TTF T023 - Progress Report for ETSI

Presented to ETSI meeting		Author:	Prof. Jens Grabowski
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Doc ref		Version	

TTF	T023		TTF leader	Prof. Jens Grabowski
TB/WG	MTS		TB responsible	
			Administrator	Ms. Elodie Rouveroux

TTF title:	Testing Task Force (TTF) T023 on TTCN-3 Maintenance

Milestone	A		Status Template	Covers the period until (cut-off date)	16/10/2022
Objective	First progress report to be approved by TC MTS				
Achieved	YES				
Remarks	The TTF started delayed in the middle of August. The delayed submission of this progress report is due to illness and vacation of the TTF leader.				

Achieved dates

Template	Draft report	TB approval	ETSI approval		
01/09/2021					

1 Executive summary

The TTCN-3 testing language has intensively been developed by ETSI during the last 20 years. By today, TTCN-3 has become a significantly important testing technology in different domains (see more details at http://www.ttcn-3.org/index.php/about/references/applicatio-domains). It is used by standardization bodies (see more details at http://www.ttcn-3.org/index.php/about/references) as well as by EU research projects and open source initiatives. TTCN-3 reached very high deployment at various ETSI member companies. The language is also endorsed by ITU-T as the Z.16x and Z.17x Recommendation series.

Significant number of TTCN-3 test toolsets are available on the market. At least five commercial tools, five free or open source tools and one internal test tool of an industrial ETSI members are known to

exist (http://www.ttcn-3.org/index.php/tools). This also indicates the high interest and use of the language. TTCN-3, as THE standard test language, serving several domains and application areas, is specified in very detail. For example, the TTCN-3 core language alone is estimated to contain about 5,000 requirements. It is of upmost importance for users of standard test suites as well as for industrial users that the TTCN-3 tools conform to the TTCN-3 language standards. This can be secured by TTCN-3 tool conformance test suites, in a similar way as implementations of other ETSI standards (e.g. protocol specifications) are checked by means of ETSI-developed conformance test suites. In the past, the TTCN-3 tool conformance test suite development process itself has led to several language standard clarifications.

TTF T023 "Testing Task Force (TTF) T023 on TTCN-3 Maintenance" has two objectives. The first objective is to maintain the high quality of the language and at the same time keep it harmonized with the new requirements of the users, new application areas and new ways of working like Agile SW development. The second objective is to maintain and further develop the TTCN-3 tool conformance test suites in order to reach full test coverage of the TTCN-3 series of standards.

The TTF team consists of five experts. During the first working session for Task 1 "TTCN-3 maintenance and further development" TTF T023 progressed 32 CRs. The work on Task 2 "Conformance test suites for TTCN-3 tools and sub-tasks" is in the starting phase and concentrated on the organization and distribution of the work among the experts.

2   Introduction

The work on Task 1 "TTCN-3 maintenance and further development" comprises the following tasks:

- Review and resolve change requests reporting technical defects or requesting clarifications and new language features for all existing TTCN-3 language standards.
- Develop proposals for language extensions requested by ETSI TBs, 3GPP, oneM2M, ETSI members and the TTCN-3 community and consent the solution with the contributor(s).
- Implement agreed solutions.
- Manage the change request (CR) process.
- Manage the interim versions of the standard according to 3GPP needs (when requested), and the versions for approval.
- Present the TTCN-3 standards' status and the work of the TTF (previously STF) at the conference(s) associated with ETSI TB MTS and at ETSI TC MTS meetings.
- Providing input for the updates of the TTCN-3 leaflet and the TTCN-3 web pages.

The work on Task 2 "Conformance test suites for TTCN-3 tools and sub-tasks" comprises the following tasks:

- Analysis of the latest published versions of the relevant TTCN-3 standards and identifying new and changed requirements.
- Identifying affected existing test cases and define new test cases for the new requirements.
- Implement changes and additions in the textual part of the deliverables (PICS, TSS&TP, textual part of the ATS).
- Implement changes and additions in the code of the ATS.
- Verification of the test cases with test tools.
- Discussion of validation outcomes with TTCN-3 experts, and raising CRs for clarification in case of discovered ambiguity.
- Analysis of the latest draft versions of the relevant TTCN-3 standards and development of not validated new test cases for the new requirements.

TTF T023 consists of the following five experts:

- Jens Grabowski, University of Göttingen (TTF management)
- Axel Rennoch, Fraunhofer FOKUS (TTF management)
- Ramon Barakat, Fraunhofer FOKUS
- Matthias Simon, Nokia
- Tomáš Urban, Elvior

3   Contractual milestone

The contractual milestone A is related to this progress report.

Milestone A is achieved by TB MTS approving this progress report.

4   Progress of the work

Progress of the work on Task 1 – TTCN-3 maintenance and further development

The current TTF session plan for the work on Task 1 contains online working sessions where all experts work in parallel, as well as individual homework of the experts and one week of voluntary work spent for final CR cleaning and editorial work on the draft deliverables.

Online working sessions for the work on Task 1 are planned for:

- Week 33:   16. - 17. Aug. 2021 (**done**)

- Week 45:   07. - 11. Nov. 2022 (planned)

Further working sessions may be organized on demand.

During the first online working session the **32** CRs listed below have been progressed:

Part 01: TTCN-3 Core Language   **(23 CRs)**

8120	activate/deactivate explanation shall be modified
8115	Explanation fuzzy/lazy is the opposite
8069	Range-based for loop
8070	If-else statements with initializers
8078	Incorrect example for present operation (Remove "causes error" comment)
8090	Deprecate `lengthof` in favor of `length`
8111	Allow UTF-8 for charstrings?
8114	Template support for the map type
8098	Mandatory module prefix for imported module defintitions
8109	Examples for map templates needed
8107	Support for variadic functions
7994	Allow coordinated shared access to component variables.
8106	Provide TTCN-3 defintions for predefined types
8105	Extend allowed usage of nested types
8104	Automatic type inference
8103	Add increment and decrement statement
8101	Allow trailing comma
8100	Inline terminal productions
8094	Provide a canonical style for source code layout
8093	object not listed as a keyword in table A.5
8097	Optional return values
8099	Disallow circular imports
8067	Postfix value notation for templates

Part 06: TTCN-3 Control Interface (2 CRs)
- 8110 When are global constants evaluated?
- 8095 Provide a TTCN-3 specification for TCI and TRI

General: CRs not related/assigned to a TTCN-3 language specification document (7 CRs)

- 8119 Wrong clause references to 16.1.5 -> 16.2.1
- 8091 Add the not-implemented-function `???`
- 8112 Combine boolean and bitwise operators.
- 8113 Type traits and user defined methods
- 8102 Optional semicolon
- 8108 Uniqueness of identifiers for fields and enumerations
- 7981 Support for REST APIs (HTTP)

Progress of the work on Task 2 – Conformance test suites for TTCN-3 tools and sub-tasks

The work on Task 2 "Conformance test suites for TTCN-3 tools and sub-tasks" is in the starting phase and concentrated on the organization and distribution of the work among the experts.

First working steps had been the migration of the previous TTF repository from the last TTF hat had been available from an external SVN location to the ETSI forge. The public address is https://forge.etsi.org/rep/mts/ttcn3-conformance-tests.

5 Assessment of technical risk, difficulties encountered/expected, unresolved issues

- **Task 1 – TTCN-3 maintenance and further development**

  Currently, the number of unresolved CRs is manageable and should not cause major problems. However, new CRs tend to be submitted before work sessions and the number of new CRs submitted in 2022 cannot be predicted. If the number of new CRs becomes big, the TTF may not be able to resolve all open CRs. The resolution of some CRs may be left for succeeding TTFs. The TTF will then prioritize the open CRs and resolve them in order of priority as long as possible (some high priority CRs may need long discussions, while low priority, e.g. trivial CRs may be handled quickly and thus may overtake the resolution of higher priority CRs).

- **Task 2 – Conformance test suites for TTCN-3 tools and sub-tasks**

  The preceding TTCN-3 conformance testing STFs have provided a sound methodological basis for the work of this TTF. The TTF work has started late in August 2022 and currently no technical risk or other difficulties are expected.

At this point in time no action is seen to be required from TC MTS.

6 Proposed changes in the TTF work plan

No proposed change.

7 Resources requirements

There is no change foreseen in the TTF resource requirements related to the TTF's ToR.

8   Changes in the TTF Team

There was no change in the TTF's composition and no change is foreseen or required.

9   Meetings/events attended on behalf of the TTF

Date	Place	TB/Orga	Event description	Reason to attend	Expert(s)
13.-15.10.22	Munich	UCAAT	Test Conference	TTCN-3 promotion	Matthias Simon
04.10. – 05.10.22	Tallin	TC MTS	MTS#87 regular meeting	Report on TTF progress	Axel Rennoch

10   Meetings/events planned to be attended

Date	Place	TB/Orga	Event description	Reason to attend	Expert(s)
Jan/Feb 2023	tba	TC MTS	MTS#88 regular meeting	Presentation of progress report (milestone B)	Jens Grabowski, Axel Rennoch
May/June 2022	tba	TC MTS	MTS#89 regular meeting	Presentation of TTF finalization (milestone C and D)	Jens Grabowski, Axel Rennoch
tba	tba	TC MTS	User Conference on Advanced Automated Testing (UCAAT)	Participation at ETSI booth	tba

11   TTF communications, presentations, promotion, inside and outside ETSI, WEB pages etc

- The TTF T023 webpage can be found on: https://portal.etsi.org/STF/STFs/STF-HomePages/T023.

- TTF T023 continuously updates the TTCN-3 leaflet and contributes to the TTCN-3 webpage http://www.ttcn-3.org/.

- Further external communication is done via Mantis (http://forge.etsi.org/mantis/main_page.php) and emails.

12   Technical advice required from the reference Technical Body

There is no issue requiring TB decision.

13 Status of the deliverables

- **Task 1 – TTCN-3 maintenance and further development**

  TTCN-3 standards are stable documents. The way of working of TTCN-3 evolution TTFs is approved by ETSI TC MTS, is based on change requests submitted to ETSI's Mantis CR handling system. Technical resolution and proposed changes in the texts of deliverables are publically available in Mantis during the year. Agreed text of resolved CRs is implemented in drafts of deliverables at, and after the last working session of the TTF. Therefore, the output drafts of the deliverables are available at the end of the project.

  The actual status of the CRs can be found at http://forge.etsi.org/mantis/main_page.php.

- **Task 2 – Conformance test suites for TTCN-3 tools and sub-tasks**

  Drafts for Task 2 deliverables will be made available as part of Milestone B (cut-off date 31/01/2023)

14 Next report

The next report is scheduled for Milestone B (cut-off date 31/01/2022)

15 Any other business

None