Schematolkning/Scheme Note

Decision Date	Matter ID	
2021-03-18	CR-3080, CR-3083, CR-3085	
Decision by (Name/Title)	Scheme Note Number	Dnr
Dag Ströman, Head of CSEC	15	21FMV2237-1:1
Presentation by	Present at the Meeting	
Jerry Johansson, Helén Svensson	CCB 2021-03-18	

Scheme Note Statement

Description and References

Purpose

This Scheme Note aims to clarify the requirements of CC and the Scheme regarding testing.

The following features have been clarified:

- Developer Test Coverage
- Test Effort Description in the Final Evaluation Report and in the Certification Report

Developer Test Coverage

Clarification of the requirements of CC/CEM on the evaluator to demonstrate sufficient developer test coverage, for EAL 1-5.

At EAL 1, there are no requirements for the evaluator to verify the coverage of the developer's testing.

At EAL 2, the relevant CEM requirement is:

ATE_COV.1-1

*The evaluator **shall examine** the test coverage evidence to determine that the correspondence between the tests identified in the test documentation and the TSFIs described in the functional specification is accurate.*

Correspondence may take the form of a table or matrix. The coverage evidence required for this component will reveal the extent of coverage, rather than to show complete coverage. In cases where coverage is shown to be poor the evaluator should increase the level of independent testing to compensate.

At EAL 3-5, the relevant CEM requirements are:

ATE_COV.2-1

*The evaluator **shall examine** the test coverage analysis to determine that the correspondence between the tests in the test documentation and the interfaces in the functional specification is accurate.*

A simple cross-table may be sufficient to show test correspondence. The identification of the tests and the interfaces presented in the test coverage analysis has to be unambiguous.

The evaluator is reminded that this does not imply that all tests in the test documentation must map to interfaces in the functional specification.

ATE_COV.2-4

*The evaluator **shall examine** the test coverage analysis to determine that the correspondence between the interfaces in the functional specification and the tests in the test documentation is complete.*

All TSFIs that are described in the functional specification have to be present in the test coverage analysis and mapped to tests in order for completeness to be claimed, although exhaus-

tive specification testing of interfaces is not required. Incomplete coverage would be evident if an interface was identified in the functional specification and no test was mapped to it.

The evaluator is reminded that this does not imply that all tests in the test documentation must map to interfaces in the functional specification.

According to these three requirements, the work units in the CEM appear to indicate that one test for each TSFI would be sufficient (please note that "TSFI" and "interface" have identical meaning in this context). In the functional specification, it is common to specify a few interfaces, covering all the functionality of the TSF. Thus, an evaluator may argue that given three named TSFI in the functional specification, it is sufficient that test cases can be mapped to each of these three named TSFI. However, this is not sufficient.

The mapping of test cases against the TSFI is not limited to the named (main) interfaces. The CEM, section 15.2.3 *Verifying the adequacy of tests*, paragraph 1313, states that:

"... each characteristic of the TSFI behavior explicitly described in the functional specification should have tests and expected results to verify that behavior"

The TSFI behavior described in the functional specification shall be a complete representation of the SFRs, as required by the CEM:

*ADV_FSP.1-6 The evaluator **shall examine** the functional specification to determine that it is a complete instantiation of the SFRs.*

Note that this requirement is applicable for all EALs.

The conclusion is:

- At EAL 1, the evaluators do not need to verify the coverage of the developer's testing.

- At EAL 2, the evaluator verifies that the developer's test cases are mapped to the TSFI accurately but not necessarily covering all TSFI. The evaluator's independent testing may increase the coverage but the entire TSFI need not be covered.

- At EAL 3-5, the evaluator verifies that the developer's test cases are mapped to the TSFI accurately, and that the developer testing completely covers the TSFI. The evaluator independent testing improves the test coverage where the developer's testing is sparse.

Test coverage of the TSFI implies coverage of the TSF functionality, on the same level of description as in the SFRs. In the FSP, the TSFI should be described on the same level of description as the SFRs and completely cover the functionality in the SFRs.

Alternatively, a mapping directly from the SFRs to the test cases would demonstrate the test coverage in an equivalent manner.

Description of test effort

In order to simplify writing the certification report, the certifier needs the necessary information compiled in the Final Evaluation Report.

A description of the developer test effort is required by the CEM at EAL2 (ATE_FUN.1-7) and higher.

A description of the evaluator's independent test effort is required from EAL 1 (ATE_IND.1-8) and higher.

A description of the evaluator's penetration test effort is required from EAL 1 (AVA_VAN.1-9) and higher.

In each of these categories, the test effort description shall present every tested variant of the TOE, and for each TOE variant the amount of testing shall be described. Also, it shall be reported by whom, where and when the tests were performed. Furthermore, the results of the tests shall be summarised.

For the independent testing, the amount of repeated developer tests and the complementary tests shall be reported.

TOE variants is understood to be versions/models of the TOE that are not completely equivalent from a

testing perspective. These should be identified in the same way as in the ST.

The "amount of testing" required in the evaluation reports need not list every test case for each TOE variant (however this information is expected in the test reports for each test category). It is expected that the amount of testing is described as "all", "most", "a few", "a selection of 12 out of 64", "all crypto tests", "everything except the FMT test cases" or similarly.

The test effort descriptions are required by CEM in the Single Evaluation Reports, and shall also be presented in the Final Evaluation Report.

The certifier's description of testing in the certification report also shall fulfil these requirements. If the evaluator's test effort is described as outlined above, the certifier will be able to use the text "as is".

Appended Documents