

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Z.166

(10/2022)

SERIES Z: LANGUAGES AND GENERAL SOFTWARE
ASPECTS FOR TELECOMMUNICATION SYSTEMS

Formal description techniques (FDT) – Testing and Test
Control Notation (TTCN)

**Testing and Test Control Notation version 3:
TTCN-3 control interface (TCI)**

Recommendation ITU-T Z.166

ITU-T



ITU-T Z-SERIES RECOMMENDATIONS
LANGUAGES AND GENERAL SOFTWARE ASPECTS FOR TELECOMMUNICATION SYSTEMS

FORMAL DESCRIPTION TECHNIQUES (FDT)	
Specification and Description Language (SDL)	Z.100–Z.109
Application of formal description techniques	Z.110–Z.119
Message Sequence Chart (MSC)	Z.120–Z.129
User Requirements Notation (URN)	Z.150–Z.159
Testing and Test Control Notation (TTCN)	Z.160–Z.179
PROGRAMMING LANGUAGES	
CHILL: The ITU-T high level language	Z.200–Z.209
MAN-MACHINE LANGUAGE	
General principles	Z.300–Z.309
Basic syntax and dialogue procedures	Z.310–Z.319
Extended MML for visual display terminals	Z.320–Z.329
Specification of the man-machine interface	Z.330–Z.349
Data-oriented human-machine interfaces	Z.350–Z.359
Human-machine interfaces for the management of telecommunications networks	Z.360–Z.379
QUALITY	
Quality of telecommunication software	Z.400–Z.409
Quality aspects of protocol-related Recommendations	Z.450–Z.459
METHODS	
Methods for validation and testing	Z.500–Z.519
MIDDLEWARE	
Processing environment architectures	Z.600–Z.609

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T Z.166

Testing and Test Control Notation version 3: TTCN-3 control interface (TCI)

Summary

Recommendation ITU-T Z.166 specifies the control interfaces for Testing and Test Control Notation 3 (TTCN-3) test system implementations. The TTCN-3 control interfaces (TCIs) provide a standardized adaptation for management, test component handling and encoding/decoding of a test system to a particular test platform. This Recommendation defines the interfaces as a set of operations independent of a target language.

The interfaces are defined to be compatible with the TTCN-3 standards (see clause 2 of ETSI ES 201 873-6 V4.13.1). The interface definition uses the Common Object Request Broker Architecture (CORBA) Interface Definition Language (IDL) to specify the TCI completely. Clauses 8, 9, 10, 11 and 12 of ETSI ES 201 873-6 V4.13.1 present language mappings for this abstract specification to the target languages Java, ANSI C, C++, XML and C#.

This revision of the Recommendation contains amendments, clarifications, corrigenda and editorial corrections.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T Z.145	2006-03-16	17	11.1002/1000/8645
2.0	ITU-T Z.166	2007-11-13	17	11.1002/1000/9282
3.0	ITU-T Z.166	2011-03-16	17	11.1002/1000/11068
4.0	ITU-T Z.166	2012-05-29	17	11.1002/1000/11601
5.0	ITU-T Z.166	2013-07-14	17	11.1002/1000/11963
6.0	ITU-T Z.166	2014-11-13	17	11.1002/1000/12336
7.0	ITU-T Z.166	2015-10-29	17	11.1002/1000/12603
8.0	ITU-T Z.166	2016-10-14	17	11.1002/1000/13046
9.0	ITU-T Z.166	2017-10-14	17	11.1002/1000/13377
10.0	ITU-T Z.166	2018-10-14	17	11.1002/1000/13707
11.0	ITU-T Z.166	2019-10-14	17	11.1002/1000/14063
12.0	ITU-T Z.166	2020-10-29	17	11.1002/1000/14486
13.0	ITU-T Z.166	2022-10-14	17	11.1002/1000/15101

Keywords

Control notation, interoperability testing, protocols, protocol testing, service testing, testing, tools, TTCN-3.

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents/software copyrights, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the appropriate ITU-T databases available via the ITU-T website at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2022

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

Recommendation ITU-T Z.166

Testing and Test Control Notation version 3: TTCN-3 control interface (TCI)

1 Scope

Recommendation ITU-T Z.166 specifies the control interfaces for TTCN-3 test system implementations. The TTCN-3 control interfaces provide a standardized adaptation for management, test component handling and encoding/decoding of a test system to a particular test platform. The present document defines the interfaces as a set of operations independent of a target language.

The interfaces are defined to be compatible with the TTCN-3 standard (see clause 2 of [ETSI ES 201 873-6 V4.13.1]). The interface definition uses the CORBA interface definition language (IDL) to specify the TCI completely. Clauses 8, 9, 10, 11 and 12 of [ETSI ES 201 873-6 V4.13.1] present language mappings for this abstract specification to the target languages Java, ANSIC, C++, XML and C#. A summary of the IDL-based interface specification is provided in Annex A of [ETSI ES 201 873-6 V4.13.1].

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ETSI ES 201 873-6 V4.13.1] ETSI ES 201 873-6 V4.13.1 (2022-04), *Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 6: TTCN-3 Control Interface (TCI)*.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CORBA	Common Object Request Broker Architecture
IDL	Interface Definition Language
TCI	TTCN-3 Control Interfaces
TTCN	Testing and Test Control Notation

5 Conventions

None.

6 Endorsement

[ETSI ES 201 873-6 V4.13.1] was approved by ITU-T as the basis for Recommendation ITU-T Z.166.

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series D	Tariff and accounting principles and international telecommunication/ICT economic and policy issues
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant
Series M	Telecommunication management, including TMN and network maintenance
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling, and associated measurements and tests
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks, open system communications and security
Series Y	Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities
Series Z	Languages and general software aspects for telecommunication systems