# TTCN-3, the global testing language

The Testing and Test Control Notation version 3 (TTCN-3) is THE standard testing language. First published in 2000, it has become a well established mature testing technology. The flexibility and adaptability of this internationally standardized language has led to its rapid deployment in several traditional domains , including telecommunications, automotive, transportation, Internet, medical, web-based services, finance, industrial automation, and distributed systems. In addition, its use has expanded from conformance and functional testing to include load, performance, interoperability and security testing.
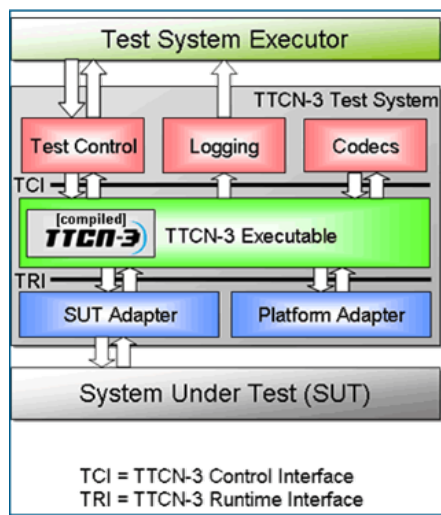
TTCN-3 fits perfectly into a chain of standardized languages, supporting the stepwise development of tests from specification, via test descriptions and abstract test cases to executable test cases.

The language has been specifically designed for testers' efficiency, automated regression testing and continuous integration in both agile and more conventional SW development models. It expresses tests (test scripts) independent of the actual test environment and execution platform used, hence allowing users to concentrate on what and how they want to test rather than having to focus on low-level implementation details such as data encoding or the transport means used. TTCN-3 has powerful programming constructs specific to testing such as the creation of dynamic test configurations, synchronous and asynchronous communication mechanisms, very powerful data matching mechanisms, built-in verdict assignment, timer handling and logging features etc. The well-defined syntax and operational semantics allow a universal and common understanding of the meaning of the tests. It also allowsusing specifications developed in XSD, ASN.1 and IDL directly in TTCN-3 test suites, define JSON schema in TTCN 3 and serialize/deserialize TTCN 3 data in JSON that significantly increases test and test tool development efficiency.

As the result of the above, its use has expanded from conformance and functional testing to include load, performance, interoperability and security testing. TTCN 3 is one of the main functional and load testing solutions for at least one major telecom network equipment manufacturer.

All TTCN-3 standards are owned and continuously maintained and developed by ETSI Technical Committee Methods for Testing and Specification (TC MTS).

The Annual International User Conference on Advanced Automated Testing (UCAAT)

Since 2004 ETSI has organized a very successful series of yearly user conferences on TTCN-3 (T3UC) that brought together testing experts and engineers from industry, research and academia. An archive of all past TTCN-3 user conference presentations can be found at: http://www.ttcn-3.org/index.php/community/events

In 2013 T3UC was integrated into the new ETSI User Conference on Advanced Automated Testing (UCAAT), details of which can be found at http://ucaat.etsi.org

UCAAT very much follows the T3UC model, but with a wider scope to cover many aspects of automated testing, including TTCN-3 and Model-Based Testing techniques.

List of ETSI TTCN-3 standards and their ITU-T Rec. numbers

ES 201 873-1	TTCN-3: Core Language	(ITU-T Recommendation Z.161)
ES 201 873-3	TTCN-3: Graphical Presentation Format	(ITU-T Recommendation Z.163)
ES 201 873-4	TTCN-3: Operational Semantics	(ITU-T Recommendation Z.14)
ES 201 873-5	TTCN-3: TTCN-3 Runtime Interface	(ITU-T Recommendation Z.165)
ES 201 873-6	TTCN-3: TTCN-3 Control Interface	(ITU-T Recommendation Z.166)
ES 201 873-7	TTCN-3: Using ASN.1 with TTCN-3	(ITU-T Recommendation Z.167)
ES 201 873-8	TTCN-3: The IDL to TTCN-3 Mapping	(ITU-T Recommendation Z.168)
ES 201 873-9	TTCN-3: Using XML schema with TTCN-3	(ITU-T Recommendation Z.169)
ES 201 873-10	TTCN-3: Documentation Comment Specification	(ITU-T Recommendation Z.170)
ES 201 873-11	TTCN-3: Using JSON with TTCN-3	(ITU-T Recommendation Z.171)
ES 202 781	Extension: Configuration & Deployment Support	(ITU-T Recommendation Z.161.2)
ES 202 782	Extension: Performance and Real Time Testing	(ITU-T Recommendation Z.161.5)
ES 202 784	Extension: Advanced Parameterization	(ITU-T Recommendation Z.161.3)
ES 202 785	Extension: Behaviour Types	(ITU-T Recommendation Z.161.4)
ES 202 786	Extension: Support of interfaces with continuous signals	(ITU-T Recommendation Z.161.1)
ES 202 789	Extension: Extended TRI	(ITU-T Recommendation Z.165.1)
ES 203 022	Extension: Advanced Matching	(ITU-T Recommendation Z.161.6)
ES 203 790	Extension: Object-Oriented Features	(ITU-T Recommendation Z.161.7)
TS 102 950-1	TTCN-3 Conformance Test Suite: ICS	
TS 102 950-2	TTCN-3 Conformance Test Suite: TSS & TPs	
TS 102 950-3	TTCN-3 Conformance Test Suite: ATS & IXIT	
TS 103 253	TTCN-3 Conformance Test Suite for use of XML schema; ICS	
TS 103 254	TTCN-3 Conformance Test Suite for use of XML schema; TSS&TPs	
TS 103 255	TTCN-3 Conformance Test Suite for use of XML schema; ATS & IXIT	
TS 103 663-1	Conformance Test Suite for TTCN-3 Object Oriented Features: ICS	
TS 103 663-2	Conformance Test Suite for TTCN-3 Object Oriented Features: TSS&TP	
TS 103 663-3	Conformance Test Suite for TTCN-3 Object Oriented Features: IXIT	

The Language is continually maintained by ETSI, change requests can be proposed:
www.ttcn-3.org/index.php/community/change-requests

Users can track the change history of these standards via the links provided at:
www.ttcn-3.org/index.php/downloads/standards

For further details on TTCN3 please visit: www.ttcn3.org

ETSI provides members with an open and inclusive environment to support the timely development, ratification and testing of globally applicable standards for ICT-enabled systems, applications and services across all sectors of industry and society. We are at the forefront of emerging technologies. We address the technical issues which will drive the economy of the future and improve life for the next generation. We are a not-for-profit body with more than 900 member organizations worldwide, drawn from more than 60 countries and five continents. Members comprise a diversified pool of large and small private companies, research entities, academia, government and public organizations. ETSI is one of only three bodies officially recognized by the EU as a European Standards Organization (ESO).

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