Test Case Generator

Generating test cases automatically
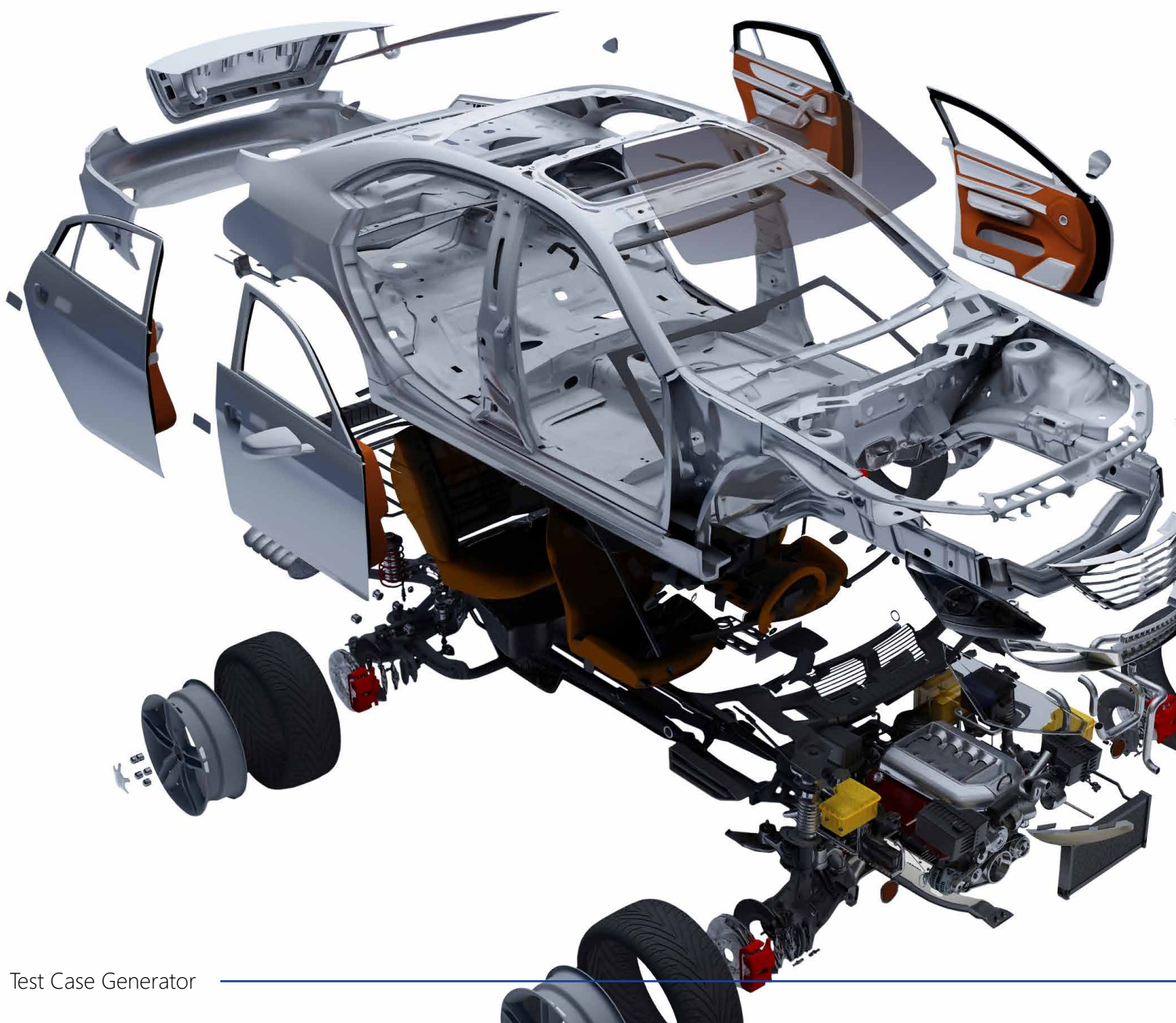
» **Higher quality through to better test coverage**
» **Improved efficiency through automatic test case generation**
» **Better comparability through standardized test specifications**

Test Case Generator

Engineers have usually implemented all test cases for electronic control units individually and manually in the automation tool. The Test Case Generator (TCG) from MicroNova automates this process and thus increases the efficiency of test case creation many times over.

Test specifications are used as the basis for this. These are generally not standardized, which results in a high maintenance effort for the test cases. Such a manual approach is time-consuming and prone to error, especially as requirements are changing at increasingly shorter intervals due to the high pace of development.

The Test Case Generator creates „TestCases" in the EXAM test automation solution completely automatically from the test specifications. This standardized and clearly structured procedure reduces the maintenance effort for the test cases and significantly improves their traceability, comparability and reproducibility. These are advantages from which companies from all sectors benefit in ECU and software testing. The solution offers great savings potential in terms of time, effort and costs - while at the same time increasing quality and test coverage.

Advantages of the Test Case Generator

Efficiency and time savings

MicroNova's Test Case Generator automates the process of generating test cases and thus increases the efficiency of ECU validation many times over. More results are available faster.

Quality assurance

Using the TCG for all test runs allows their results to be checked in a standardized manner and the processes can be reliably tracked. Standardizing test specifications thus ensures consistently high quality.

Error-free test cases

The Specification Editor (TCGSE) supports users in the TCG-compliant creation of test specifications. As part of the TCG, the tool prevents incorrect specifications from leading to faulty test cases in advance. Code completion, a function for automatic completion, further accelerates the creation of specifications.

Flexibility and performance

The generator approach allows test departments to respond quickly to the rocketing rate of change in function development.

Simple traceability

It is sufficient to check the test specification. An additional review of the implementation is no longer necessary.

Optimum utilization of resources

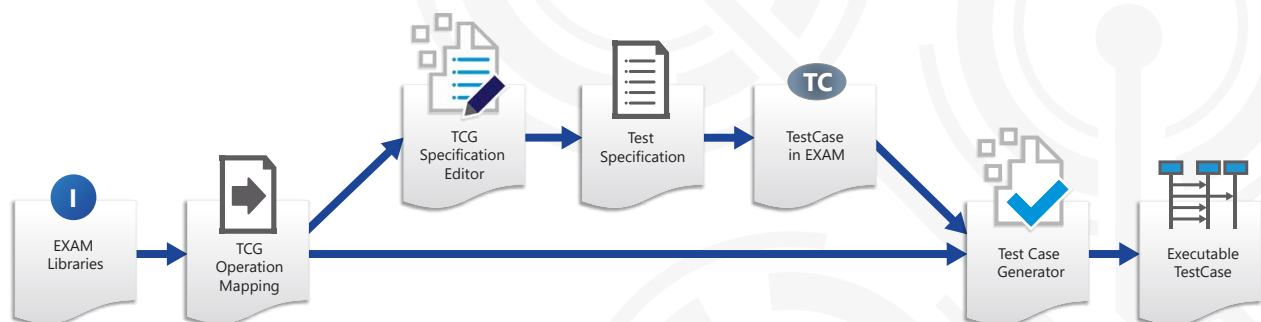Thanks to automation, test engineers can spend more time on particularly complex cases.

Fast commissioning at low cost

The TCG can be seamlessly integrated into EXAM, so no additional and cost-intensive interfaces are required.

How it works

» Central tool: The Test Case Generator understands the test specifications as a sequence of commands. Mapping these commands to EXAM operations then automatically generates the test cases. This saves a lot of additional effort during implementation, especially in development-accompanying testing.

» Commands are mapped centrally in the EXAM model. The mapping provides test specifiers with clear specifications for new test specs, while existing ones can be adapted with little effort. The TCG then generates an executable, complete test case as a sequence diagram from the user's technical specifications in just a few seconds.

» The integrated Specification Editor (TCGSE) ensures the generation of standard-compliant and error-free specifications. It provides information on potential errors and also accelerates the creation of specifications through code completion. Because only correct specifications enable the smooth automatic generation of executable test cases.

» The Test Case Generator uses synchronized test cases from a specifications tool as the basis. Test procedures and parameters are maintained outside EXAM in requirements management. Changes are therefore made centrally in the respective EXAM library or the associated test specification. Once made, the changes can then be easily applied to all test cases.

» The TCG forms a functional enhancement to EXAM: it works as a plug-in and supports many of EXAM's convenience functions, since it is based on well-known concepts such as Shortnames or TestCaseStates.

EXAM Libraries → TCG Operation Mapping → TCG Specification Editor → Test Specification → TestCase in EXAM → Test Case Generator → Executable TestCase