

## TESSY V4.1 Features

New features in TESSY V4.1 (compared to TESSY V4.0)

Frank Büchner, August 2018 --- 001

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# 1 Classification Tree Editor (CTE)

New design and additional features for the Classification Tree Editor (CTE)

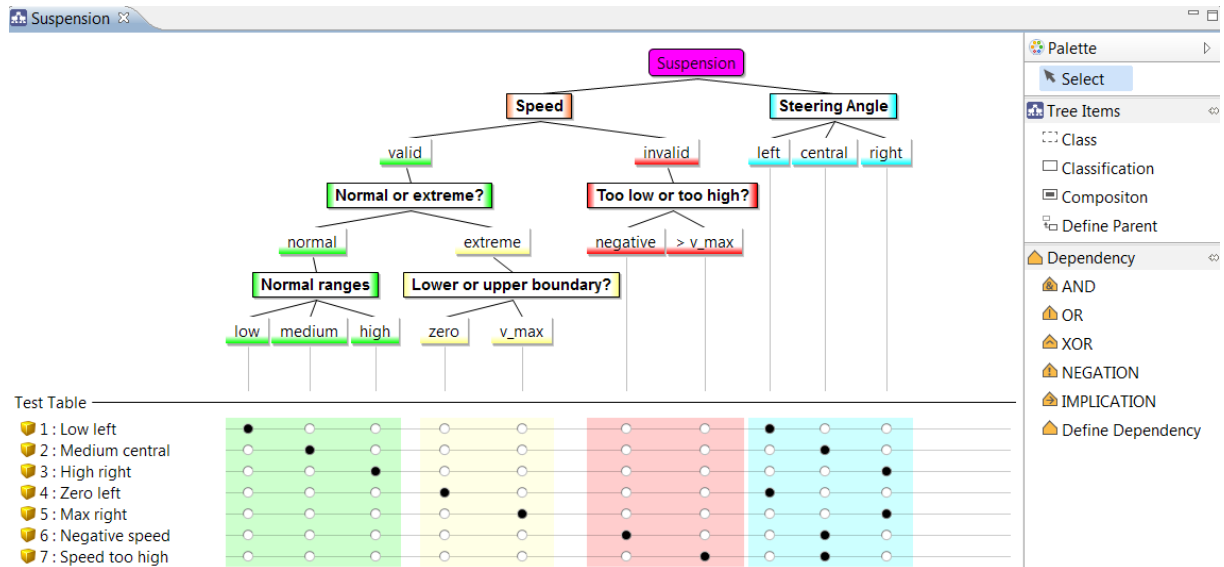


Fig. 1: The new Classification Tree Editor (CTE)

## 2 Script Editor Perspective

A new perspective allows editing of test data and user code in a script language. The contents can be stored in textual format. This provides a backup format alternative to TMB files; this allows comparing versions of tests using a diff tool.

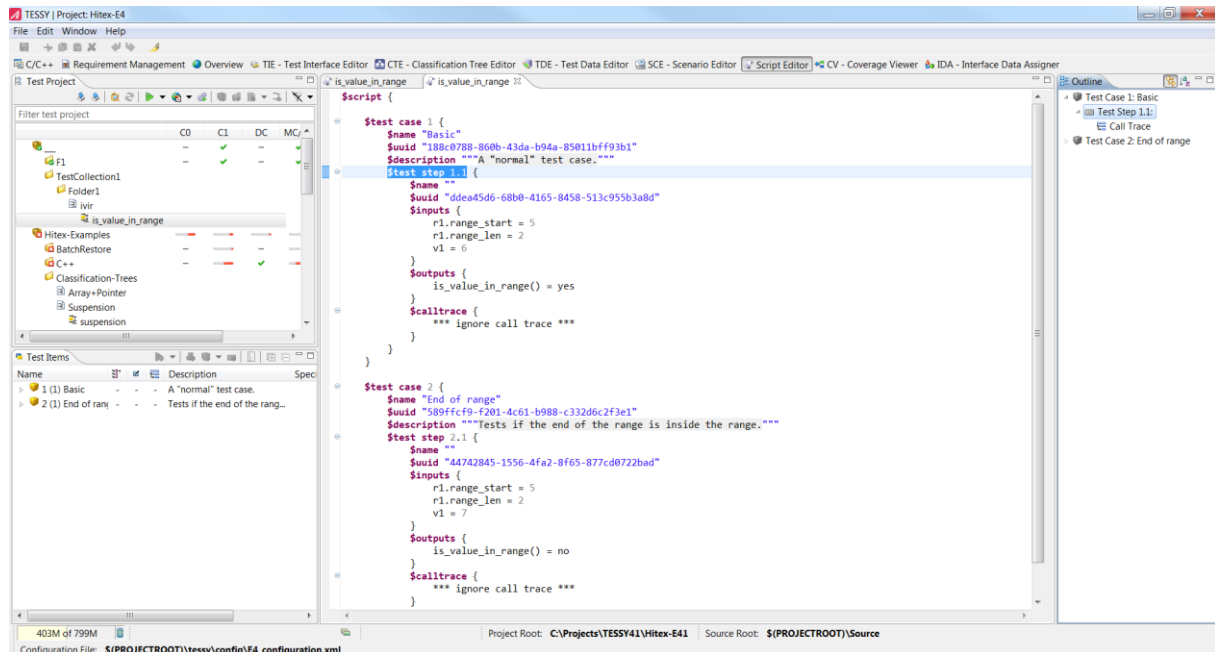


Fig. 2: Script Editor perspective

### 3 Fault Injection

TESSY can insert code in the test object which can be used to inject a fault. This mechanism can also be used to execute normally unreachable branches (e.g. the default case of a switch statement) to reach 100% branch coverage. The code of the fault injection is specified in the flow chart view of the test object.

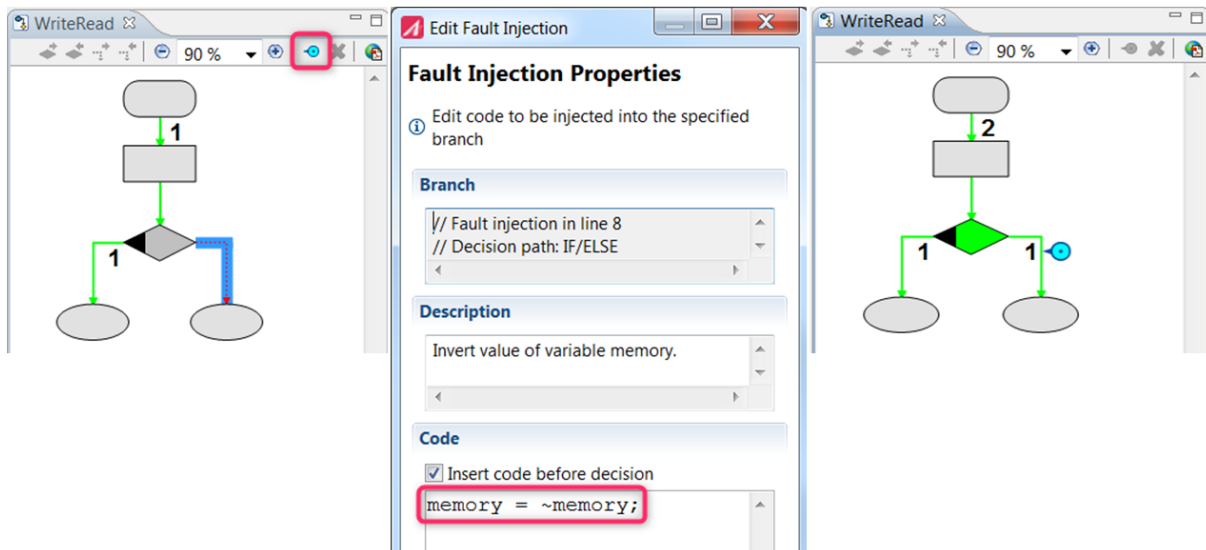


Fig. 3: Specifying a fault injection

## 4 Calculating the Cyclomatic Complexity

By static analysis of the test object, TESSY now calculates the cyclomatic complexity according to McCabe.

	CC	CC Avg	CC M...	TC/C
Hitex-Examples	76	-	-	0.00
BatchRestore	41	8.20	22	0.23
Categorize	3	3.00	3	1.33
categorize	3	3	3	1.33
Triangle	38	9.50	22	0.23
is_equilateral	2	2	2	0.50
is_isoceles	12	12	12	0.42
is_right	22	22	22	0.23
is_scalene	2	2	2	2.00

Fig. 4: TESSY displays the cyclomatic complexity

The colour code indicates if the warning level was exceeded (yellow) or if the error level was exceeded (red).

## 5 Expressions in the Test Data Editor

Expressions can be used in the Test Data Editor. Currently the operands can be numbers, enum constants and #defines.

Test Data of 'is\_value\_below\_boundary'

type filter text

	1.1	2.1	3.1
Inputs			
Globals			
Parameter			
int v1	BOUNDARY - 1	BOUNDARY	BOUNDARY + 1
Dynamics			
Outputs			
Globals			
Parameter			
Return			
result	yes	no	no
Dynamics			

Fig. 5: TESSY can now calculate test data

## 6 TESSY Hardware Adapter interface (THAI)

TESSY can write (stimulate) and read hardware I/O signals during unit test execution by controlling user-supplied external hardware. This extends TESSY to a kind of Hardware-in-the-loop(HIL) system. Also time measurement is possible under certain conditions.

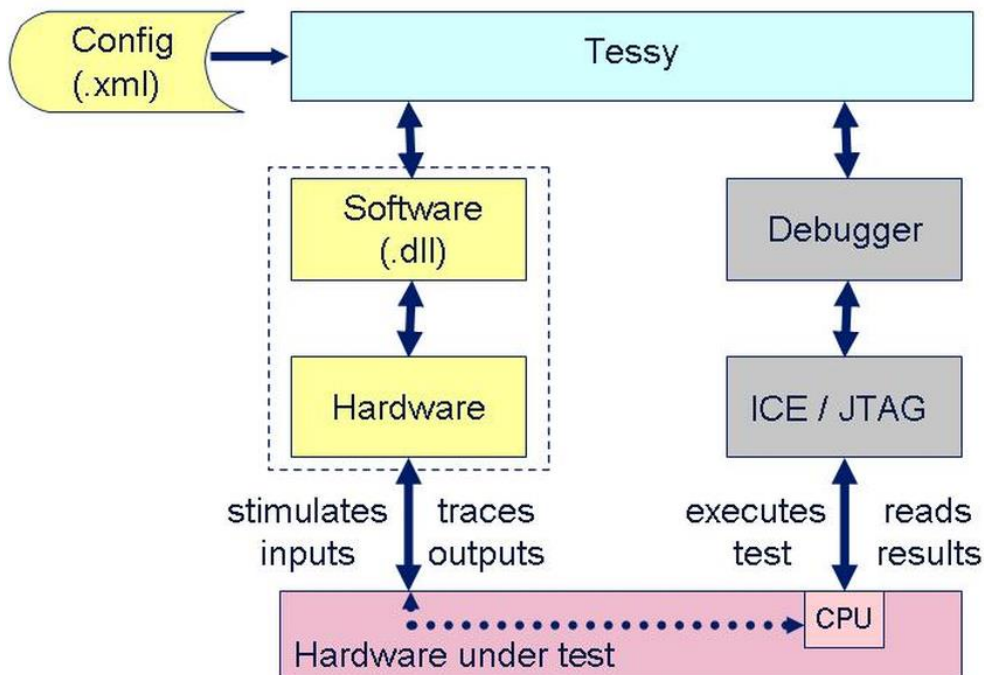


Fig. 6: TESSY can be extended to a HIL system

## 7 The Author

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*Any comments or questions to this document are welcome.*