Date: September 2013

Common Terminology Services 2 1.0/1.1 Compatibility Reference

Version 1.0

OMG Document Number: ad/2013-08-05 (this document)

Accompanied by:

ad/2013-08-06 Common Terminology Services 2 (CTS2) 1.0 to 1.1 Migration XSLT

ad/2013-08-07 Common Terminology Services 2 (CTS2) 1.1 to 1.0 Migration XSLT

ad/2013-08-09 Common Terminology Services 2 (CTS2) Utilities for Migration XSLT

Copyright © 2013, Mayo Clinic
Copyright © 2013, Object Management Group, Inc.

USE OF SPECIFICATION - TERMS, CONDITIONS & NOTICES

The material in this document details an Object Management Group specification in accordance with the terms, conditions and notices set forth below. This document does not represent a commitment to implement any portion of this specification in any company's products. The information contained in this document is subject to change without notice.

LICENSES

The companies listed above have granted to the Object Management Group, Inc. (OMG) a nonexclusive, royalty-free, paid up, worldwide license to copy and distribute this document and to modify this document and distribute copies of the modified version. Each of the copyright holders listed above has agreed that no person shall be deemed to have infringed the copyright in the included material of any such copyright holder by reason of having used the specification set forth herein or having conformed any computer software to the specification.

Subject to all of the terms and conditions below, the owners of the copyright in this specification hereby grant you a fully-paid up, non-exclusive, nontransferable, perpetual, worldwide license (without the right to sublicense), to use this specification to create and distribute software and special purpose specifications that are based upon this specification, and to use, copy, and distribute this specification as provided under the Copyright Act; provided that: (1) both the copyright notice identified above and this permission notice appear on any copies of this specification; (2) the use of the specifications is for informational purposes and will not be copied or posted on any network computer or broadcast in any media and will not be otherwise resold or transferred for commercial purposes; and (3) no modifications are made to this specification. This limited permission automatically terminates without notice if you breach any of these terms or conditions. Upon termination, you will destroy immediately any copies of the specifications in your possession or control.

PATENTS

The attention of adopters is directed to the possibility that compliance with or adoption of OMG specifications may require use of an invention covered by patent rights. OMG shall not be responsible for identifying patents for which a license may be required by any OMG specification, or for conducting legal inquiries into the legal validity or scope of those patents that are brought to its attention. OMG specifications are prospective and advisory only. Prospective users are responsible for protecting themselves against liability for infringement of patents.

GENERAL USE RESTRICTIONS

Any unauthorized use of this specification may violate copyright laws, trademark laws, and communications regulations and statutes. This document contains information which is protected by copyright. All Rights Reserved. No part of this work covered by copyright herein may be reproduced or used in any form or by any means--graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems--without permission of the copyright owner.

DISCLAIMER OF WARRANTY

WHILE THIS PUBLICATION IS BELIEVED TO BE ACCURATE, IT IS PROVIDED "AS IS" AND MAY CONTAIN ERRORS OR MISPRINTS. THE OBJECT MANAGEMENT GROUP AND THE COMPANIES LISTED ABOVE MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS PUBLICATION, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF TITLE OR OWNERSHIP, IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE. IN NO EVENT SHALL THE OBJECT MANAGEMENT GROUP OR ANY OF THE COMPANIES LISTED ABOVE BE LIABLE FOR ERRORS CONTAINED HEREIN OR FOR DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, RELIANCE OR COVER DAMAGES, INCLUDING LOSS OF PROFITS, REVENUE, DATA OR USE, INCURRED BY ANY USER OR ANY THIRD PARTY IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS MATERIAL, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

The entire risk as to the quality and performance of software developed using this specification is borne by you. This disclaimer of warranty constitutes an essential part of the license granted to you to use this specification.

RESTRICTED RIGHTS LEGEND

Use, duplication or disclosure by the U.S. Government is subject to the restrictions set forth in subparagraph (c) (1) (ii) of The Rights in Technical Data and Computer Software Clause at DFARS 252.227-7013 or in subparagraph (c)(1) and (2) of the Commercial Computer Software - Restricted Rights clauses at 48 C.F.R. 52.227-19 or as specified in 48 C.F.R. 227-7202-2 of the DoD F.A.R. Supplement and its successors, or as specified in 48 C.F.R. 12.212 of the Federal Acquisition Regulations and its successors, as applicable. The specification copyright owners are as indicated above and may be contacted through the Object Management Group, 140 Kendrick Street, Needham, MA 02494, U.S.A.

TRADEMARKS

MDA®, Model Driven Architecture®, UML®, UML Cube logo®, OMG Logo®, CORBA® and XMI® are registered trademarks of the Object Management Group, Inc., and Object Management Group™, OMG™ , Unified Modeling Language™, Model Driven Architecture Logo™, Model Driven Architecture Diagram™, CORBA logos™, XMI Logo™, CWM™, CWM Logo™, IIOP™ , IMM™ , MOF™ , OMG Interface Definition Language (IDL)™ , and OMG SysML™ are trademarks of the Object Management Group. All other products or company names mentioned are used for identification purposes only, and may be trademarks of their respective owners.

COMPLIANCE

The copyright holders listed above acknowledge that the Object Management Group (acting itself or through its designees) is and shall at all times be the sole entity that may authorize developers, suppliers and sellers of computer software to use certification marks, trademarks or other special designations to indicate compliance with these materials.

Software developed under the terms of this license may claim compliance or conformance with this specification if and only if the software compliance is of a nature fully matching the applicable compliance points as stated in the specification. Software developed only partially matching the applicable compliance points may claim only that the software was based on this specification, but may not claim compliance or conformance with this specification. In the event that testing suites are implemented or approved by Object Management Group, Inc., software developed using this specification may claim compliance or conformance with the specification only if the software satisfactorily completes the testing suites.

OMG's Issue Reporting Procedure

All OMG specifications are subject to continuous review and improvement. As part of this process we encourage readers to report any ambiguities, inconsistencies, or inaccuracies they may find by completing the Issue Reporting Form listed on the main web page http://www.omg.org, under Documents, Report a Bug/Issue (http://www.omg.org/technology/agreement.)

Table of Contents

1 Scope 1
2 Description of Changes 1
2.1 OMG Issue 17318: Possible issue with CTS2 URI 1
2.2 OMG Issue 18470: referencedEntity in Value Set Definitions should include an optional description. 1
2.3 OMG Issue 18471: "SourceAndNotation" should be made optional in resource version. 1
2.4 OMG Issue 18473: DocumentURI shouldn't be mandatory in ResourceVersionDescription. 2
2.5 OMG Issue 18474: Extensible Directories - Allow directories to be extended. 2
2.6 OMG Issue 18476: No ROA link to value set resolution of current value set 2
2.7 OMG Issue 18479: Additional options needed for Entity Read Query 2
2.8 OMG Issue 18486: Map Entry "MapFrom" and "MapTo" need optional description element 2
2.9 OMG Issue 18487: CodeSystemCatalogEntry xml schema missing "hasOntologyLanguage" and "includes" elements 3
2.10 OMG Issue 18488: Include a depth indicator for AssociationGraph 3
2.11 OMG Issue 18489: Make "associationID" optional. 3
2.12 OMG Issue 18490: AssociationDirectory needs "associationID" 3
2.13 OMG Issue 18494: Parents URI needed in EntityDescription 3
2.14 OMG Issue 18531: IteratableResolvedValueSet and ResolvedValueSet have inconsistent element names. 4
2.15 OMG Issue 18532: URIAndEntityName references should all be changed to EntitySynopsis, allowing an optional description. 4
2.16 OMG Issue 18542: Cardinality of includesResolvedValueSet wrong on ResolvedValueSetHeader. 4
2.17 OMG Issue 18622: AssociationDirectory needs the derivation. 4
2.18 OMG Issue 18624: Association derivation should be optional and not have a default 4

Preface

OMG

Founded in 1989, the Object Management Group, Inc. (OMG) is an open membership, not-for-profit computer industry standards consortium that produces and maintains computer industry specifications for interoperable, portable, and reusable enterprise applications in distributed, heterogeneous environments. Membership includes Information Technology vendors, end users, government agencies, and academia.

OMG member companies write, adopt, and maintain its specifications following a mature, open process. OMG's specifications implement the Model Driven Architecture® (MDA®), maximizing ROI through a full-lifecycle approach to enterprise integration that covers multiple operating systems, programming languages, middleware and networking infrastructures, and software development environments. OMG's specifications include: UML® (Unified Modeling Language™); CORBA® (Common Object Request Broker Architecture); CWM™ (Common Warehouse Metamodel); and industry-specific standards for dozens of vertical markets.

More information on the OMG is available at http://www.omg.org/.

OMG Specifications

As noted, OMG specifications address middleware, modeling and vertical domain frameworks. All OMG Specifications are available from the OMG website at:

http://www.omg.org/spec

Specifications are organized by the following categories:

Business Modeling Specifications

Middleware Specifications

- **CORBA/IIOP**
- **Data Distribution Services**
- **Specialized CORBA**

IDL/Language Mapping Specifications

Modeling and Metadata Specifications

- **UML, MOF, CWM, XMI**
- **UML Profile**

Modernization Specifications

Platform Independent Model (PIM), Platform Specific Model (PSM), Interface Specifications

- **CORBAServices**
- **CORBAFacilities**

OMG Domain Specifications

CORBA Embedded Intelligence Specifications

CORBA Security Specifications

All of OMG's formal specifications may be downloaded without charge from our website. (Products implementing OMG specifications are available from individual suppliers.) Copies of specifications, available in PostScript and PDF format, may be obtained from the Specifications Catalog cited above or by contacting the Object Management Group, Inc. at:

OMG Headquarters
140 Kendrick Street
Building A, Suite 300
Needham, MA 02494
USA
Tel: +1-781-444-0404
Fax: +1-781-444-0320
Email: *pubs@omg.org*

Certain OMG specifications are also available as ISO standards. Please consult http://www.iso.org

Typographical Conventions

The type styles shown below are used in this document to distinguish programming statements from ordinary English. However, these conventions are not used in tables or section headings where no distinction is necessary.

Times/Times New Roman - 10 pt.: Standard body text

Helvetica/Arial - 10 pt. Bold: OMG Interface Definition Language (OMG IDL) and syntax elements.

`Courier – 10 pt. Bold:` Programming language elements.

Helvetica/Arial - 10 pt: Exceptions

NOTE: Terms that appear in italics are defined in the glossary. Italic text also represents the name of a document, specification, or other publication.

Issues

The reader is encouraged to report any technical or editing issues/problems with this specification to http://www.omg.org/report_issue.htm.

1 Scope

Version 1.1 of the Common Terminology Service 2 (CTS2) Standard corrects a number of errors and omissions in the 1.0 specification. There were cases where services compatibility was affected from 1.0 to 1.1 and from 1.1 to 1.0.

Three XSLT files (ad/2013-08-06, ad/2013-08-07, ad/2013-08-09) have been provided to assist implementers that need interoperability between CTS2 1.0 and 1.1. These XSLT files address the issues defined in "Section 2 Description of Changes".

CTS2 services that need to be compatible between CTS2 1.0 and 1.1 need to apply theses transforms.

2 Description of Changes

The changes described below represent substantive changes in the specification. Simple errors such as incorrect return and attribute types, documentation errors, etc. are not included, as they should have no direct impact on existing service implementations.

2.1 OMG Issue 17318: Possible issue with CTS2 URI

References: Github Issue 90 and OMG Issue 17318

Transform 1.0 to 1.1 - Convert the schemaLocation if present. Change all the actual namespaces.

Transform 1.1 to 1.0 - Convert the schemaLocation if present. Change all the actual namespaces.

2.2 OMG Issue 18470: referencedEntity in Value Set Definitions should include an optional description.

References: Github Issue 141 and OMG Issue 18470

Transform 1.0 to 1.1 - Never present in 1.0, so no change.

Transform 1.1 to 1.0 – Strip designations from everywhere whose ancestor is IterableResolvedValueSet or ResolvedValueSet.

2.3 OMG Issue 18471: "SourceAndNotation" should be made optional in resource version.

References: Github Issue 140 and OMG Issue 18471

Transform 1.0 to 1.1 - Will always be present in 1.0, so no change required.

Transform 1.1 to 1.0 – Add a generic sourceAndNotation if missing.

2.4 OMG Issue 18473: DocumentURI shouldn't be mandatory in ResourceVersionDescription.

References: Github Issue 138 and OMG Issue 18473

Transform 1.0 to 1.1 - Will always be present when going from 1.0 to 1.1. Remove if it matches the about URI.

Transform 1.1 to 1.0 – Add a document URI that matches about URI if not present.

2.5 OMG Issue 18474: Extensible Directories - Allow directories to be extended.

References: Github Issue 137 and OMG Issue 18474

Transform 1.0 to 1.1 - Constraints are ignored in CTS2 1.0, so client needs to deal with extra if it shows up.

Transform 1.1 to 1.0 – Constraints are ignored in CTS2 1.0, so client needs to deal with extra if it shows up.

2.6 OMG Issue 18476: No ROA link to value set resolution of current value set

References: Github Issue 134 and OMG Issue 18476

Transform 1.0 to 1.1 - Attribute is optional and not present in 1.0, so no transformation necessary.

Transform 1.1 to 1.0 – Need to remove currentResolution node when converting back to 1.0.

2.7 OMG Issue 18479: Additional options needed for Entity Read Query

References: Github Issue 129 and OMG Issue 18479

Transform 1.0 to 1.1 - CodeSystemRole is not present in 1.0, so no transformation necessary.

Transform 1.1 to 1.0 – Add codeSystemRole to DescriptionInCodeSystem and EntityDescriptionBase.

2.8 OMG Issue 18486: Map Entry "MapFrom" and "MapTo" need optional description element

References: Github Issue 122 and OMG Issue 18486

Transform 1.0 to 1.1 - Never present in 1.0, so no change.

Transform 1.1 to 1.0 – Strip designation from all URIAndEntityName entries that weren't EntitySynopsis in 1.0. Instead of listing all of the places with URIAndEntityName, it is easier to strip designations from everywhere those whose ancestor is IterableResolvedValueSet or ResolvedValueSet.

2.9 OMG Issue 18487: CodeSystemCatalogEntry xml schema missing "hasOntologyLanguage" and "includes" elements

References: Github Issue 121 and OMG Issue 18487

Transform 1.0 to 1.1 - No change in transformation, as it is not present in 1.0 and is optional in 1.1.

Transform 1.1 to 1.0 – Need to remove from CTS2 1.1 if present.

2.10 OMG Issue 18488: Include a depth indicator for AssociationGraph

References: Github Issue 120 and OMG Issue 18488

Transform 1.0 to 1.1 - No change in transformation, as it is not present in 1.0 and is optional in 1.1.

Transform 1.1 to 1.0 – Depth has to be removed when transforming to 1.0.

2.11 OMG Issue 18489: Make "associationID" optional.

References: Github Issue 119 and OMG Issue 18489

Transform 1.0 to 1.1 - No change in transformation, as it is always present in 1.0.

Transform 1.1 to 1.0 – If absent, add it with a generated value. This impacts Association, AssociationMsg and AssociationList.

2.12 OMG Issue 18490: AssociationDirectory needs "associationID"

References: Github Issue 118 and OMG Issue 18490

Transform 1.0 to 1.1 - No change in transformation, as it is optional and not present in 1.0.

Transform 1.1 to 1.0 – The associationID has to be removed when transforming to 1.0.

2.13 OMG Issue 18494: Parents URI needed in EntityDescription

References: Github Issue 136 and OMG Issue 18494

Transform 1.0 to 1.1 - If the EntityDescription has parents, add a link to all the parents.

Transform 1.1 to 1.0 – Remove parents when converting back to 1.0

2.14 OMG Issue 18531: IteratableResolvedValueSet and ResolvedValueSet have inconsistent element names.

References: Github Issue 147 and OMG Issue 18531

Transform 1.0 to 1.1 - ResolvedValueSet.member changed to ResolvedValueSet.entry.

Transform 1.1 to 1.0 – Have to switch back to member in 1.0.

2.15 OMG Issue 18532: URIAndEntityName references should all be changed to EntitySynopsis, allowing an optional description.

References: Github Issue 143 and OMG Issue 18532

Transform 1.0 to 1.1 - Never present in 1.0, so no change.

Transform 1.1 to 1.0 – Strip designation from all URIAndEntityName entries that weren't EntitySynopsis in 1.0.

2.16 OMG Issue 18542: Cardinality of includesResolvedValueSet wrong on ResolvedValueSetHeader.

References: Github Issue 150 and OMG Issue 18542

Transform 1.0 to 1.1 - CTS2 1.0 services should not be able to fill out more than one, no change.

Transform 1.1 to 1.0 - If 1.1 has more than one, the transform is not possible.

2.17 OMG Issue 18622: AssociationDirectory needs the derivation.

References: Github Issue 156 and OMG Issue 18622

Transform 1.0 to 1.1 - Not present in 1.0, so no change.

Transform 1.1 to 1.0 - Derivation has to be removed when transforming to 1.0.

2.18 OMG Issue 18624: Association derivation should be optional and not have a default

References: Github Issue 157 and OMG Issue 18624

Transform 1.0 to 1.1 - It is mandatory in 1.0, so not an issue.

Transform 1.1 to 1.0 - If absent, add one with the default of ASSERTED.