STF550 - Progress Report for ETSI

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

STF	550		STF leader	Prof. Jens Grabowski
TB/WG	MTS		TB responsible	Mr. Dirk Tepelmann
			STF Assistant	Ms. Elodie Rouveroux

STF title:	TTCN-3 Evolution 2018

Milestone	B		Status Template	Covers the period until (cut-off date)	31/01/2019
Objective	Second progress report (list of resolved CRs) and final drafts of deliverables to be approved to be approved by TC MTS#76				
Achieved	Yes/No	Indicate whether the objective has been achieved If the objective is not achieved, give a short explanation in the "remarks"			
Remarks					

Achieved dates

Template	Draft report	TB approval	ETSI approval		
20/12/2018					

1   Executive summary

The TTCN-3 testing language has intensively been developed by ETSI during the last decade and, by today, it consists of 16 ETSI standards, altogether more than 1600 pages. The language is also endorsed by ITU-T as the Z.16x and Z.17x Recommendation series. By now TTCN-3 is used exceptionally as the formal specification language of standardized test suites and has also become an important testing technology at various ETSI member companies and in several industrial domains (http://www.ttcn-3.org/index.php/about/references/applicatio-domains) and standards organizations (http://www.ttcn-3.org/index.php/about/references).

TTCN-3 has an important role in standardization; it is an enabler technology in many areas. Several conformance and end-to-end/interoperability test standards have been developed and being developed by 3GPP, ETSI TBs INT, ERM, ITS and oneM2M/smartM2M. 3GPP is using TTCN-3 for UE conformance tests from Rel. 8 and onward to LTE and VoLTE, with NB-IoT on horizon. In the C-ITS area also several TTCN-3 test suites have been developed and they start playing important roles in ITS Plugtest events, with automated C-ITS interoperability testing being in prgress. In 2016 oneM2M has started using TTCN-3 for IoT/M2M conformance test development that has been continued in ETSI smartM2M in 2017. oneM2M is also developing an open source test tool to the execute the conformance tests.

The purpose of STF550 – "TTCN-3 evolution 2018" is to maintain the high quality of the language – that currently consists of 18 ETSI standards - 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 STF team consists of 5 experts. During its working session in 2018, STF550 resolved 39 CRs and progressed further 12 CRs.

2   Introduction

The TTCN-3 language evolution work will comprise 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 3GPP, OMA, 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, and the versions for approval.
- Present the TTCN-3 standards' status and the work of the STF at the conference(s) associated with ETSI TB MTS and at ETSI TB MTS meetings.

The STF consists of five experts:

- Jens Grabowski, University of Göttingen (STF Leader)
- György Réthy, Ericsson
- Kristóf Szabados, Ericsson
- Tomáš Urban, Elvior
- Jacob Wieland, Spirent Communications

György Rethy does not physically participate in the STF sessions, but contributes by following the ongoing work in Mantis and providing useful feedback via email and telephone.

3   Contractual milestone

This contractual milestone is related to this final report and the final drafts of deliverables for TB approval. Milestone B is achieved by TB MTS approving this progress report and all deliverables described above.

4   Progress of the work

The STF met for the following one-week working sessions in 2018:

- W29, 16 – 20 July 2018, Göttingen
- W41, 08 – 12 October 2018, Budapest

A third working session planned for December in Berlin has been cancelled. The STF discussed all open CRs and discovered not technical risks or problems that require face-to-face discussions. Instead the STF members resolved CRs in homework. A final STF phone conference on 18. Dec was used to discuss all open CRs and to sum up the STF work.

During its two working sessions and in homework STF550 implemented and closed the following 39 CRs.

Part 01: TTCN-3 Core Language   (19 CRs)
    7465   control part should be able to have a runs on clause and call other control parts
    7495   out, inout and return value should be assignable via the done/killed statement redirect

7619	No named interleave construct available.
7720	Removal of deprecated features from the TTCN-3 core language
7721	Possibility to catch any exception of a specified signature
7729	There seems to be a mistake in Example 4 on Page 108 (v4.9.1)
7737	Padding bits in encvalue_o result and decvalue_o input
7754	Clarify initialization of constants and module parameters
7761	Template name in the example on overwriting rules
7764	Syntax error in example on attributes with AllRef
7769	Errors in example on variant attributes
7772	Typos in section 27.9
7774	Is replace function applicable to variables/templates of string/record of types with values containing matching mechanisms
7780	Template module parameters
7783	Qualified notation for enumerated values
7787	typo in section 5.4.1.0
7797	Used syntax for length restriction
7801	Wrong variable name in example on template concatenation
7804	Wrong result in examples on list template concatenation

Part 06: TTCN-3 Control Interface   **(5 CRs)**

7738	TriMessage should be enhanced with a stream-like API
7785	Add Mutation annotations to the Value data type
7786	TciCallparameterListType needed to implement component call operation
7806	TCI update: module control function
7809	TLI: Possibility to catch any exception of a specified signature

Part 09: Using XML with TTCN-3   **(3 CRs)**

7757	the mapping of \s in pattern facets uses wrong ASCII code for SPACE
7776	Invalid conversion of type derived by union with enumeration facets
7817	Invalid conversion of complex type with simple content in example

Ext Pack: Config & Deployment Support (ES 202 781)   **(4 CRs)**

7765	add discard state to the states of ports with translation capability
7768	add support for stateful translation ports
7779	Functions with 'port'clause should not be startable
7784	setstate is incorrect in the example

Ext Pack: Advanced Matching (ES 203 022)   **(7 CRs)**

7733	Dynamic match and default parameter values
7734	Runs on in dynamic matching
7739	Error in the example on dynamic matching
7742	Allow passing instances of templates with out parameters/value redirects as specially marked actual template in parameters
7763	add support for sending erroneous messages
7775	matching mechanism for concatenation of strings needed
7782	Additional parameter values for istemplatekind function

Ext Pack: Object-Oriented Features (Draft ES 203 790)   **(1 CR)**

| 7731 | Draft document for Object-oriented Extension |

The following 12 CRs have been submitted after the last STF session in Budapest. The CRs and possible resolution have been discussed in the final STF phone conference on 18. Dec. 2018. Comments on the resolutions can be found in Mantis (see http://oldforge.etsi.org/mantis/view_all_bug_page.php). The STF concluded that the CRs are not critical, but should be discussed thoroughly in the scope of the next TTCN-3 maintenance STF.

Part 01: TTCN-3 Core Language   **(4 CRs)**
     7455   The type of formal in parameters of external functions should be allowed to be 'any'
     7618   alternative event headers could allow a boolean combinators
     7682   Table with index-operators using keys as indices should be supported
     7813   Missing template restrictions in return clause declaration

Ext Pack: Behaviour Types (ES 202 785)   **(2 CR)**
     7812   mtc and system clauses in behaviour types
     7822   Invalid restriction on values of behaviour types

Ext Pack: Extended TRI (ES 202 789)   **(2 CR)**
     7816   There should be some way to determine what to log as 'TriMessage' for xtriSend

Ext Pack: Advanced Matching (ES 203 022)   **(4 CRs)**
     7818   Dynamic Matching: wrong type used for template mw_closeTo
     7819   semantic of (Restriction a):The dynamic matching syntax shall only be used in a typed context.
     7820   Wrong definition of templates in EXAMPLE.
     7821   Clarify semantic of examples (usage of value-lists and value retrieval assignment)

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

During a telephone conference in December, the STF discussed the possible technical risks and difficulties related to open CRs. The number of CRs (12) that have been left open for the next TTCN-3 maintenance STF is reasonable. None of the open CRs looks critical.

6   Proposed changes in the STF work plan

No changes proposed.

7   Resources requirements

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

8   Changes in the STF Team

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

9   Meetings/events attended on behalf of the STF

Date	Place	TB/Orga	Event description	Reason to attend	Expert(s)
26.09 – 27.09.18	Budapest	TC MTS	MTS#75 regular meeting	Presentation of progress report (milestone A)	Jens Grabowski
16.10. – 18.10.18	Paris	TC MTS	User Conference on Advanced Automated Testing (UCAAT)	Presentation of STF work	Jens Grabowski

10 Meetings/events planned to be attended

Date	Place	TB/Orga	Event description	Reason to attend	Expert(s)
23.01. – 24.01.19	Pisa	TC MTS	MTS#76 regular meeting	Presentation of progress report (milestone B)	Jens Grabowski
May/June 2019	tba	TC MTS	MTS#77 regular meeting	Presentation of final report (milestone C)	Jens Grabowski

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

- The STF550 webpage can be found on: https://portal.etsi.org/STF/STFs/STFHomePages/STF550

- The work of STF550 has been presented and discussed on the ETSI UCAAT conference (https://ucaat.etsi.org/) in October 2018.

- Further external communication is done via Mantis (see: http://oldforge.etsi.org/mantis/view_all_bug_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

Due to technical problems, not all new TTCN-3 draft standard documents could be uploaded into the ETSI-MTS Drafts area. Instead, the documents have been uploaded as contributions to the MTS#76 meeting.

Part 01: TTCN-3 Core Language

Name:	RES/MTS-201873-1v4A1 (ES 201 873-1) TTCN-3 Core V4101
Status:	Final draft for approval
MTS#76 contribution	MTS(19)076004
Link	https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2019/MTS(19)076004_Draft_-_RES_MTS-201873-1Core_v4111_v4102_ES_201_873-1.zip

Part 06: TTCN-3 Control Interface

Name:	RES/MTS-201873-6 T3ed4A1 (ES 201 873-6) TTCN-3 TCI V481
Status:	Final draft for approval
MTS#76 contribution	MTS(19)076005
Link	https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2019/MTS(19)076005_Draft_-_RES_MTS-201873-6_v4B1_.docx

Part 09: Using XML schema with TTCN-3

Name:	RES/MTS-201873-9 T3ed491 (ES 201 873-9) TTCN-3 XSD V471
Status:	Final draft for approval
MTS#76 contribution	MTS(19)076001
Link	https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2019/MTS(19)076001_Draft_RES_MTS-201873-9v4A1XSD_v492_ES_201_873-9.zip

Ext Pack: Config & Deployment Support (ES 202 781)

Name:	RES/MTS-202781ConfDepled161 (ES 202 781) TTCN-3 extension: Configuration & Deployment support
Status:	Final draft for approval
MTS#76 contribution	MTS(19)076002
Link	https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2019/MTS(19)076002_Draft_RES_MTS-202781ConfDeplv171_v162_ES_202_781.zip

Ext Pack: Advanced Matching (ES 203 022)

Name:	RES/MTS-203022ed121 (ES 203 022)
Status:	Final draft for approval
MTS#76 contribution	MTS(19)076003
Link	https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2019/MTS(19)076003_Draft_RES_MTS-203022-AdvMatchv131_v122_ES_203_022.zip

Ext Pack: Object Oriented features

Name:	DES/MTS-203790-00F_ed111 (ES 203 790) TTCN3ext_OOed111
Status:	Member vote
Link	https://portal.etsi.org/webapp/workprogram/LogonRedirection.asp?wki_id=50942

14 Next report

The next report is the final project report. It is scheduled for: TB MTS#77 (expected May or June 2019)

15 Any other business

None