



**Methods for Testing and Specification (MTS);
The Test Description Language (TDL);
Part 7: Extended Test Configurations**

*iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard available at
<https://standards.iteh.ai/catalog/standards/sis/203-119-7/v1.1.1-2018-03>
4506-ad48-5bc960e05fe8/etsi-es-203-119-7-v1.1.1-2018-03*

Reference

DES/MTS-203119-7

Keywords

language, MBT, methodology, testing

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2018.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	4
Introduction	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	5
3 Definitions and abbreviations.....	5
3.1 Definitions	5
3.2 Abbreviations	6
4 Basic Principles	6
4.1 Extended Test Configurations	6
4.2 Document Structure.....	6
4.3 Notational Conventions	6
4.4 OCL Constraints Requirements.....	7
4.5 Conformance	7
5 Meta-Model Extensions	7
5.1 Overview	7
5.2 ExtendedTestConfiguration.....	7
5.3 TestConfigurationInstance	8
5.4 TestConfigurationOperation.....	8
5.5 ComponentReference	9
5.6 ExtendedGateReference	9
5.7 ComponentMerge.....	9
5.8 ComponentAlias	10
5.9 ComponentHide	10
5.10 RoleReassignment	11
6 Graphical Syntax Extensions.....	11
6.1 ExtendedTestConfiguration	11
6.2 TestConfigurationInstance	12
6.3 TestConfigurationOperation.....	12
6.4 ComponentReference	12
6.5 ComponentMerge	13
6.6 ComponentAlias	13
6.7 ComponentHide	13
6.8 RoleReassignment	14
7 Exchange Format Extensions	14
Annex A (informative): Examples.....	15
A.0 Overview	15
A.1 Test Configuration Instantiation.....	15
A.2 Test Configuration Operations	15
A.3 Component Merging.....	17
History	18

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This final draft ETSI Standard (ES) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 7 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

This extension package to TDL introduces additional features for the specification of extended test configurations by reusing existing test configurations. Existing test configurations can be instantiated within an extended test configuration. By means of test configuration operations, the test configuration instances can be modified within an extended test configuration, without affecting the original test configuration specification that is instantiated.

The present document describes the relevant abstract syntax (meta-model) extensions as well as the corresponding concrete syntactical notation.

1 Scope

The present document defines extensions to the Test Description Language (TDL) to support the re-use of test configurations.

NOTE: OMG[®], UML[®], OCL[™] and UTP[™] are the trademarks of OMG (Object Management Group). This information is given for the convenience of users of the present document and does not constitute an endorsement by ETSI of the products named.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI ES 203 119-1 (V1.4.1): "Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 1: Abstract Syntax and Associated Semantics".
- [2] ETSI ES 203 119-2 (V1.3.1): "Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 2: Graphical Syntax".
- [3] ETSI ES 203 119-3 (V1.3.1): "Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 3: Exchange Format".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI ES 203 119-1 [1] and the following apply:

component reference: reference to a unique component instance in an extended test configuration

extended gate reference: extension to gate reference that makes it possible to specify gate references from different component instances in a unique manner within an extended test configuration

extended test configuration: specification of a test configuration which includes a set test configuration instances and test configuration operations, as well as additional component instances and connections

flattened test configuration: test configuration resulting from the transformation of an extended test configuration into a test configuration that includes all the component instances and connections from the instantiated test configurations after applying the test configuration operations, as well as additional component instances and connections defined within the extended test configuration

test configuration instance: instantiation of an existing test configuration

test configuration operation: operation on a component instance in an extended test configuration

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

OCL	Object Constraint Language™
TDL	Test Description Language

4 Basic Principles

4.1 Extended Test Configurations

Re-use of test configurations with the capability to modify a test configuration as part of the re-use is an essential feature for managing larger test specifications in TDL. This extension for the specification of extended test configurations in TDL provides the necessary capabilities for instantiating existing test configuration within an extended test configuration, as well as modifying the instantiated test configurations by means of test configuration operations. Extended test configurations are intended for higher-level specification of reusable test configurations. An extended test configuration shall be transformed into a "flattened" test configuration in order to be used in a test description. The flattened test configuration shall contain all the component instances and connections from the instantiated test configurations after applying the test configuration operations, as well as additional component instances and connections defined within the extended test configuration.

4.2 Document Structure

The present document defines the composite test configuration extensions for TDL comprising:

- Meta-model extensions describing additional concepts required for the specification of extended test configurations (clause 5).
- Concrete syntax extension describing corresponding shapes for the representation of the additional concepts (clause 6).
- An informative annex with examples (annex A).

4.3 Notational Conventions

The present document inherits the notational conventions defined in ETSI ES 203 119-1 [1] and ETSI ES 203 119-2 [2].

The abstract syntax specification and the classifier descriptions follow the notational conventions defined in clause 4.5 of Abstract Syntax and Associated Semantics [1]. The concrete syntax notation specification follows the notational conventions described in clause 4.5 of the Graphical Syntax [2].

4.4 OCL Constraints Requirements

The formalized constraints for the present document rely on operations provided by the standard library of OCL and in ETSI ES 203 119-1 [1].

4.5 Conformance

For an implementation claiming to conform to this extension of the TDL meta-model, all concepts specified in the present document and in ETSI ES 203 119-1 [1], as well as the concrete syntax representation specified in the present document shall be implemented consistently with the requirements given in the present document and in ETSI ES 203 119-1 [1]. The electronic attachment from annex A in ETSI ES 203 119-1 [1] may serve as a starting point for a TDL meta-model implementation conforming to the present document and the overall abstract syntax of TDL [1].

5 Meta-Model Extensions

5.1 Overview

The extended test configuration concepts are defined within a single package in the TDL meta-model. The additional concepts are "self-contained" in that a specification that relies on them shall be transformed into a test configuration that does not make any use of the additional concepts before using the test configuration in a test description.

5.2 ExtendedTestConfiguration

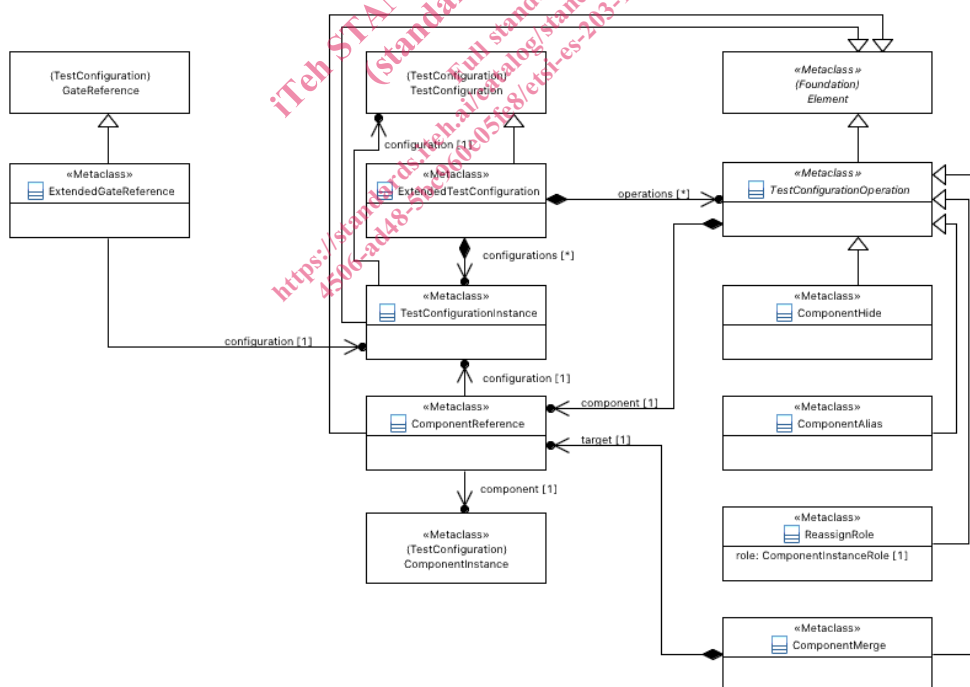


Figure 5.2.1: Extended test configuration specification concepts

Semantics

An 'ExtendedTestConfiguration' is a refinement of 'TestConfiguration' that contains the 'TestConfigurationInstance's and 'TestConfigurationOperation's enabling the reuse of existing 'TestConfiguration's. The 'TestConfigurationOperation's shall be applied in the specified order.

Generalization

- TestConfiguration

Properties

- configurations: TestConfigurationInstance [0..*]
The instantiated 'TestConfiguration's.
- operations: TestConfigurationsOperation [0..*]
The 'TestConfigurationOperation's for the refinement of the instantiated 'TestConfiguration's.

Constraints

There are no constraints specified.

5.3 TestConfigurationInstance

Semantics

A 'TestConfigurationInstance' represents an instantiation of an existing 'TestConfiguration' All 'ComponentInstance's and 'Connection's of the instantiated 'TestConfiguration' shall be replicated.

Generalization

- Element

Properties

- configuration: TestConfiguration [1]
A reference to the instantiated 'TestConfiguration'.

Constraints

There are no constraints specified.

5.4 TestConfigurationOperation

Semantics

An abstract super-class for any concrete operation on 'ComponentInstances' within an 'ExtendedTestConfiguration'.

Generalization

- Element

Properties

- component: ComponentReference ([1])
A reference to the 'ComponentInstance' on which the operation shall be applied.

Constraints

There are no constraints specified.

5.5 ComponentReference

Semantics

A 'ComponentReference' is a target of a 'TestConfigurationOperation'. It allows 'ComponentInstance's within an 'ExtendedTestConfiguration' to be referenced in unique manner, where multiple instances of the same 'TestConfiguration' would otherwise create ambiguity.

Generalization

- Element

Properties

- component: ComponentInstance [1]
The 'ComponentInstance' that the 'ComponentReference' refers to.
- configuration: TestConfigurationReference [0..1]
The 'TestConfigurationInstance' that the 'ComponentReference' refers to.

Constraints

There are no constraints specified.

5.6 ExtendedGateReference

Semantics

An extension to 'GateReference' enabling the specification of 'GateReferences' of different 'ComponentInstance's in different 'TestConfigurationInstance's in a unique manner.

Generalization

- GateReference

Properties

- configuration: TestConfigurationReference [0..1]
The 'TestConfigurationInstance' that the 'ExtendedGateReference' refers to.

Constraints

There are no constraints specified.

5.7 ComponentMerge

Semantics

A 'ComponentMerge' enables two 'ComponentInstance's of the same 'ComponentType' to be merged into one where the target 'ComponentInstance' shall inherit the 'Connection's of the source 'ComponentInstance' while keeping the role of the target 'ComponentInstance'.

Generalization

- TestConfigurationOperation