit the user classes: these views ensure clear, well-structured, and timesaving access to relevant parts of the database. The ODX database designer has access to all ODX elements and hierarchies while the ECU developers can concentrate entirely on the information that is relevant to them.

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## Fast series production with Tedradis – ODX-supported



Data analysis with import/export functionalities, also with server data

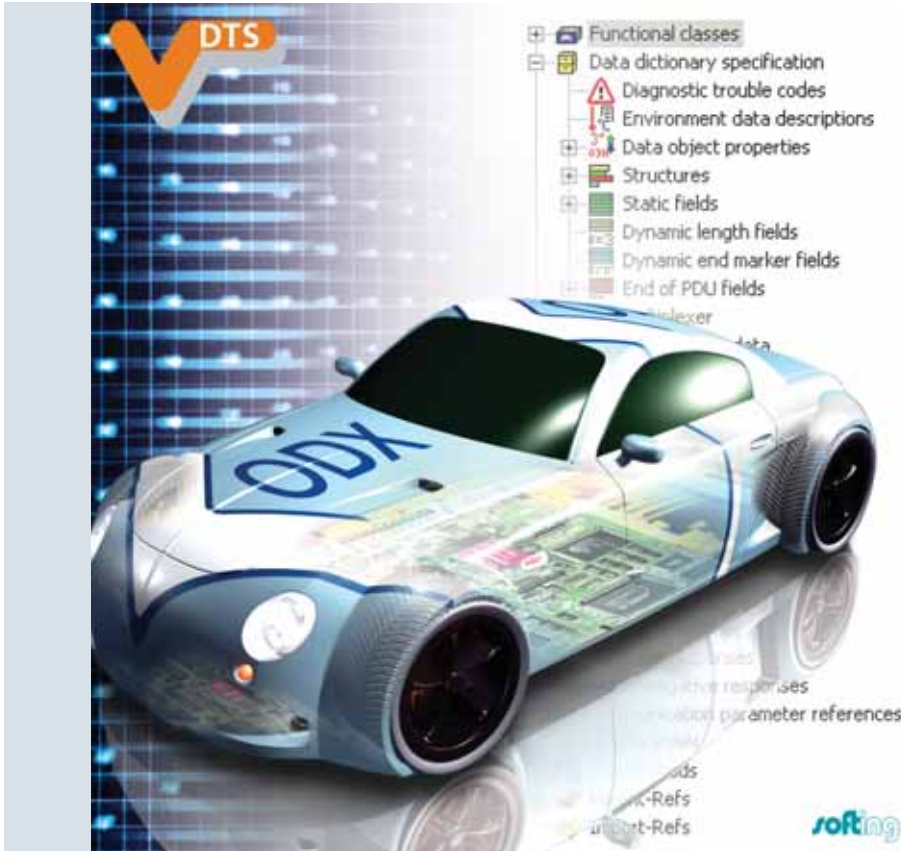
Attaining series production quickly is one of the main challenges in today's development cycles – whether for the individual ECU, for the mechatronic system, or for the ECU network. Today, a large number of standard errors can quickly be isolated thanks to ECU self-diagnosis in combination with the bus data. The prerequisite is that sufficient information has been recorded from the bus. After all, time

elapses between detection of a fault and it being written to the fault memory of the ECU, and furthermore from that entry, to the fault being recognized by the tester. The latter tends to happen in the course of cyclic reading with corresponding latency times. As a PC diagnostic system with extensive configuration possibilities, Tedradis is excellently equipped for these tasks.

### Tedradis, the diagnostic system

During the test, Tedradis stores the data – i.e. vehicle information, fault memory information, the bus trace, as well as expert comments – in a database on the laptop. An analysis can be carried out after the test using the intuitive user interface. Export functions allow database content to be shared with colleagues for ECU- or vehicle-specific analysis. This means that not only is the cause of an error detected, but also that the user is provided with reliable information on its stage of maturation. In this latest version, the vehicle can now be accessed with standardized diagnostic data in ODX format due to the integration of Softing's DTS 7. ODX data is now available for virtually every new ECU. This means that the Tedradis range of functions is now available to a large circle of users without adaptation to proprietary diagnostic interfaces being necessary.

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## EDICmobil Discontinuation and last buy

At the end of 2007 in our direct-mail marketing and on our website, Softing announced that it was discontinuing all EDICmobil hardware and software products on March 31, 2008. For more details, please refer to the EDICmobil notice of discontinuation on our website.

Softing also discontinued product maintenance for the EDICmobil software on March 31, 2008. If you should require maintenance measures or extensions of the EDICmobil software in the future, we would be happy to provide you with these, as far as it is possible for us to do so, on request and on a project basis. Softing will continue to carry our repairs to EDICmobil hardware on request according to availability of components and feasibility.

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Continued from page 1

### Reusability

In the latest version of TestCASE, Softing has considerably improved the reusability of test cases in different test environments, such as SiL, HiL, and MiL.

A completely consistent cross-mapping concept for all test variables referenced in a test case now makes it possible to exchange any referencing, for example of model variables (e.g. Matlab/Simulink) to ECU variables (e.g. Inca). This also includes the unit conversion of physical variables, resulting in considerable timesaving.

### Generic test case creation: test specification and test case in one

Another fundamental new feature in TestCASE 4.0 is the newly created possibility of specifying test cases generically. This means that the databases previously required to create test cases, e.g. for the model or ECU variables, are now no longer necessary. Test creation can there-

fore take place much earlier in the development process.

### Compatibility

A newly introduced port concept enables the simple integration of new tools and components. This makes the gradual migration to new ASAM standards, such as HiL-API, fast and uncomplicated.

### Evaluation

A test report now provides even more information at a glance. Navigation within the test reports has also been considerably improved with modified links. Newly implemented functions for bus analysis also extend the use of communication tests.

### Extendibility

A newly created utility wizard enables convenient and quick creation of user-specific test step templates, e.g. for integrating specific test components.

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## VAS 5066 – new Version 1.11 released

Version 1.11 is now available in English and German with an improved setup. This means that English-speaking customers can now enjoy the fantastic advantages of our “little diagnostic tester” for vehicles of the Volkswagen Group.

### Always at hand

Due to its compact size and wireless connection via EDICblue (at VW VAS 5054), the VAS 5066 is always at hand and will help you wherever large diagnostic testers cannot be used: during a trip, when testing measured values behind and under the car, or simply in a quick service on the repair shop forecourt.

This ensures unique freedom in vehicle diagnostics – at an interesting price.

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Automotive News 1/2008

# New DTS version soon available

## Increased productivity and quality

Softing's Diagnostic Tool Set 7.66 (DTS) provides communication experts in the automotive field with the industry's most complete tool set. The tried-and-tested capabilities of earlier versions have been improved even further. The tool is now perfect for

- loading and analyzing communication data
- validating diagnostics and ECU functions
- measuring, calibrating, and flash programming of ECUs

only data relevant to a particular user classification. User classes can be assigned specific approvals and limitations.

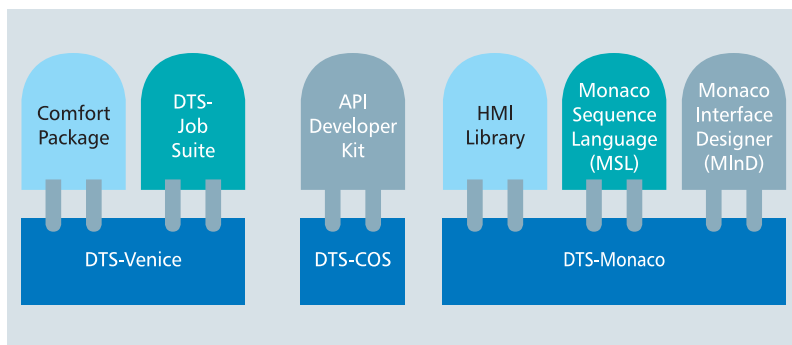
## Fast introduction to onboard communication

An assistant for generating MCD-compatible projects quickly and reliably provides FIBEX-compliant datasets based on files in dbc format or "from scratch." Particular attention was paid to avoiding terminology which is too FIBEX-object-model specific, ensuring that users are

grating the LIN add-on into the main DTS product line, work for LIN users has become more efficient. Performing diagnostics and controlling LIN nodes with diagnostic protocols has become even more efficient with this integrated add-on.

## VISTA compatibility

By adapting the Diagnostic Tool Set and its driver software to the Windows VISTA requirements, Softing has made DTS compatible to current and future standard PC operating systems without any limitations. Users now have even more freedom in selecting their operating system. Vista compatibility is going to be available in September 2008.



## Efficient creation of ODX data

The DTS-Venice authoring system contains new assistants for optimized ODX data population of ECUs. Softing has paid special attention to implementing OEM-specific editing templates that automatically ensure "ready-to-approve" datasets after the editing process. Data is displayed in a user-oriented manner, presenting

faces with terms familiar to them from their onboard world. This means residual bus simulation can take place quickly and measured values can be displayed in just a few minutes.

## Extended LIN support

The entire function scope of DTS is now available to LIN users. By inte-

DTS 7.66 breaks down the product components so that DTS-Venice, DTS-Monaco, and DTS-COS are now each available as individual products with clearly defined basic functions providing an inexpensive entry point. These basic functions already ensure that standard diagnostic tasks can be dealt with. There are specific plug-ins for each of the three products with which users can adapt the scope of their tool to correspond exactly to new/increased requirements. This means that users only need to pay for (software) components that are actually needed and used.

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