

# Electronic Test Cases

## Fact Sheet

## Benefits

1. Reduced manual testing efforts
2. Repeatable test executions for automated OQ/PQ
3. Systematic test planning
4. Easy creation of test cases from available programs
5. Well documented test results

## Mission

With Electronic Test Cases (ETC), Entimo offers a standard software solution for automated testing of SAS macros and programs.

The solution covers all phases of the testing process from test planning through test execution up to test documentation. The test cases are implemented as SAS base scripts divided into test cases. For every test case, expected results can be defined. The fulfillment of the expected results can be automatically checked and reported per test case and as a summary. Generated log messages can be automatically verified, created output objects can be checked against stored reference objects for correctness.

Using a set of macros out of Entimo's extensive macro libraries, test results are automatically stored and related to the corresponding test execution and test case via references (e.g. requirement numbers).

A traceability matrix can be generated based on these definitions.

With the described approach, the Electronic Test Cases make repeated operational qualification (OQ) and performance qualification (PQ) an easy task with no manual effort.

### Test planning and execution

During the test planning phase, test cases in the test script are defined using the following information:

- Test case description with the change history
- Source test data or references to stored test data
- Necessary program parameters and values
- Expected results (e.g. description of expected log messages, output objects, reports)

Various reference formats are supported: SAS data sets, SAS format catalogs, ASCII, Excel, CVS, RTF, PDF, HTML, XML, graphic formats etc.

Test cases can be easily derived from available SAS programs and customized to specific requirements (e.g. naming convention for output objects).

### Test results

After execution, test cases publish the following results:

- General test case information (test script definition, version, date and time, responsible user, change history)
- Test case data
- Macro call parameters
- Expected and actual test results
- Test cases summary with success or failure message

```
*****
* List of test cases (chronolo
*****
* Test unit: g1 'Parameter che
* with test cases:
*   g1_1
*     No parameter setting
*     (automated check)
*   g1_2
*     Mandatory parameters,
*     (automated check)
*   g1_3
*     Invalid data set names
*     (automated check)
*****

*****
* Test results
*****
* Following test cases (11) \
*   g1_1
*   g1_2
*   g1_3
*   g1_4
*   g1_5
*   g1_6
*   g1_7
*   g2_1
*   g2_2
*   g3_1
*   g4_1
* Following test cases (3) w\
*   g2_3
*   g3_2
*   g5_1
*****
* End test results
*****
```