

Highway61. Securing Quality and Analyzing Errors in Development, Modernization and Migration Projects.

Highlights

- ✓ Significant reduction of efforts for localizing errors in complex applications
- ✓ Easy adaptability to different system environments
- ✓ Simple usability
- ✓ Revision safety

Currently, in addition to well-known unit tests, regression testing methods dominate quality control in further developing and modernizing existing COBOL applications or in COBOL migration projects.

Regression tests usually consist of a set of original data, a scenario, and a set of result data. Are scenarios executed with the same start data but on different systems or versions, the result data should be identical, unless specific deviations are intended by the upgrade. Results of regression tests can be used to determine the functional identity of scenarios on different systems or versions (freedom of impact). Due to their relatively simple implementation and automation capacities, these types of test

are the best choice, especially for testing complex software systems. This same system complexity, however, also results in one important weakness of regression testing: it only allows a statement that the system will function free of errors to a high degree of probability. If errors do occur, the complexity of the system makes it very hard to localize them – even if expertise on the internal processes is available.

This is where Highway61 provides essential support. It allows you to monitor programs during the scenario testing and to identify control flow variations or specific preliminary results. In many cases this enables you to narrow down the search for causes of errors and thereby to reduce the cost of error search and analysis activities.

Highway61's rationale is to protocol information at specific points of interest during the test run and to compare these notes to the corresponding information from test runs in different versions or systems. The product consists of three main components which are integrated into the development process:

Highway 

- 1 Pre-processor for code instrumentation
- 2 Runtime environment
- 3 Controlling and analysis environment with connectors for different operating systems

How Highway61 works

The pre-processor, based on EasiRun's proven transformation technology, effects the necessary COBOL code instrumentation. In doing so, the processor adds code designed to record information to the original code. This additional code is independent of the COBOL compiler used and ensures comparability of resulting information for different compilers.

In conjunction with the added code, **the runtime environment** ensures that all information is logged. The runtime environment is provided as source code and can be adapted to any special features of the test environment if necessary.

The controlling and analysis environment allows you to manage and remotely start scenarios on various operating systems and guarantees evaluation efficiency even in cases where very large amounts of protocol data are gained from testing. Currently, Highway61 is available for all LUW systems (Linux, Unix, Windows). Connectors for various mainframe systems are in preparation (z/OS, z/VSE, BS2000). Connectors for other systems can be supplied if needed.

Range of application

Highway61 is primarily designed for the following range of applications:

- ✓ Safeguarding quality for further development of COBOL applications
- ✓ Proof of functional identity and narrowing down error searches in migration and modernization projects

In the case of migration and modernization projects the main added values are the possibility to prove functional identity and to narrow down the search for errors.

The possibility to archive scenario protocol data and to compare these with the results of new scenarios at a later stage and with modified codes allows the production of various forms of proof. On the one hand, you can prove that a scenario's control flow is not affected by alterations (freedom from impact); on the other hand, you can also produce evidence that the control flow did change as expected. Archived results can then be used as evidence during revisions (revision safety).



For more information on Highway61 or other products and solutions offered by EasiRun please visit <http://highway61.easirun.com>

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