



Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 5: UML profile for TDL

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS).

The present document is part 5 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).

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1 Scope

The present document specifies how the concepts of the TDL meta-model [1] are mapped to OMG® UML® to create a UML Profile for TDL, called UP4TDL.

NOTE: OMG® and UML® 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.

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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] OMG® formal/2011-08-06: "OMG Unified Modeling Language™ (OMG UML) Superstructure, Version 2.4.1".

NOTE: Available at <http://www.omg.org/spec/UML/2.4.1/>.

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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, symbols 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:

UML profile: extension mechanism provided by UML

3.2 Symbols

For the purposes of the present document, the symbols given in [2] apply.

3.3 Abbreviations

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

OMG	Object Management Group®
SUT	System Under Test
TDL	Test Description Language
UML	Unified Modelling Language®

4 Structure of the UML Profile for TDL

The stereotypes representing concepts from the Foundation section of the TDL meta-model are directly stored in the UP4TDL Profile, while other concepts are stored in various additional included Packages.

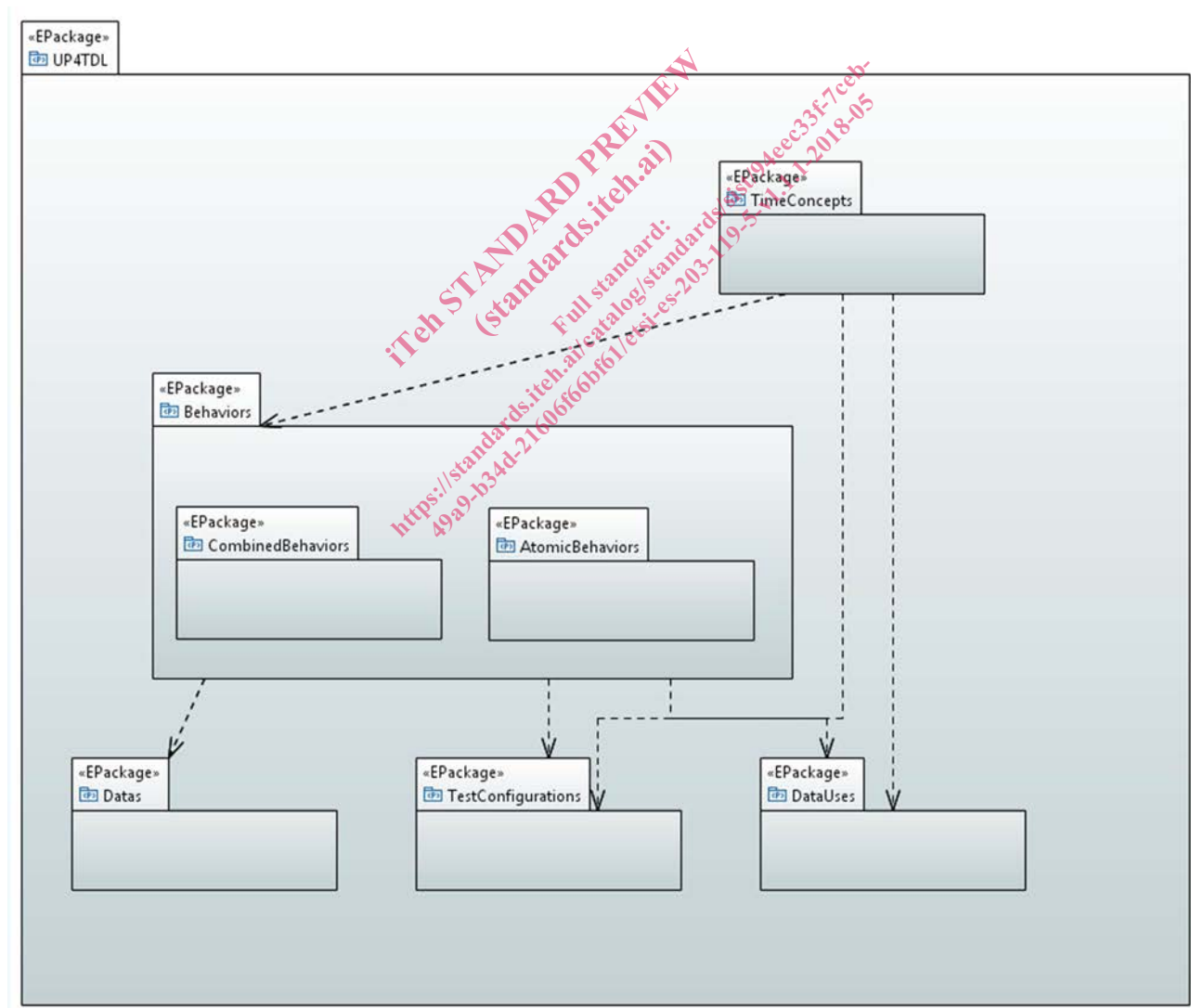


Figure 4.1: Structure of UMLProfile4TDL

The following clauses describe the content of each package. The subclasses describe how the TDL meta-model elements can be mapped to UML.

5 Foundation

5.1 Overview

Most concepts of the Foundation Package are directly mapped to UML meta-classes. Exceptions are:

- TDL::Element : a stereotype is created to allow elements to have Annotations;
- TDL::Annotations and TDL::TestObjective for which there is no equivalent concept in UML.

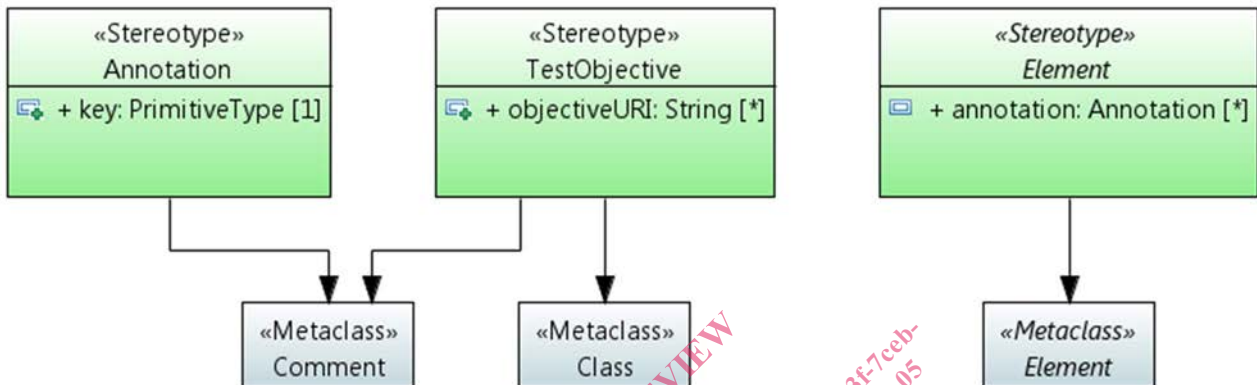


Figure 5.1: Foundational language concepts

5.2 Element

Extended UML Meta-Class

- UML::Element

Generalization

None.

Properties

- <<UP4TDL::Element>>
- TDL::Element.comment := Computed as the set of Comment whose *annotatedElement* Property contains this element
- TDL::Element.annotation := UP4TDL::Element.annotation : new (derived) property computed as the set of Comment with stereotype Annotation applied whose *annotatedElement* property contains this Element

Constraints

None.

5.3 NamedElement

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::NamedElement

Generalization

None.

Properties

- TDL::NamedElement.qualifiedName := UML::NamedElement.qualifiedName

Constraints

None.

5.4 PackageableElement

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::PackageableElement

Generalization

None.

Properties

None.

Constraints

None.

5.5 Package

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::Package

Generalization

None.

Properties

- TDL::Package.packagedElement := UML::Package.packagedElement
- TDL::Package.import := UML::Package.elementImport
- TDL::Package.nestedPackage := UML::Package.nestedPackage

Constraints

None.

5.6 ElementImport

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::ElementImport

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Generalization

None.

Properties

- TDL::ElementImport is resolved in UML by a set of UML::ElementImport
- TDL::ElementImport.importedPackage := UML::ElementImport.importedElement.namespace
- TDL::ElementImport.importedElement := UML::ElementImport.importedElement

Constraints

None.

Model to Model transformation advice

- In UML, an ElementImport can import exactly one element. This implies that for one TDL::ElementImport, the equivalent model in UP4TDL can have several UML::ElementImport

5.7 Comment

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::Comment

Generalization

None.

Properties

- TDL::Comment.commentedElement := UML::Comment.annotatedElement
- TDL::Comment.body := UML::Comment.body

Constraints

None.

5.8 Annotation

Extended UML Meta-Class

- UML::Comment

Generalization

None.

Properties

- <<UP4TDL::Annotation>>
- TDL::Annotation.key :=UP4TDL::Annotation.key (new property)
- TDL::Annotation.value := UP4TDL::Annotation.base_Comment.body

- TDL::Annotation.annotatedElement := UP4TDL::Annotation.base_Comment.annotatedElement

Constraints

None.

5.9 AnnotationType

Extended UML Meta-Class

- Direct mapping without a stereotype to UML::PrimitiveType

Generalization

None.

Properties

None.

Constraints

None.

5.10 TestObjective

Extended UML Meta-Class

- UML::Comment
- UML::Class

Generalization

None.

Properties

- <<UP4TDL::TestObjective>>
- TDL::TestObjective.description := UP4TDL::TestObjective.description
- TDL::TestObjective.objectiveURI := UP4 TDL::TestObjective.objectiveURI (new property)

Constraints

None.

6 Data

6.1 Data Definition

6.1.1 Overview

TDL Data Mapping-related concepts are mapped to stereotypes in UML.