

DRAFT INTERNATIONAL STANDARD

ISO/DIS 12006-3

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on:
2021-08-09Voting terminates on:
2021-11-01

Building construction — Organization of information about construction works —

Part 3: Framework for object-oriented information

*Construction immobilière — Organisation de l'information des travaux de construction —**Partie 3: Schéma pour l'information basée sur l'objet*

ICS: 91.010.01

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 12006-3:2021(E)

© ISO 2021



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Foreword	v
Introduction	v
1 Scope	1
2 This document provides the description of an API allowing the interconnection of data dictionaries as described in ISO 23386. Normative references	1
3 Terms and definitions	1
4 Language encoding	3
5 Specification	3
5.1 General	3
5.2 EXPRESS-G specification	3
5.3 EXPRESS specification	7
5.3.1 General	7
5.3.2 xtdDateTime	7
5.3.3 xtdUUID	7
5.3.4 xtdDataTypeEnum	8
5.3.5 xtdExternalStatusEnum	8
5.3.6 xtdInternalStatusEnum	9
5.3.7 xtdNatureOfChangeEnum	10
5.3.8 xtdPropertyRelationshipTypeEnum	10
5.3.9 xtdRelationshipKindEnum	10
5.3.10 xtdRoleEnum	11
5.3.11 xtdStatusOfActivationEnum	11
5.3.12 xtdUnitBaseEnum	12
5.3.13 xtdUnitScaleEnum	12
5.3.14 xtdChangeRequest	12
5.3.15 xtdConcept	13
5.3.16 xtdCountry	14
5.3.17 xtdDictionary	15
5.3.18 xtdDimension	15
5.3.19 xtdExpert	16
5.3.20 xtdExpertWithStatus	16
5.3.21 xtdExternalDocument	16
5.3.22 xtdFilter	17
5.3.23 xtdInterval	18
5.3.24 xtdLanguage	18
5.3.25 xtdMedia	19
5.3.26 xtdMultiLanguageText	20
5.3.27 xtdObject	20
5.3.28 xtdOrderedValue	21
5.3.29 xtdProperty	21
5.3.30 xtdQuantityKind	23
5.3.31 xtdRational	23
5.3.32 xtdRelationshipToProperty	24
5.3.33 xtdRelationshipToSubject	24
5.3.34 xtdRelationshipType	25
5.3.35 xtdRoot	25

5.3.36 xtdSubdivision	26
5.3.37 xtdSubject.....	26
5.3.38 xtdSymbol.....	27
5.3.39 xtdText.....	27
5.3.40 xtdUnit.....	28
5.3.41 xtdUser	29
5.3.42 xtdUserWithRoles	29
5.3.43 xtdValue.....	30
5.3.44 xtdValueList.....	30
5.3.45 xtdVisualRepresentation	30
6 Application Programming Interface (API).....	31
7 XML representations.....	31
Annex A (normative) EXPRESS long form specification.....	32
Annex B (normative) Application Programming Interface specification	38
Annex C (informative) UML representation.....	50
Annex D (informative) XML representation of the schema	51
Annex E (informative) Naming conventions	65
E.1 General.....	65
E.2 Characters used for names	65
E.3 Case of names.....	65
E.4 Length of names.....	65
E.5 xtd prefix	65
E.6 Names of entities other than relationship entities	65
E.7 Names of relationship entities	65
E.8 Plural naming of aggregation	66
Annex F (informative) Examples.....	67
F.1 Example of change request.....	67
F.1.1 Scenario	67
F.1.2 Data dictionary content.....	68
F.2 Examples of xtdUnit.....	69
F.2.1 Example 1: Fahrenheit.....	69
F.2.2 Example 2: Degree	69
F.2.3 Example 3: Decibel.....	69
F.3 Example of use of xtdRelationshipKindEnum :	70
F.3.1 Example of subtype relationship	70
F.3.2 Example of has-part relationships	70
F.4 Example of use of a Filter	71
Bibliography.....	72

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 13, *Organization of information about construction works*.

This **second** edition cancels and replaces the **first** edition (ISO 12006:2007), which has been technically revised.

The main changes compared to the previous edition to meet industry needs and implementations are as follows:

- Model is changed and adapted for multiple implementations of dictionaries.
- UML, and XML introduced in informative annexes.
- API specification included.
- Concepts must have relations to other concepts and are more rigid, specific and object orientated.

A list of all parts in the ISO **12006** series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document defines a specification for an extensible taxonomy model, which provides the ability to add concepts like subjects and properties, describe subject by means of properties, and to define relationships between concepts. The set of properties associated with a subject provide the formal definition of the subject as well as its typical behaviour. Properties might have predefined values, and they might be associated with units.

The model makes it possible to describe multiple dictionaries based on the same model. Each concept belongs to one data dictionary. The concepts in one data dictionary might be related to concepts in another data dictionary.

Every entity in the model has a universal unique identifier. The model allows to describe the development and maintenance of data dictionary by providing change request, and it also allows to describe the experts reviewing change requests. The model described in this document is proposed as a bridge between classification systems as described in ISO 12006-2 [5], and product modelling as described in several publications [2], [3], [6], [7].

This document supports the requirements for implementation concept in ISO 23386 [8] and ISO 23387 [9].

To simplify and support implementation of dictionaries based on this framework, the standard has included UML model [10] and XML schema [11] as informative appendices. An API specification has been added as a normative appendix to standardise and define the minimum functionality to extract and exchange data between dictionaries based on this document.

Building construction — Organization of information about construction works — Part 3: Framework for object-oriented information

1 Scope

This document specifies a language-independent information model which can be used for the development of dictionaries used to store or provide information about construction works. The model is extended by instantiating content, such as further objects and their relationships, allowing the content to serve as an ontology, taxonomy, meronymy, lexicon and thesaurus.

It enables classification systems, information models, object models, data templates and process models to be cross referenced from within a common framework.

This document provides the description of an API allowing the interconnection of data dictionaries as described in ISO 23386.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10303,-11 *Industrial automation systems and integration — Product data representation and exchange —Part 11: Description methods: The EXPRESS language reference manual*

ISO 80000-1:2009, *Quantities and units — Part 1: General*

ISO/IEC 10646, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*

ISO/IEC 9834-8:2014, *Information technology — Procedures for the operation of object identifier registration authorities — Part 8: Generation of universally unique identifiers (UUIDs) and their use in object identifiers*

ISO/IEC 20802 - 1: 2016, *Information technology — Open data protocol (OData) v4.0 — Part 1: Core*

ISO/IEC 20802-2:2016, *Information technology — Open data protocol (OData) v4.0 — Part 2: OData JSON Format*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

3.4

lexicon

resource comprising lexical entries for a given language

Note 1 to entry: A lexicon may be used to map between languages.

[SOURCE: ISO 24613:2008, 3.28]

3.5

data dictionary

formal repository of terms used to describe data

[SOURCE: ISO 13527:2010, 1.4.2.12]

3.6

meronymy

type of hierarchy which deals with part-whole relationships

[SOURCE: ISO/IEC 11179-3:2013, 3.2.73]

3.7

ontology

formal, explicit specification of a shared conceptualization

Note 1 to entry: An ontology typically includes definitions of concepts and specified relationships between them, set out in a formal way so that a machine can use them.

Note 2 to entry: Applied in this document as a set of concepts, (reference) individuals, value types, (reference) values, attributes, relations, constraints and derivations.

[SOURCE: ISO 5127:2017, 3.1.2.03]

3.8

classification

terminological resource which has characteristics of mutual exclusiveness and exhaustiveness to aggregate data to a pre-prescribed level of specialization for a specific purpose

[SOURCE: ISO 17117-1:2018, 3.4.3]

3.9

data template

data structure used to describe the characteristics of construction objects

[SOURCE: ISO 23387:2020, 3.3]

3.10

object

any part of the perceivable or conceivable world

Note 1 to entry: An object is something abstract or physical toward which thought, feeling, or action is directed

[SOURCE: ISO 12006-2:2015, 3.1.1]

3.11**property**

inherent or acquired feature of an object

[SOURCE: ISO 6707-1:2017, 3.7.1.3]

4 Language encoding

All information that is specified as type “String”, or that resolves to type “String”, shall be able to be expressed using the UNICODE character set [8] as set out in ISO/IEC 10646, preferably using the UTF-8 encoding form, the UTF-8 encoding scheme and the “UCS Transformation Format 8” [4].

5 Specification**5.1 General**

The model in this part of ISO 12006 is specified using the EXPRESS data definition language according to ISO 10303-11.

The model is described informally in 5.2, conforming to the EXPRESS-G notation.

The model is described formally in the EXPRESS language specification presented in 5.3 and as an EXPRESS long form specification in Annex A.

NOTE: ISO 10303 specifies mappings to XML (part 28) and XMI (part 25) representations, and an API (part 22).

5.2 EXPRESS-G specification

The informal EXPRESS-G specification that uses the EXPRESS-G notation is given in three diagrams (Figures 1 through 3), where each diagram specifies a part of the model. All entities in these diagrams are specified formally in 6.3.

- Figure 1 shows the diagram with abstract object of xtdRoot, its attributes and its derived types xtdDictionary, xtdExpertWithStatus, xtdInterval, xtdLanguage, xtdMedia, xtdMultiLanguageText, xtdObject, xtdRational, xtdSymbol, xtdText, xtdUser and xtdUserWithRoles and its subtypes
- Figure 2 shows the diagram with abstract object of xtdObject, its attributes and its derived types xtdConcept, xtdOrderedValue, xtdChangeRequest, xtdValue, xtdRelationshipToSubject and its subtypes.
- Figure 3 shows the diagram with abstract type of xtdConcept, its attributes and its derived types xtdFilter, xtdCountry, xtdSubdivision, xtdDimension, xtdRelationshipType, xtdExternalDocument, xtdVisualRepresentation, xtdUnit, xtdValueList, xtdRelationshipToProperty, xtdSubject, xtdProperty and its subtypes

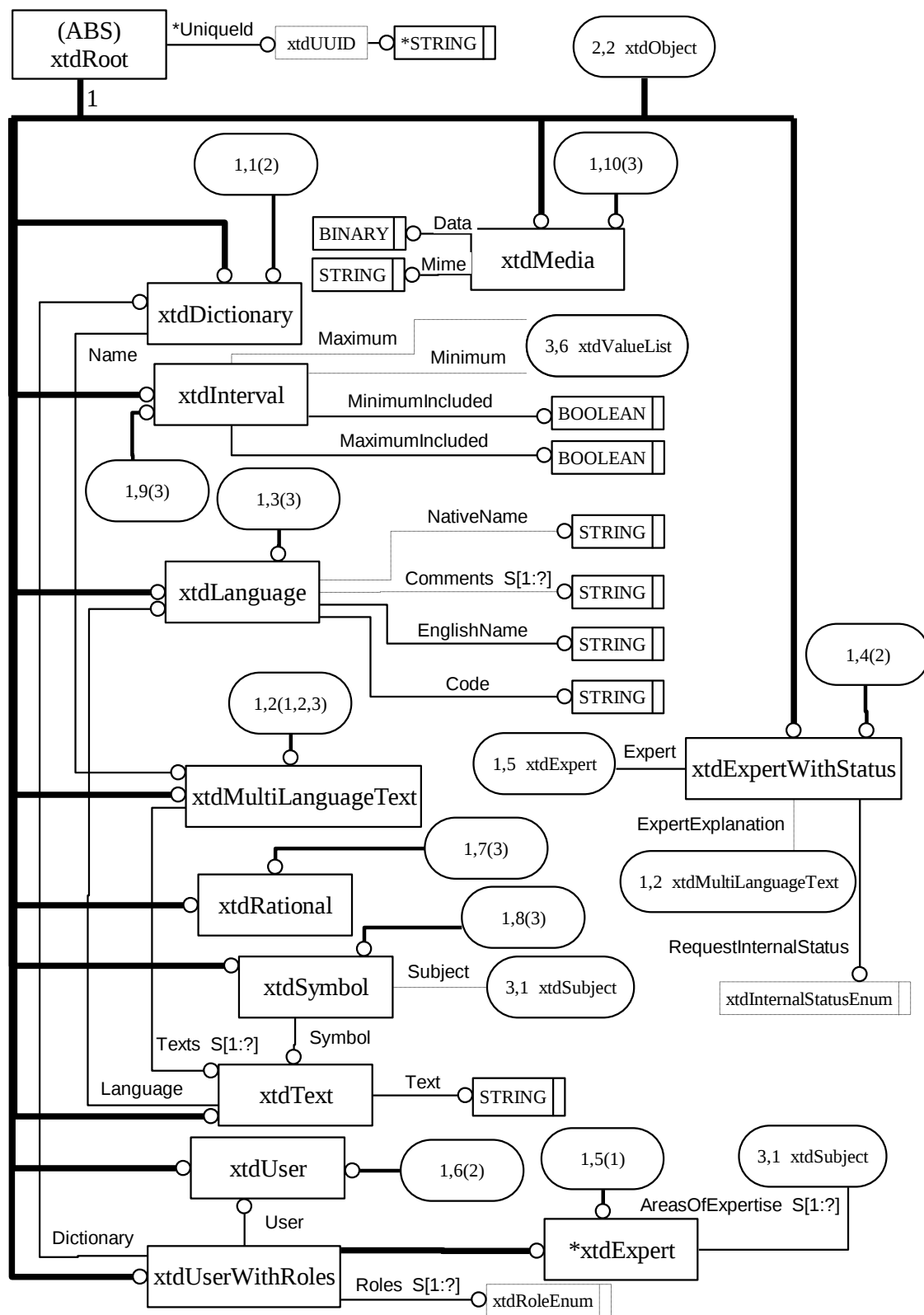


Figure 1 — EXPRESS-G diagram 1 — Top level with root concept

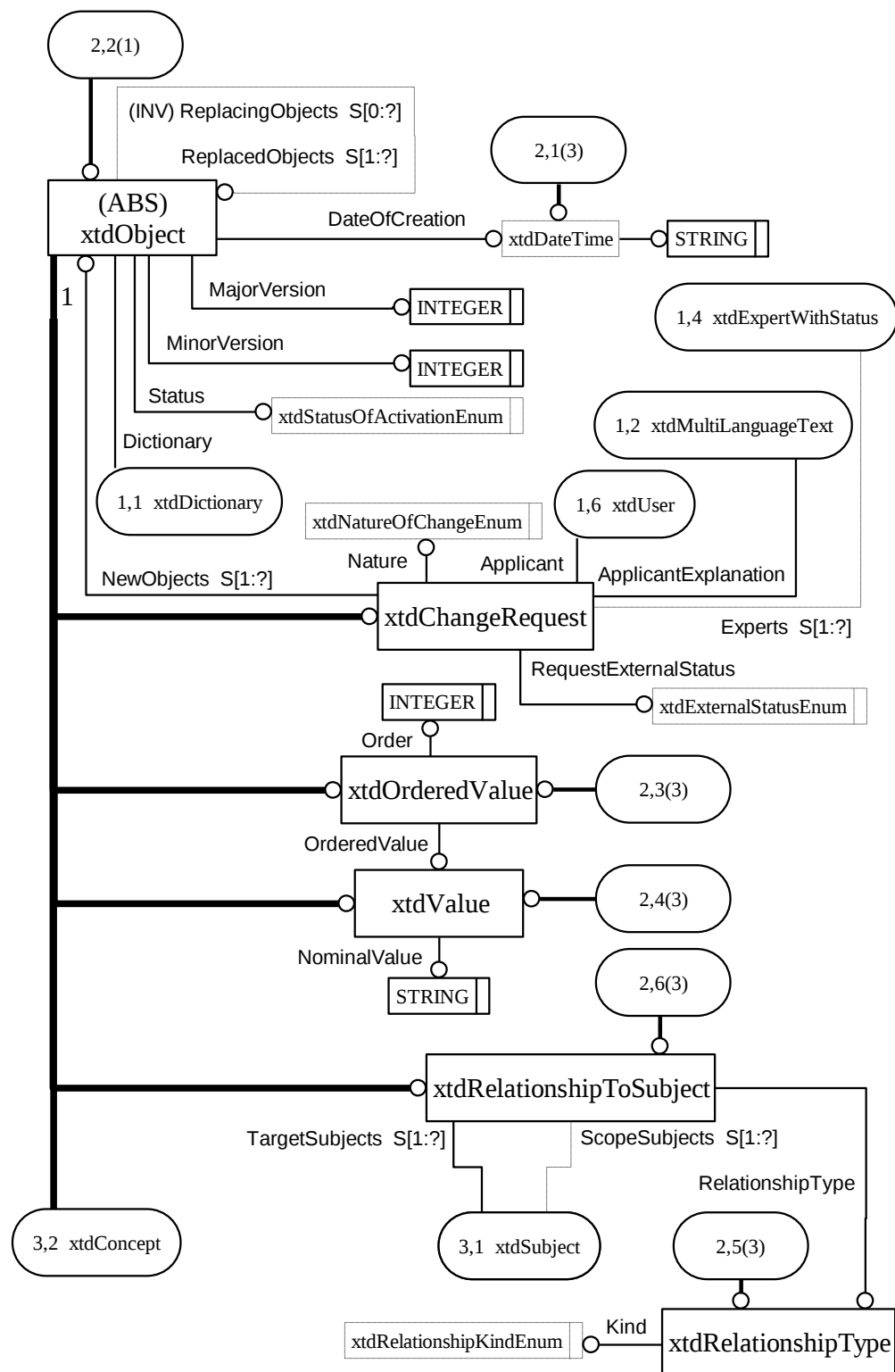


Figure 2 — EXPRESS-G diagram 2 — xtdObject representation

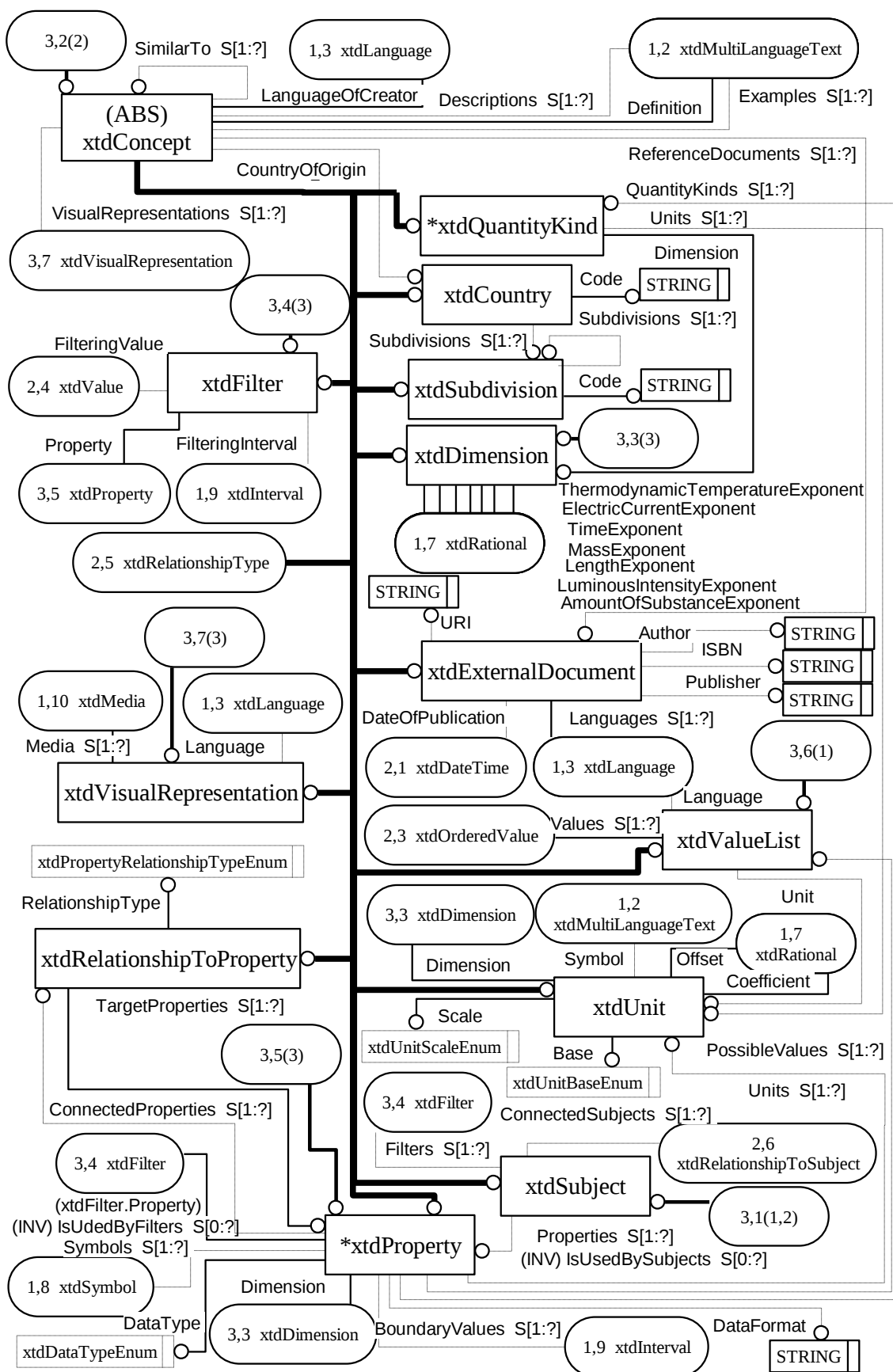


Figure 3 — EXPRESS-G diagram 3 — xtdConcept representation

5.3 EXPRESS specification

5.3.1 General

This formal specification is **provided in the EXPRESS language**.

The EXPRESS long form specification is provided in Annex A.

Express Specification

(*
ISO_12006_3_VERSION_4

EXPRESS specification:

*)
SCHEMA ISO_12006_3_VERSION_4;
(*

5.3.2 xtdDateTime

xtdDateTime is a defined data type of simple data type STRING that is used to identify a particular point in time. It is recommended that date format (ISO 8601) "YYYY-MM-DDThh:mm:ssTZD" should be used.

EXAMPLE: The 31st day of May in the year 2000 should be written as "2000-05-31T00:00:00Z".

EXPRESS specification:

*)
Type xtdDateTime = STRING;
END_TYPE;
(*

5.3.3 xtdUUID

xtdUUID is a defined data type of simple data type STRING that holds an identifier that is universally unique.

For more explanations and mechanism to create a UUID, see ISO/IEC 9834-8:2014.

An identifier is a unique 128-bit number.

EXAMPLE: The 36-character string 1cbeacb2-7449-4671-97d2-3b84def86927 is a universally unique identifier.

EXPRESS specification:

```
*)  
    TYPE xtdUUID = STRING (36) FIXED;  
    END_TYPE;  
(*
```

5.3.4 xtdDataTypeEnum

xtdDataTypeEnum is an enumeration type giving the range of possible simple data types from which a selection can be made. Allowed selections are:

XTD_BOOLEAN	datatype associated with two-valued logic.
XTD_INTEGER	datatype to specify a numeric value without a fractional component.
XTD_RATIONAL	datatype to specify a number that can be expressed as the fraction of two integers
XTD_REAL	datatype to specify a number that may be represented by a finite or infinite numeral in a fixed radix numeration system.
XTD_COMPLEX	datatype to specify a number that can be expressed in the form $a+bi$, where a and b are real numbers, and i is the imaginary unit.
XTD_STRING	datatype to express a sequence of characters.
XTD_DATETIME	datatype to specify a date and a time.

EXPRESS specification:

```
*)  
    TYPE xtdDataTypeEnum = ENUMERATION OF  
        (XTD_BOOLEAN,  
         XTD_INTEGER,  
         XTD_RATIONAL,  
         XTD_REAL,  
         XTD_COMPLEX,  
         XTD_STRING,  
         XTD_DATETIME);  
    END_TYPE;  
(*
```

5.3.5 xtdExternalStatusEnum

xtdExternalStatusEnum is an enumeration type giving the range of possible values to describe the status of a change request in its validation's process. Allowed selections are:

XTD_PENDING_ASSIGNMENT	The change request has been created; no expert has been yet assigned to it.
------------------------	---

XTD_UNDERGOING_ANALYSIS	The experts assigned to the change request are analysing it.
XTD_PENDING_INFORMATION_REQUEST	One or several experts assigned to the change request have requested more information to be able to give an answer.
XTD_VALIDATED	The change request has been validated.
XTD_REJECTED	The change request has been rejected.

EXPRESS specification:

```

*)
    TYPE xtdExternalStatusEnum = ENUMERATION OF
        (XTD_PENDING_ASSIGNMENT,
         XTD_UNDERGOING_ANALYSIS,
         XTD_PENDING_INFORMATION_REQUEST,
         XTD_VALIDATED,
         XTD_REJECTED) ;
    END_TYPE;
( *

```

5.3.6 xtdInternalStatusEnum

xtdInternalStatusEnum is an enumeration type giving the range of possible values to describe the status of a change request for an expert assigned to it. Allowed selections are:

XTD_UNDERGOING_ANALYSIS	The expert is currently analysing the change request
XTD_PENDING_INFORMATION_REQUEST	The expert has requested more information before giving its decision on the change request
XTD_NOT_COMPETENT	The expert has declared itself not competent to analyse the change request
XTD_VALIDATED	The expert has validated the change request
XTD_REJECTED	The expert has rejected the change request

EXPRESS specification:

```

*)
    TYPE xtdInternalStatusEnum = ENUMERATION OF
        (XTD_UNDERGOING_ANALYSIS,
         XTD_PENDING_INFORMATION_REQUEST,
         XTD_NOT_COMPETENT,
         XTD_VALIDATED,
         XTD_REJECTED) ;
    END_TYPE;
( *

```

5.3.7 xtdNatureOfChangeEnum

xtdNatureOfChangeEnum is an enumeration type giving the range of possible values to describe the nature of a change request. Allowed selections are:

XTD_SIMPLE_CREATION	The creation of a new concept is requested
XTD_SIMPLE_MODIFICATION	The modification of a concept is required.
XTD_SIMPLE_DEACTIVATION	The deactivation of a concept is required.
XTD_REPLACEMENT	The replacement of a concept by another one is requested.
XTYD_FRAGMENTATION	The replacement of a concept by several others is requested.
XTD_MERGING	The replacement of several concepts by one concept is requested.

EXPRESS specification:

```
*)
TYPE xtdNatureOfChangeEnum = ENUMERATION OF
    (XTD_SIMPLE_CREATION,
     XTD_SIMPLE_MODIFICATION,
     XTD_SIMPLE_DEACTIVATION,
     XTD_REPLACEMENT,
     XTD_FRAGMENTATION,
     XTD_MERGING);
END_TYPE;
(*
```

5.3.8 xtdPropertyRelationshipTypeEnum

xtdPropertyRelationshipTypeEnum is an enumeration type giving the range of possible relationships between 2 properties. Allowed selections are:

XTD_DEPENDS	A property is dependent on others.
XTD_SPECIALIZES	A property is the specialization of another property.

EXPRESS specification:

```
*)
TYPE xtdPropertyRelationshipTypeEnum = ENUMERATION OF
    (XTD_DEPENDS,
     XTD_SPECIALIZES);
END_TYPE;
(*
```

5.3.9 xtdRelationshipKindEnum

Some kinds of relationships are only used for organizing the subjects. The most known example is the classification hierarchy where generic classes (represented as subjects) are specialized in several more specific classes/subjects. All real-world objects belong to the specific subjects; the generic subjects are not instantiated. Thus, neither the generic subject nor the (parent) relationship between the specific subjects and the generic subject are ever instantiated (see example in Annex G.3). Rather, this kind of relationship is only used at the schema level to organize elements of the dictionary but not used as a relationship between instances of the dictionary.

On the other hand, there are relationships between subjects which may be instantiated. An example is the part-of relationship between a composite product and its constituents (see example in Annex G.3).

`xtdRelationshipKindEnum` is an enumeration type that specifies whether the relationship is instantiatiable or whether it is only visible at the dictionary level. The two possible values are `SchemaLevel` and `InstanceLevel`.

`XTD_INSTANCE_LEVEL`: the relationship can be instantiated

`XTD_SCHEMA_LEVEL`: the relationship cannot be instantiated and is used at the dictionary level

EXPRESS specification:

```
*)
TYPE xtdRelationshipKindEnum = ENUMERATION OF
    (XTD_INSTANCE_LEVEL,
     XTD_SCHEMA_LEVEL);
END_TYPE;
(*
```

5.3.10 **xtdRoleEnum**

`xtdRoleEnum` is an enumeration type giving the range of possible roles that can be attached to a user in a data dictionary. Allowed selections are:

<code>XTD_READER</code>	The user can only read the concepts present in the data dictionary.
<code>XTD_CONTRIBUTOR</code>	The user can propose new content in the data dictionary.
<code>XTD_EXPERT</code>	The user can validate change requests proposed by contributors.
<code>XTD_ADMINISTRATOR</code>	The user can administrate the data dictionary and the users.

EXPRESS specification:

```
*)
TYPE xtdRoleEnum = ENUMERATION OF
    (XTD_READER,
     XTD_CONTRIBUTOR,
     XTD_EXPERT,
     XTD_ADMINISTRATOR);
END_TYPE;
(*
```

5.3.11 **xtdStatusOfActivationEnum**

xtdStatusOfActivationEnum is an enumeration type giving the range of possible status for a concept into a data dictionary. Allowed selections are:

XTD_ACTIVE	The corresponding concept is active in the data dictionary.
XTD_INACTIVE	The corresponding concept is inactive in the data dictionary.

EXPRESS specification:

```
*)
    TYPE xtdStatusOfActivationEnum = ENUMERATION OF
        (XTD_ACTIVE,
         XTD_INACTIVE);
    END_TYPE;
(*
```

5.3.12 xtdUnitBaseEnum

xtdUnitBaseEnum is an enumeration type giving the list of possible conversion bases, either linear or logarithmic. This list allows to use irrational values as bases.

See xtdUnit formula and explanations in clause 5.3.40.

EXPRESS specification:

```
*)
    TYPE xtdUnitBaseEnum = ENUMERATION OF
        (XTD_ONE,
         XTD_TWO,
         XTD_E,
         XTD_PI,
         XTD_TEN);
    END_TYPE;
(*
```

5.3.13 xtdUnitScaleEnum

xtdUnitScaleEnum is an enumeration type which specifies whether a unit is of linear or logarithmic scale.

See xtdUnit formula and explanations in clause 5.3.40.

EXPRESS specification:

```
*)
    TYPE xtdUnitScaleEnum = ENUMERATION OF
        (XTD_LINEAR,
         XTD_LOGARITHMIC);
    END_TYPE;
(*
```

5.3.14 xtdChangeRequest

xtdChangeRequest is a specialization of xtdObject used to provide a change request on any xtdConcept in a data dictionary. A request corresponds to the creation, modification or deactivation of a concept.

For examples of Request of adding a property to a subject, see Annex F.1

EXPRESS specification:

```

*)
    ENTITY xtdChangeRequest
        SUBTYPE OF (xtdObject);
        Applicant                : xtdUser;
        NewObjects                : SET[1:?] OF xtdObject;
        Nature                    : xtdNatureOfChangeEnum;
        RequestExternalStatus     : xtdExternalStatusEnum;
        Experts                   : OPTIONAL SET [1:?] OF xtdExpertWithStatus;
        ApplicantExplanation     : xtdMultiLanguageText;
    END_ENTITY;
(*

```

Attribute definitions:**Applicant**

User sending the change request.

NewObjects

List of the new objects attached to the change request.

Nature

Nature of the change request. See 5.3.7.

RequestExternalStatus

Status of the request. See 5.3.5.

Experts

List of the experts assigned to the change request.

ApplicantExplanation

Explicative text of the change request in any languages.

5.3.15 xtdConcept

xtdConcept is a specialization of xtdObject and is the abstract entity from which xtdCountry, xtdDimension, xtdExternalDocument, xtdProperty, xtdRelationshipType, xtdRelationshipToProperty, xtdSubdivision, xtdSubject, xtdUnit, xtdValueList, xtdVisualRepresentation are derived.

xtdConcept is used to store the common attributes of its derived entities; For example, it is the level where are described the definitions and reference documents.

EXPRESS specification:

```

*)
    ENTITY xtdConcept
        ABSTRACT SUPERTYPE OF (ONEOF(
            xtdCountry,
            xtdDimension,
            xtdExternalDocument,
            xtdFilter,
            xtdProperty,
            xtdQuantityKind,
            xtdRelationshipToProperty,
            xtdRelationshipType,
            xtdSubdivision,
            xtdSubject,

```

```

        xtdUnit,
        xtdValueList,
        xtdVisualRepresentation))
SUBTYPE OF (xtdObject);
    ReferenceDocuments      : OPTIONAL SET [1:?] OF xtdExternalDocument;
    Definition               : xtdMultiLanguageText;
    Descriptions            : OPTIONAL SET [1:?] OF xtdMultiLanguageText;
    Examples                : OPTIONAL SET [1:?] OF xtdMultiLanguageText;
    LanguageOfCreator       : xtdLanguage;
    CountryOfOrigin         : OPTIONAL xtdCountry;
    SimilarTo               : OPTIONAL SET [1:?] OF xtdConcept;
    VisualRepresentations   : OPTIONAL SET [1:?] OF xtdVisualRepresentation;
END_ENTITY;
(*)

```

Attribute definitions:

Definition

A list of instances of xtdMultiLanguageText that holds the definition of the concept in several languages.

Descriptions

An instance of xtdMultiLanguageText that holds descriptions of the concept in several languages.

Examples

An instance of xtdMultiLanguageText that holds examples of the concept in several languages.

LanguageOfCreator

Language of the creator of the concept.

CountryOfOrigin

Country from where the requirement for this concept originated.

SimilarTo

Used to link similar concepts.

ReferenceDocuments

List of attached reference documents.

VisualRepresentations

Visual representation of the concept through sketches, photos, videos or other multimedia objects.

5.3.16 xtdCountry

xtdCountry is a specialization of xtdConcept used to describe a country by its code according to ISO 3166-1 and its list of subdivisions.

EXPRESS specification:

```

*)
    ENTITY xtdCountry
        SUBTYPE OF (xtdConcept);
        Code          : STRING;
        Subdivisions   : OPTIONAL SET [1:?] OF xtdSubdivision;
    END_ENTITY;
*)

```

Attribute definitions:

Code

Alpha-2 code used for the representation of name of countries from ISO 3166-1.

EXAMPLE 1: For Belgium Code = BE

EXAMPLE 2: For France Code = FR

Subdivisions

List of subdivisions of a country according to ISO 3166-2.

5.3.17 xtdDictionary

xtdDictionary is a specialization of xtdRoot used to represent a data dictionary.

EXPRESS specification:

```
*)
    ENTITY xtdDictionary
        SUBTYPE OF (xtdRoot);
        Name : xtdMultiLanguageText;
    END_ENTITY;
(*
```

Attribute definitions:**Name**

Language-dependant name of the data dictionary.

5.3.18 xtdDimension

Dimension according to ISO 80000 (all parts), defined from the 7 base quantities.

Any dimension is defined in a complete and unique way by its decomposition in basic physical quantities in the form of a septuplet of rational numbers.

To allow distinction between “dimension One” and dimensionless, the definitions to be used are:

- Dimension One: all values = 0.
- Dimensionless: At least one of the rational must be undefined (denominator=0).

EXAMPLE 1 Acceleration is a dimension defined by LT^{-2} .

EXAMPLE 2 Force is a dimension defined by LMT^{-2} .

EXPRESS specification:

```
*)
    ENTITY xtdDimension
        SUBTYPE OF (xtdConcept);
        LengthExponent           : xtdRational;
        MassExponent             : xtdRational;
        TimeExponent             : xtdRational;
        ElectricCurrentExponent  : xtdRational;
        ThermodynamicTemperatureExponent : xtdRational;
        AmountOfSubstanceExponent : xtdRational;
        LuminousIntensityExponent : xtdRational;
```

```
END_ENTITY;  
*)
```

5.3.19 xtdExpert

xtdExpert is a specialization of xtdUserWithRoles that represents an agent that can validate an xtdChangeRequest in a data dictionary. An expert must have the role “expert” in list of roles.

EXPRESS specification:

```
*)  
    ENTITY xtdExpert  
        SUBTYPE OF (xtdUserWithRoles);  
        AreasOfExpertise : SET [1:?] OF xtdSubject;  
        WHERE  
            WR1: xtdRoleEnum.XTD_EXPERT IN Roles;  
    END_ENTITY;  
*)
```

Attribute definitions:

AreasOfExpertise

List of xtdSubject for which the expert can validate a change request.

5.3.20 xtdExpertWithStatus

xtdExpertStatus is a specialization of xtdRoot used to follow the expertise from a specific expert on a change request.

EXPRESS specification:

```
*)  
    ENTITY xtdExpertWithStatus  
        SUBTYPE OF (xtdRoot);  
        Expert : xtdExpert;  
        RequestInternalStatus : xtdInternalStatusEnum;  
        ExpertExplanation : OPTIONAL xtdMultiLanguageText;  
    END_ENTITY;  
*)
```

Attribute definitions:

Expert

Expert.

RequestInternalStatus

Progress of a request review by the expert. See 5.3.6.

ExpertExplanation

Explanation of the expert decision on the request, in several languages.

5.3.21 xtdExternalDocument

xtdExternalDocument is a specialization of xtdConcept used to represent external documents, books or other written information. The title of the document must be provided as the “name” of the object.

EXAMPLE 1 “ISO 31” is a document.

EXAMPLE 2 “NS 3420” is a document.

EXPRESS specification:

```
*)
    ENTITY xtdExternalDocument
        SUBTYPE OF (xtdConcept);
        DateOfPublication : OPTIONAL xtdDateTime;
        Author             : OPTIONAL STRING;
        ISBN               : OPTIONAL STRING;
        Languages           : SET [1:?] OF xtdLanguage;
        Publisher           : OPTIONAL String;
        URI                : OPTIONAL STRING;
    END_ENTITY;
(*)
```

Attribute definitions:

DateOfPublication

The publication date of the external document.

Author

Information about the author of the document.

ISBN

The International Standard Book Number is a numeric commercial book identifier which is intended to be unique.

Languages

Set of language of the external document.

Publisher

Information about who published the external document.

URI

Link to the external document.

5.3.22 xtdFilter

xtdFilter is a specialization of xtdConcept used for a data dictionary user to be able to automatically classify model objects by using fixed values or fixed intervals.

An example is provided in Annex F.4.

EXPRESS specification:

```
*)
    ENTITY xtdFilter
        SUBTYPE OF (xtdConcept);
        Property           : xtdProperty;
        FilteringValue      : OPTIONAL xtdValue;
        FilteringInterval   : OPTIONAL xtdInterval;
    END_ENTITY;
(*)
```

Attribute definitions:

Property

Property on which the filter will be applied for a specific value or interval.

FilteringValue

Value used to set the filter on the property.

FilteringInterval

Interval used to set the filter on the property.

5.3.23 xtdInterval

xtdInterval is a specialization of xtdRoot used to define the range in which a value can be provided for a property.

EXPRESS specification:

```
*)
    ENTITY xtdInterval
        SUBTYPE OF (xtdRoot);
        Minimum          : OPTIONAL xtdValueList;
        MinimumIncluded   : BOOLEAN;
        Maximum           : OPTIONAL xtdValueList;
        MaximumIncluded   : BOOLEAN;
    END_ENTITY;
(*
```

Attribute definitions:

Minimum

Lower value in the interval.

MinimumIncluded

Defines if the interval is opened or closed for the minimum value.

Maximum

Higher value in the interval.

MaximumIncluded

Defines if the interval is opened or closed for the maximum value.

5.3.24 xtdLanguage

xtdLanguage represents the language in which names, descriptions, values and references are expressed including its designation in itself and in English as well as the language code.

EXPRESS specification:

```
*)
    ENTITY xtdLanguage
        SUBTYPE OF (xtdRoot);
        EnglishName : STRING;
        NativeName  : OPTIONAL STRING;
        Comments    : OPTIONAL SET [1:?] OF STRING;
        Code        : STRING;
    END_ENTITY;
(*
```

Attribute definitions:

EnglishName

Name of the language in which the identifying descriptive attribute is expressed in the form in which the language is known in English.

The English name shall be provided according to ISO 639.

EXAMPLE 1 ISO 639-1 code = “en”, English Name = “English”

EXAMPLE 2 ISO 639-1 code = “de”, English Name = “German”

.

NativeName

Name of the language in which the identifying descriptive attribute is expressed in the form in which the language is known.

EXAMPLE 1 “Deutsch” is the name by which the German language is known to German language speakers.

EXAMPLE 2 “Norsk nynorsk” is the name of a particular form of the Norwegian language.

EXAMPLE 3 “British English” is the name of the form of the English language which is characterized by the spelling and intonation used within the British Isles and certain other parts of the world.

Comments

Optional list of comments for the language used.

Code

The language shall consist of a code as defined by BCP 47 from IETF.

EXAMPLE 1 no-NO for Norwegian

EXAMPLE 2 fr-FR for French

5.3.25 xtdMedia

xtdMedia is used to represent a concept through sketches, photos, videos or other multimedia objects.

EXPRESS specification:

```
*)
    ENTITY xtdMedia
        SUBTYPE OF (xtdRoot);
        Mime : STRING;
        Data : BINARY;
    END_ENTITY;
(*)
```

Attribute definitions:**Mime (Multipurpose Internet Mail Extensions)**

Internet standard that support text in character sets other than ASCII, as well as attachments of audio, video, images, and application programs.

NOTE: See [rfc2046](https://tools.ietf.org/html/rfc2046) (<https://tools.ietf.org/html/rfc2046>)

Data

Digital representation of the Media.

5.3.26 xtdMultiLanguageText

xtdMultiLanguageText is the entity holding a list of xtdText in several languages.

EXPRESS specification:

```
*)
    ENTITY xtdMultiLanguageText
        SUBTYPE OF (xtdRoot);
        Texts : SET[1:?] OF xtdText;
    END_ENTITY;
(*
```

Attribute definitions:

Texts

List of texts in several languages.

5.3.27 xtdObject

xtdObject is a specialization of xtdRoot that is the abstract entity from which xtdChangeRequest, xtdConcept, XtdOrderedValue, xtdRelationshipToSubject and xtdValue are derived.

xtdObject is used to store the common attributes of its derived entities, needed to handle the names, versioning, history, status and dictionary it belongs.

EXPRESS specification:

```
*)
    ENTITY xtdObject
        ABSTRACT SUPERTYPE OF (ONEOF(
            xtdChangeRequest,
            xtdConcept,
            xtdOrderedValue,
            xtdRelationshipToSubject,
            xtdValue))
        SUBTYPE OF (xtdRoot);
        Dictionary          : xtdDictionary;
        Names               : SET [1:?] OF xtdMultiLanguageText;
        Status              : xtdStatusOfActivationEnum;
        MajorVersion        : INTEGER;
        MinorVersion        : INTEGER;
        DateOfCreation       : xtdDateTime;
        ReplacedObjects      : OPTIONAL SET [1:?] OF xtdObject;
        DeprecationExplanation : OPTIONAL xtdMultiLanguageText;
    INVERSE
        ReplacingObjects : SET [0:?] OF xtdObject FOR ReplacedObjects;
    END_ENTITY;
(*
```

Attribute definitions:

Dictionary

Dictionary to which the object belongs to.

Names

Set of names of the object in different languages. Each object may have multiple names, and this allows for its expression in terms of synonyms or in multiple languages. At least a name shall be provided in International English and in the original language of its creator.

DateOfCreation

Date of creation of the concept.

MajorVersion

Allows tracking of major changes. Experts decide if a new MajorVersion number must be applied.

MinorVersion

Allows tracking of minor changes e.g. new translation, changes of typos: if the MajorVersion number changes, the MinorVersion starts again at 1. Experts decide if a new MinorVersion number can be applied or if a new MajorVersion is needed.

ReplacedObjects

List of objects replaced by the current object.

DeprecationExplanation

Sentence explaining the reason of the deprecation, which can explain how to convert values to conform to the new object.

Status

Status of the object during its life cycle. See 5.3.11.

5.3.28 xtdOrderedValue

xtdOrderedValue is a specialization of xtdObject used to connect a value with its order in a list of predefined values.

EXPRESS specification:

```
*)
    ENTITY xtdOrderedValue
        SUBTYPE OF(xtdObject);
        OrderedValue : xtdValue;
        Order         : Integer;
    END_ENTITY;
(*
```

Attribute definition:**OrderedValue**

Link to a value.

Order

Order of the value in its corresponding list of values.

5.3.29 xtdProperty

xtdProperty is a specialization of xtdConcept.

Definition of the meaning of a value that can be attached to a subject that is used to qualify or quantify an xtdObject.

EXAMPLE 1 “Width” is an xtdProperty.

EXAMPLE 2 “Door width” is an xtdProperty used to qualify the “Width” of the xtdSubject “door”.

EXAMPLE 3 “Heat transfer” is an xtdProperty.

EXAMPLE 4 “Colour” is an xtdProperty.

EXAMPLE 5 “Duration” is an xtdProperty.

EXAMPLE 6 “Comfort” is an xtdProperty.

EXPRESS specification:

```
*)
ENTITY xtdProperty
    SUBTYPE OF (xtdConcept);
    Dimension          : xtdDimension;
    DataType           : xtdDataTypeEnum;
    DataFormat         : OPTIONAL STRING;
    Symbols            : OPTIONAL SET [1:?] OF xtdSymbol;
    PossibleValues     : OPTIONAL SET [1:?] OF xtdValueList;
    BoundaryValues     : OPTIONAL SET [1:?] OF xtdInterval;
    Units              : OPTIONAL SET [1:?] OF xtdUnit;
    ConnectedProperties : OPTIONAL SET [1:?] OF xtdRelationshipToProperty;
    QuantityKinds      : OPTIONAL SET [1:?] OF xtdQuantityKind;
    INVERSE
        IsUsedBySubjects : SET [0:?] OF xtdSubject FOR Properties;
        IsUdedByFilters  : SET [0:?] OF xtdFilter FOR Property;
    WHERE
        WR1: ((NOT(EXISTS(QuantityKinds)))) OR ((EXISTS(QuantityKinds)) AND
        (SIZEOF(QUERY(temp <* QuantityKinds | temp.Dimension <> Dimension)) = 0));
    END_ENTITY;
(*
```

Attribute definitions:

Dimension

Dimension of the property according to ISO 80000 (all parts).

DataType

Data type of the value of the property. See 5.3.4.

DataFormat

Pattern for the property values, the meaning of the pattern is implementation dependant.

Symbols

Symbols of the property.

PossibleValues

List of the possible values that can be provided for the property. Several sets of possible values can be provided to allow providing them in different languages.

BoundaryValues

Intervals of possible values for the property.

Units

List of units that can be attached to a value.

ConnectedProperties

List of properties connected to the current property. The connection can be a specialization or a dependency.

QuantityKinds

List of the corresponding quantity kinds. All the quantity kinds should have the same dimension as the property.

5.3.30 xtdQuantityKind

xtdQuantityKind is used to

EXPRESS specification:

```

*)
    ENTITY xtdQuantityKind
        SUBTYPE OF (xtdConcept);
        Dimension : xtdDimension;
        Units      : OPTIONAL SET [1:?] OF xtdUnit;
        WHERE
            WR1: (NOT(EXISTS(Units))) OR ((EXISTS(Units)) AND (SIZEOF(QUERY(temp <*
Units | temp.Dimension <> Dimension))= 0));
    END_ENTITY;
*)

```

Dimension

Dimension of the quantity kind.

Units

List of units used for the quantity kind. Each unit should have the same dimension as the quantity kind.

5.3.31 xtdRational

xtdRational is used to describe a rational number.

EXPRESS specification:

```

*)
    ENTITY xtdRational
        SUBTYPE OF (xtdRoot);
        Numerator   : INTEGER;
        Denominator : INTEGER;
    END_ENTITY;
*)

```

5.3.32 xtdRelationshipToProperty

xtdRelationshipToProperty is a specialization of xtdConcept used to connect two properties; the connection can be a dependency or a specialization. Specialization means that the related property is specialized by the current property. Dependency means that the current property's value may change if the value of one of the related properties is changed. The dependency shall be implemented on the instance level either by means of a table or by means of a function.

EXPRESS specification:

```
*)
    ENTITY xtdRelationshipToProperty
        SUBTYPE OF (xtdConcept);
        TargetProperties : SET[1:?] OF xtdProperty;
        RelationshipType : xtdPropertyRelationshipTypeEnum;
    END_ENTITY;
(*
```

Attribute definition:

TargetProperties

List of properties to which the current property is connected.

RelationshipType

Definition of the type of relation between 2 properties. See 5.3.8.

5.3.33 xtdRelationshipToSubject

xtdRelationshipToSubject is a specialization of xtdObject used to connect a subject to other subjects with a qualified relationship. The connection can be done within a specific context.

EXPRESS specification:

```
*)
    ENTITY xtdRelationshipToSubject
        SUBTYPE OF (xtdObject);
        RelationshipType : xtdRelationshipType;
        TargetSubjects : SET [1:?] OF xtdSubject;
        ScopeSubjects : OPTIONAL SET [1:?] OF xtdSubject;
    END_ENTITY;
(*
```

Attribute definition:

RelationshipType

A relationship defined in the data dictionary used to connect the subject for a specific purpose.

TargetSubjects

List of subjects connected with the RelationshipType.

ScopeSubject

Subject corresponding to the context in which the relationship is defined, scope of the relationship.

EXAMPLE A radiator (Subject) can be linked to a controller (TargetSubject) in the context of a heating system (ScopeSubject) by a 'is driven by' (RelationshipType) relationship.

5.3.34 xtdRelationshipType

xtdRelationshipType is a specialization of xtdConcept used to specify the semantics of relationships. In the same way as xtdSubject is used to specify the semantics of objects, the xtdRelationship gives the relationship a name, a definition, description, explains it further by an example, etc. By the kind of attribute it specifies whether the relationship is instantiable or just important at the data dictionary level.

The relationshipType can be referenced from any concrete relationship between subjects or properties. It is referenced from the entities xtdRelationshipToSubject and xtdRelationshipToProperty by means of the attribute RelationshipType.

EXPRESS specification:

```
*)
    ENTITY xtdRelationshipType
        SUBTYPE OF (xtdConcept);
        Kind : xtdRelationshipKindEnum;
    END_ENTITY;
(*
```

Attribute definition:

Kind

Indicates whether the relationship can be instantiated or is only applicable at the data dictionary level. See 5.3.9.

5.3.35 xtdRoot

xtdRoot is the abstract entity through which all entities get their unique identifier.

EXPRESS specification:

```
*)
    ENTITY xtdRoot
        ABSTRACT SUPERTYPE OF (ONEOF(
            xtdDictionary,
            xtdExpertWithStatus,
            xtdInterval,
            xtdLanguage,
            xtdMedia,
            xtdMultilanguageText,
            xtdObject,
            xtdRational,
            xtdSymbol,
            xtdText,
            xtdUser,
            xtdUserWithRoles));
        UniqueId : xtdUUID;
    UNIQUE
        UR1 : UniqueId;
    END_ENTITY;
(*
```

Attribute definitions:

UniqueId

universally unique identifier.

5.3.36 xtdSubdivision

xtdSubdivision is a specialization of xtdConcept used to describe the subdivision of a country by its code according to ISO 3166-2.

EXPRESS specification:

```
*)
    ENTITY xtdSubdivision
        SUBTYPE OF (xtdConcept);
        Subdivisions : OPTIONAL SET [1:?] OF xtdSubdivision;
        Code          : STRING;
    END_ENTITY;
*)
```

Attribute definitions:

Subdivisions

List of subdivisions according to ISO 3166-2.

Code

Alpha code used for the representation of name of subdivisions from ISO 3166-1.

EXAMPLE : BE-VAN for the province of Antwerp in Belgium.

5.3.37 xtdSubject

xtdSubject is a specialization of xtdConcept; List of properties that can be associated to filters with other subjects.

An xtdSubject can be physical or logical. xtdSubject shall be used to model a “group of properties” as defined in ISO 23386.

EXAMPLE 1 “Roof” is an xtdSubject.

EXAMPLE 2 “Lobby” is an xtdSubject.

EXAMPLE 3 “Control system” is an xtdSubject.

EXAMPLE 4 “Road” is an xtdSubject.

EXAMPLE 5 “Airport” is an xtdSubject.

EXAMPLE 6 “Software” is an xtdSubject.

EXPRESS specification:

```
*)
    ENTITY xtdSubject
        SUBTYPE OF (xtdConcept);
        Properties      : OPTIONAL SET [1:?] OF xtdProperty;
        ConnectedSubjects : OPTIONAL SET [1:?] OF xtdRelationshipToSubject;
        Filters          : OPTIONAL SET [1:?] OF xtdFilter;
    END_ENTITY;
(*)
```

Attribute definitions:**Properties**

List of the properties attached to the subject.

ConnectedSubjects

List of subjects connected with a qualified relationship.

Filters

List of Filters used for mapping or automatic classification purpose. See Annex F.4.

5.3.38 xtdSymbol

xtdSymbol is used to attach a symbol to a property in the context of a specific subject.

EXPRESS specification:

```
*)
    ENTITY xtdSymbol
        SUBTYPE OF (xtdRoot);
        Symbol    : xtdText;
        Subject   : OPTIONAL xtdSubject;
    END_ENTITY;
*)
```

Attribute definitions:**Symbol**

Unicode symbol of the property.

Subject

Subject used to attach a specific “context” for using the symbol of a property.

5.3.39 xtdText

xtdText is a text represented in a specific language.

EXPRESS specification:

```
*)
    ENTITY xtdText
        SUBTYPE OF (xtdRoot);
        Text       : STRING;
        Language   : xtdLanguage;
    END_ENTITY;
(*)
```

Attribute definitions:**Text**

Text value expressed in the corresponding language.

Language

Language used for the Text.

5.3.40 xtdUnit

xtdUnit allows the representation of units.

For examples of xtdUnit, see Annex F.2.

xtdUnit describes the conversion formula that can be used to compute the value M_B corresponding to a quantity in the unit from a value corresponding to the value M_d of the same quantity expressed in coherent derived units of SI. See ISO 80000-1:2009 3.12.

The decomposition in base units shall be similar to the decomposition of the corresponding base dimension. This allows to check that a unit is valid to qualify the values of a property.

The following equations shall be used:

Scale: logarithmic →

$$M_d = coefficient * \log_{base}(M_B) + offset$$

Scale linear →

$$M_d = coefficient * \frac{M_B}{base} + offset$$

Some examples of xtdUnit are provided in Annex F.2.

EXPRESS specification:

```
*)
ENTITY xtdUnit
  SUBTYPE OF (xtdConcept);
  Dimension      : xtdDimension;
  Symbol          : OPTIONAL xtdMultiLanguageText;
  Coefficient     : xtdRational;
  Scale           : xtdUnitScaleEnum;
  Base            : xtdUnitBaseEnum;
  Offset          : xtdRational;
END_ENTITY;
(*
```

Attribute definitions:

Dimension

Dimension of the unit.

Symbol

Optional symbol denominating the unit.

Coefficient

Proportionality factor. See ISO 80000-1:2009 3.12.

Scale

Specifies whether the scale of a unit is linear or logarithmic. See 5.3.13.

Base

Allows to introduce irrational numbers. See 5.3.12

Offset

Offset of origins.

5.3.41 xtdUser

xtdUser represents any agent interacting with dictionaries.

EXPRESS specification:

```
*)
    ENTITY xtdUser
        SUBTYPE OF (xtdRoot);
    END_ENTITY;
(*
```

5.3.42 xtdUserWithRoles

xtdUser represents any agent interacting with a given data dictionary and with specific roles.

EXPRESS specification:

```
*)
    ENTITY xtdUserWithRoles
        SUPERTYPE OF (xtdExpert)
        SUBTYPE OF (xtdRoot);
        Dictionary : xtdDictionary;
        User       : xtdUser;
        Roles      : SET [1:?] OF xtdRoleEnum;
    END_ENTITY;
(*
```

Attribute definitions:**Dictionary**

Data dictionary to which the user with a role belongs.

User

any agent interacting with dictionaries.

Roles

List of roles the user can have in the given data dictionary. See 5.3.10.

5.3.43 xtdValue

xtdValue is a specialization of xtdObject that can hold the description of a value of an xtdProperty.

EXAMPLE "Blue" is a value for "colour"

EXAMPLE "-1" to represent an integer value

EXAMPLE "true" to represent a Boolean value

NOTE Values can be defined according to ISO/IEC 11404

EXPRESS specification:

```
*)
    ENTITY xtdValue
        SUBTYPE OF (xtdObject);
        NominalValue : STRING;
    END_ENTITY;
(*)
```

Attribute definitions:

NominalValue

text string holding the nominal value.

5.3.44 xtdValueList

List of ordered values expressed in a given unit or a given language if needed.

EXPRESS specification:

```
*)
    ENTITY xtdValueList
        SUBTYPE OF (xtdConcept);
        Unit      : OPTIONAL xtdUnit;
        Values    : SET[1:?] of xtdOrderedValue;
        Language  : OPTIONAL xtdLanguage;
    END_ENTITY;
*)
```

Attribute definitions:

Unit

Unit associated to the provided list of values.

Values

List of values in a given unit.

Language

Language associated to the list of values when the values are text values.

5.3.45 xtdVisualRepresentation

xtdVisualRepresentation is used to represent a concept through sketches, photos, videos, or other multimedia objects in a specific language.

EXPRESS specification:

```

*)
    ENTITY xtdVisualRepresentation
        SUBTYPE OF (xtdConcept);
        Media      : SET [1:?] OF xtdMedia;
        Language   : OPTIONAL xtdLanguage;
    END_ENTITY;
(*

```

Attribute definitions:**Media**

Content of the visual representation.

Language

Language of the visual representation if applicable.

6 Application Programming Interface (API)

Any implementation of this standard shall provide an application programming interface that conforms to the Open Data protocol (OData): ISO/IEC 20802 – 1 (Core) and ISO/IEC 20802-2 (JSON).

This Interface shall implement at least the verb GET of this protocol with the following request options: select, filter, expand, orderby, count.

The minimum query nesting depth shall be 2 levels.

Access must be provided for each of the classes described in Annex B which provides the API full description.

Note: Implementations may provide any other additional access protocols.

7 XML representations

An XSD Schema is included in Annex E (will be updated)

Annex A (normative)

EXPRESS long form specification

This formal specification is provided in the EXPRESS language.

```
SCHEMA ISO_12006_3_VERSION_4;
```

```
Type xtdDateTime = STRING;  
END_TYPE;
```

```
TYPE xtdUUID = STRING (36) FIXED;  
END_TYPE;
```

```
TYPE xtdDataTypeEnum = ENUMERATION OF  
  (XTD_BOOLEAN,  
   XTD_INTEGER,  
   XTD_RATIONAL,  
   XTD_REAL,  
   XTD_COMPLEX,  
   XTD_STRING,  
   XTD_DATETIME);  
END_TYPE;
```

```
TYPE xtdExternalStatusEnum = ENUMERATION OF  
  (XTD_PENDING_ASSIGNMENT,  
   XTD_UNDERGOING_ANALYSIS,  
   XTD_PENDING_INFORMATION_REQUEST,  
   XTD_VALIDATED,  
   XTD_REJECTED);  
END_TYPE;
```

```
TYPE xtdInternalStatusEnum = ENUMERATION OF  
  (XTD_UNDERGOING_ANALYSIS,  
   XTD_PENDING_INFORMATION_REQUEST,  
   XTD_NOT_COMPETENT,  
   XTD_VALIDATED,  
   XTD_REJECTED);  
END_TYPE;
```

```
TYPE xtdNatureOfChangeEnum = ENUMERATION OF  
  (XTD_SIMPLE_CREATION,  
   XTD_SIMPLE_MODIFICATION,  
   XTD_SIMPLE_DEACTIVATION,  
   XTD_REPLACEMENT,  
   XTD_FRAGMENTATION,  
   XTD_MERGING);  
END_TYPE;
```

```
TYPE xtdPropertyRelationshipTypeEnum = ENUMERATION OF  
  (XTD_DEPENDS,  
   XTD_SPECIALIZES);  
END_TYPE;
```

```
TYPE xtdRelationshipKindEnum = ENUMERATION OF  
  (XTD_INSTANCE_LEVEL,  
   XTD_SCHEMA_LEVEL);  
END_TYPE;
```

```

TYPE xtdRoleEnum = ENUMERATION OF
    (XTD_READER,
     XTD_CONTRIBUTOR,
     XTD_EXPERT,
     XTD_ADMINISTRATOR);
END_TYPE;

TYPE xtdStatusOfActivationEnum = ENUMERATION OF
    (XTD_ACTIVE,
     XTD_INACTIVE);
END_TYPE;

TYPE xtdUnitBaseEnum = ENUMERATION OF
    (XTD_ONE,
     XTD_TWO,
     XTD_E,
     XTD_PI,
     XTD_TEN);
END_TYPE;

TYPE xtdUnitScaleEnum = ENUMERATION OF
    (XTD_LINEAR,
     XTD_LOGARITHMIC);
END_TYPE;

ENTITY xtdChangeRequest
    SUBTYPE OF (xtdObject);
    Applicant                : xtdUser;
    NewObjects                : SET[1:?] OF xtdObject;
    Nature                    : xtdNatureOfChangeEnum;
    RequestExternalStatus    : xtdExternalStatusEnum;
    Experts                   : OPTIONAL SET [1:?] OF xtdExpertWithStatus;
    ApplicantExplanation     : xtdMultiLanguageText;
END_ENTITY;

ENTITY xtdConcept
    ABSTRACT SUPERTYPE OF (ONEOF(
        xtdCountry,
        xtdDimension,
        xtdExternalDocument,
        xtdFilter,
        xtdProperty,
        xtdQuantityKind,
        xtdRelationshipToProperty,
        xtdRelationshipType,
        xtdSubdivision,
        xtdSubject,
        xtdUnit,
        xtdValueList,
        xtdVisualRepresentation))
    SUBTYPE OF (xtdObject);
    ReferenceDocuments        : OPTIONAL SET [1:?] OF xtdExternalDocument;
    Definition                 : xtdMultiLanguageText;
    Descriptions              : OPTIONAL SET[1:?] of xtdMultiLanguageText;
    Examples                  : OPTIONAL SET[1:?] of xtdMultiLanguageText;
    LanguageOfCreator         : xtdLanguage;
    CountryOfOrigin           : OPTIONAL xtdCountry;
    SimilarTo                 : OPTIONAL SET [1:?] OF xtdConcept;
    VisualRepresentations     : OPTIONAL SET [1:?] OF xtdVisualRepresentation;
END_ENTITY;

```

```
ENTITY xtdCountry
  SUBTYPE OF (xtdConcept);
  Code : STRING;
  Subdivisions : OPTIONAL SET [1:?] OF xtdSubdivision;
END_ENTITY;

ENTITY xtdDictionary
  SUBTYPE OF (xtdRoot);
  Name : xtdMultiLanguageText;
END_ENTITY;

ENTITY xtdDimension
  SUBTYPE OF (xtdConcept);
  LengthExponent : xtdRational;
  MassExponent : xtdRational;
  TimeExponent : xtdRational;
  ElectricCurrentExponent : xtdRational;
  ThermodynamicTemperatureExponent : xtdRational;
  AmountOfSubstanceExponent : xtdRational;
  LuminousIntensityExponent : xtdRational;
END_ENTITY;

ENTITY xtdExpert
  SUBTYPE OF (xtdUserWithRoles);
  AreasOfExpertise : SET [1:?] OF xtdSubject;
  WHERE
    WR1: xtdRoleEnum.XTD_EXPERT IN Roles;
END_ENTITY;

ENTITY xtdExpertWithStatus
  SUBTYPE OF (xtdRoot);
  Expert : xtdExpert;
  RequestInternalStatus : xtdInternalStatusEnum;
  ExpertExplanation : OPTIONAL xtdMultiLanguageText;
END_ENTITY;

ENTITY xtdExternalDocument
  SUBTYPE OF (xtdConcept);
  DateOfPublication : OPTIONAL xtdDateTime;
  Author : OPTIONAL STRING;
  ISBN : OPTIONAL STRING;
  Languages : SET [1:?] OF xtdLanguage;
  Publisher : OPTIONAL String;
  URI : OPTIONAL STRING;
END_ENTITY;

ENTITY xtdFilter
  SUBTYPE OF (xtdConcept);
  Property : xtdProperty;
  FilteringValue : OPTIONAL xtdValue;
  FilteringInterval : OPTIONAL xtdInterval;
END_ENTITY;

ENTITY xtdInterval
  SUBTYPE OF (xtdRoot);
  Minimum : OPTIONAL xtdValueList;
  MinimumIncluded : BOOLEAN;
  Maximum : OPTIONAL xtdValueList;
  MaximumIncluded : BOOLEAN;
END_ENTITY;

ENTITY xtdLanguage
```

```

    SUBTYPE OF (xtdRoot);
        EnglishName : STRING;
        NativeName  : OPTIONAL STRING;
        Comments    : OPTIONAL SET [1:?] OF STRING;
        Code        : STRING;
END_ENTITY;

ENTITY xtdMedia
    SUBTYPE OF (xtdRoot);
        Mime : STRING;
        Data : BINARY;
END_ENTITY;

ENTITY xtdMultiLanguageText
    SUBTYPE OF (xtdRoot);
        Texts : SET[1:?] OF xtdText;
END_ENTITY;

ENTITY xtdObject
    ABSTRACT SUPERTYPE OF (ONEOF(
        xtdChangeRequest,
        xtdConcept,
        xtdOrderedValue,
        xtdRelationshipToSubject,
        xtdValue))
    SUBTYPE OF (xtdRoot);
        Dictionary           : xtdDictionary;
        Names                : SET [1:?] OF xtdMultiLanguageText;
        Status               : xtdStatusOfActivationEnum;
        MajorVersion         : INTEGER;
        MinorVersion         : INTEGER;
        DateOfCreation       : xtdDateTime;
        ReplacedObjects      : OPTIONAL SET [1:?] OF xtdObject;
        DeprecationExplanation : OPTIONAL xtdMultiLanguageText;
    INVERSE
        ReplacingObjects : SET [0:?] OF xtdObject FOR ReplacedObjects;
END_ENTITY;

ENTITY xtdOrderedValue
    SUBTYPE OF (xtdObject);
        OrderedValue : xtdValue;
        Order        : Integer;
END_ENTITY;

ENTITY xtdProperty
    SUBTYPE OF (xtdConcept);
        Dimension           : xtdDimension;
        DataType            : xtdDataTypeEnum;
        DataFormat          : OPTIONAL STRING;
        Symbols             : OPTIONAL SET [1:?] OF xtdSymbol;
        PossibleValues      : OPTIONAL SET [1:?] OF xtdValueList;
        BoundaryValues     : OPTIONAL SET [1:?] OF xtdInterval;
        Units               : OPTIONAL SET [1:?] OF xtdUnit;
        ConnectedProperties : OPTIONAL SET [1:?] OF xtdRelationshipToProperty;
        QuantityKinds       : OPTIONAL SET [1:?] OF xtdQuantityKind;
    INVERSE
        IsUsedBySubjects : SET [0:?] OF xtdSubject FOR Properties;
        IsUsedByFilters  : SET [0:?] OF xtdFilter FOR Property;
    WHERE
        WR1: ((NOT(EXISTS(QuantityKinds)))) OR ((EXISTS(QuantityKinds)) AND
        (SIZEOF(QUERY(temp <* QuantityKinds | temp.Dimension <> Dimension)) = 0));
END_ENTITY;

```

```
ENTITY xtdQuantityKind
  SUBTYPE OF (xtdConcept);
  Dimension : xtdDimension;
  Units      : OPTIONAL SET [1:?] OF xtdUnit;
  WHERE
    WR1: (NOT(EXISTS(Units))) OR ((EXISTS(Units)) AND (SIZEOF(QUERY(temp <* Units
| temp.Dimension <> Dimension))= 0));
END_ENTITY;

ENTITY xtdRational
  SUBTYPE OF (xtdRoot);
  Numerator   : INTEGER;
  Denominator : INTEGER;
END_ENTITY;

ENTITY xtdRelationshipToProperty
  SUBTYPE OF (xtdConcept);
  TargetProperties : SET[1:?] OF xtdProperty;
  RelationshipType : xtdPropertyRelationshipTypeEnum;
END_ENTITY;

ENTITY xtdRelationshipToSubject
  SUBTYPE OF (xtdObject);
  RelationshipType : xtdRelationshipType;
  TargetSubjects  : SET [1:?] OF xtdSubject;
  ScopeSubjects   : OPTIONAL SET [1:?] OF xtdSubject;
END_ENTITY;

ENTITY xtdRelationshipType
  SUBTYPE OF (xtdConcept);
  Kind : xtdRelationshipKindEnum;
END_ENTITY;

ENTITY xtdRoot
  ABSTRACT SUPERTYPE OF (ONEOF(
    xtdDictionary,
    xtdExpertWithStatus,
    xtdInterval,
    xtdLanguage,
    xtdMedia,
    xtdMultilanguageText,
    xtdObject,
    xtdRational,
    xtdSymbol,
    xtdText,
    xtdUser,
    xtdUserWithRoles));
  UniqueId : xtdUUID;
  UNIQUE
  UR1 : UniqueId;
END_ENTITY;

ENTITY xtdSubdivision
  SUBTYPE OF (xtdConcept);
  Subdivisions : OPTIONAL SET [1:?] OF xtdSubdivision;
  Code         : STRING;
END_ENTITY;

ENTITY xtdSubject
  SUBTYPE OF (xtdConcept);
```

```

        Properties          : OPTIONAL SET [1:?] OF xtdProperty;
        ConnectedSubjects   : OPTIONAL SET [1:?] OF xtdRelationshipToSubject;
        Filters              : OPTIONAL SET [1:?] OF xtdFilter;
END_ENTITY;

ENTITY xtdSymbol
    SUBTYPE OF (xtdRoot);
    Symbol    : xtdText;
    Subject   : OPTIONAL xtdSubject;
END_ENTITY;

ENTITY xtdText
    SUBTYPE OF (xtdRoot);
    Text      : STRING;
    Language  : xtdLanguage;
END_ENTITY;

ENTITY xtdUnit
    SUBTYPE OF (xtdConcept);
    Dimension  : xtdDimension;
    Symbol     : OPTIONAL xtdMultiLanguageText;
    Coefficient : xtdRational;
    Scale      : xtdUnitScaleEnum;
    Base       : xtdUnitBaseEnum;
    Offset     : xtdRational;
END_ENTITY;

ENTITY xtdUser
    SUBTYPE OF (xtdRoot);
END_ENTITY;

ENTITY xtdUserWithRoles
    SUPERTYPE OF (xtdExpert)
    SUBTYPE OF (xtdRoot);
    Dictionary : xtdDictionary;
    User       : xtdUser;
    Roles      : SET [1:?] OF xtdRoleEnum;
END_ENTITY;

ENTITY xtdValue
    SUBTYPE OF (xtdObject);
    NominalValue : STRING;
END_ENTITY;

ENTITY xtdValueList
    SUBTYPE OF (xtdConcept);
    Unit        : OPTIONAL xtdUnit;
    Values      : SET [1:?] OF xtdOrderedValue;
    Language    : OPTIONAL xtdLanguage;
END_ENTITY;

ENTITY xtdVisualRepresentation
    SUBTYPE OF (xtdConcept);
    Media       : SET [1:?] OF xtdMedia;
    Language    : OPTIONAL xtdLanguage;
END_ENTITY;

END_SCHEMA;

```

Annex B (normative)

Application Programming Interface specification

```

<?xml version="1.0" encoding="utf-8"?>
<edmx:Edmx Version="4.0" xmlns:edmx="http://docs.oasis-open.org/odata/ns/edmx">
  <edmx:DataService>
    <Schema Namespace="IfdApiService.Models" xmlns="http://docs.oasis-open.org/odata/ns/edm">
      <EntityType Name="XtdChangeRequest">
        <Key>
          <PropertyRef Name="UniqueId" />
        </Key>
        <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
        <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
        <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
        <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
        <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
        <Property Name="TypeOf" Type="Edm.String" />
        <Property Name="Nature" Type="IfdApiService.Models.XtdNatureOfChangeEnum" Nullable="false" />
        <Property Name="RequestExternalStatus" Type="IfdApiService.Models.XtdExternalStatusEnum" Nullable="false" />
        <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
        <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
        <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
        <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
        <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
        <NavigationProperty Name="Applicant" Type="IfdApiService.Models.XtdUser" />
        <NavigationProperty Name="NewObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
        <NavigationProperty Name="Experts" Type="Collection(IfdApiService.Models.XtdExpertWithStatus)" />
        <NavigationProperty Name="ApplicantExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
      </EntityType>
      <EntityType Name="XtdConcept">
        <Key>
          <PropertyRef Name="UniqueId" />
        </Key>
        <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
        <Property Name="TypeOf" Type="Edm.String" />
      </EntityType>
      <EntityType Name="XtdCountry">
        <Key>
          <PropertyRef Name="UniqueId" />
        </Key>
        <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
        <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
        <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
        <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
        <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
        <Property Name="TypeOf" Type="Edm.String" />
        <Property Name="Code" Type="Edm.String" />
        <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
        <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
        <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
        <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
        <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
        <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
        <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
        <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
        <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
        <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
        <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
        <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
        <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
        <NavigationProperty Name="Subdivisions" Type="Collection(IfdApiService.Models.XtdSubdivision)" />
      </EntityType>
      <EntityType Name="XtdDictionary">
        <Key>
          <PropertyRef Name="UniqueId" />
        </Key>
        <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
        <NavigationProperty Name="Name" Type="IfdApiService.Models.XtdMultiLanguageText" />
      </EntityType>
      <EntityType Name="XtdDimension">
        <Key>
          <PropertyRef Name="UniqueId" />
        </Key>
        <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
        <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />

```

```

<Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
<Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
<Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
<Property Name="TypeOf" Type="Edm.String" />
<NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
<NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
<NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
<NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
<NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
<NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
<NavigationProperty Name="LengthExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="MassExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="TimeExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="ElectricCurrentExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="ThermodynamicTemperatureExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="AmountOfSubstanceExponent" Type="IfdApiService.Models.XtdRational" />
<NavigationProperty Name="LuminousIntensityExponent" Type="IfdApiService.Models.XtdRational" />
</EntityType>
<EntityType Name="XtdExpert">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="User" Type="IfdApiService.Models.XtdUser" />
  <NavigationProperty Name="Roles" Type="Collection(IfdApiService.Models.XtdUserWithRoles_Role)" />
  <NavigationProperty Name="AreasOfExpertise" Type="Collection(IfdApiService.Models.XtdSubject)" />
</EntityType>
<EntityType Name="XtdExpertWithStatus">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="RequestInternalStatus" Type="IfdApiService.Models.XtdInternalStatusEnum" Nullable="false" />
  <NavigationProperty Name="Expert" Type="IfdApiService.Models.XtdExpert" />
  <NavigationProperty Name="ExpertExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
</EntityType>
<EntityType Name="XtdExternalDocument">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="DateOfPublication" Type="Edm.DateTimeOffset" />
  <Property Name="Author" Type="Edm.String" />
  <Property Name="ISBN" Type="Edm.String" />
  <Property Name="Publisher" Type="Edm.String" />
  <Property Name="URI" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Languages" Type="Collection(IfdApiService.Models.XtdLanguage)" />
</EntityType>
<EntityType Name="XtdFilter">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />

```

```

<NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
<NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
<NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
<NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
<NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
<NavigationProperty Name="Property" Type="IfdApiService.Models.XtdProperty" />
<NavigationProperty Name="FilteringValue" Type="IfdApiService.Models.XtdValue" />
<NavigationProperty Name="FilteringInterval" Type="IfdApiService.Models.XtdInterval" />
</EntityType>
<EntityType Name="XtdInterval">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="MinimumIncluded" Type="Edm.Boolean" Nullable="false" />
  <Property Name="MaximumIncluded" Type="Edm.Boolean" Nullable="false" />
  <NavigationProperty Name="Minimum" Type="IfdApiService.Models.XtdValueList" />
  <NavigationProperty Name="Maximum" Type="IfdApiService.Models.XtdValueList" />
</EntityType>
<EntityType Name="XtdLanguage">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="EnglishName" Type="Edm.String" />
  <Property Name="NativeName" Type="Edm.String" />
  <Property Name="Code" Type="Edm.String" />
  <NavigationProperty Name="Comments" Type="Collection(IfdApiService.Models.XtdLanguage_Comment)" />
</EntityType>
<EntityType Name="XtdLanguage_Comment">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Comment" Type="Edm.String" />
</EntityType>
<EntityType Name="XtdMedia">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Mime" Type="Edm.String" />
  <Property Name="Data" Type="Edm.Binary" />
</EntityType>
<EntityType Name="XtdMultiLanguageText">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <NavigationProperty Name="Texts" Type="Collection(IfdApiService.Models.XtdText)" />
</EntityType>
<EntityType Name="XtdObject">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
</EntityType>
<EntityType Name="XtdOrderedValue">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="Order" Type="Edm.Int32" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="Value" Type="IfdApiService.Models.XtdValue" />
</EntityType>
<EntityType Name="XtdProperty">
  <Key>

```

```

    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="DataType" Type="IfdApiService.Models.XtdDataTypeEnum" Nullable="false" />
  <Property Name="DataFormat" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Dimension" Type="IfdApiService.Models.XtdDimension" />
  <NavigationProperty Name="Symbols" Type="Collection(IfdApiService.Models.XtdSymbol)" />
  <NavigationProperty Name="PossibleValues" Type="Collection(IfdApiService.Models.XtdValueList)" />
  <NavigationProperty Name="BoundaryValues" Type="Collection(IfdApiService.Models.XtdInterval)" />
  <NavigationProperty Name="Units" Type="Collection(IfdApiService.Models.XtdUnit)" />
  <NavigationProperty Name="ConnectedProperties" Type="Collection(IfdApiService.Models.XtdRelationshipToProperty)" />
  <NavigationProperty Name="QuantityKinds" Type="Collection(IfdApiService.Models.XtdQuantityKind)" />
  <NavigationProperty Name="IsUsedByFilters" Type="Collection(IfdApiService.Models.XtdFilter)" />
  <NavigationProperty Name="IsUsedBySubjects" Type="Collection(IfdApiService.Models.XtdSubject)" />
</EntityType>
<EntityType Name="XtdQuantityKind">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Dimension" Type="IfdApiService.Models.XtdDimension" />
  <NavigationProperty Name="Units" Type="Collection(IfdApiService.Models.XtdUnit)" />
</EntityType>
<EntityType Name="XtdRational">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Numerator" Type="Edm.Int32" Nullable="false" />
  <Property Name="Denominator" Type="Edm.Int32" Nullable="false" />
</EntityType>
<EntityType Name="XtdRelationshipToProperty">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="RelationshipType" Type="IfdApiService.Models.XtdPropertyRelationshipTypeEnum" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />

```

```

<NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
<NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
<NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
<NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
<NavigationProperty Name="TargetProperties" Type="Collection(IfdApiService.Models.XtdProperty)" />
</EntityType>
<EntityType Name="XtdRelationshipToSubject">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="RelationshipType" Type="IfdApiService.Models.XtdRelationshipType" />
  <NavigationProperty Name="TargetSubjects" Type="Collection(IfdApiService.Models.XtdSubject)" />
  <NavigationProperty Name="ScopeSubjects" Type="Collection(IfdApiService.Models.XtdSubject)" />
</EntityType>
<EntityType Name="XtdRelationshipType">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="Kind" Type="IfdApiService.Models.XtdRelationshipKindEnum" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
</EntityType>
<EntityType Name="XtdSubdivision">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="Code" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Subdivisions" Type="Collection(IfdApiService.Models.XtdSubdivision)" />
</EntityType>
<EntityType Name="XtdSubject">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />

```

```

<Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
<Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
<Property Name="TypeOf" Type="Edm.String" />
<NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
<NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
<NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
<NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
<NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
<NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
<NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
<NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
<NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
<NavigationProperty Name="Properties" Type="Collection(IfdApiService.Models.XtdProperty)" />
<NavigationProperty Name="ConnectedSubjects" Type="Collection(IfdApiService.Models.XtdRelationshipToSubject)" />
<NavigationProperty Name="Filters" Type="Collection(IfdApiService.Models.XtdFilter)" />
</EntityType>
<EntityType Name="XtdSymbol">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <NavigationProperty Name="Symbol" Type="IfdApiService.Models.XtdText" />
  <NavigationProperty Name="Subject" Type="IfdApiService.Models.XtdSubject" />
</EntityType>
<EntityType Name="XtdText">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Text" Type="Edm.String" />
  <NavigationProperty Name="Language" Type="IfdApiService.Models.XtdLanguage" />
</EntityType>
<EntityType Name="XtdUnit">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="Scale" Type="IfdApiService.Models.XtdUnitScaleEnum" Nullable="false" />
  <Property Name="Base" Type="IfdApiService.Models.XtdUnitBaseEnum" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Dimension" Type="IfdApiService.Models.XtdDimension" />
  <NavigationProperty Name="Symbol" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Coefficient" Type="IfdApiService.Models.XtdRational" />
  <NavigationProperty Name="Offset" Type="IfdApiService.Models.XtdRational" />
</EntityType>
<EntityType Name="XtdUser">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
</EntityType>
<EntityType Name="XtdUserWithRoles">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>
  <Property Name="UniqueId" Type="Edm.Guid" Nullable="false" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="User" Type="IfdApiService.Models.XtdUser" />
  <NavigationProperty Name="Roles" Type="Collection(IfdApiService.Models.XtdUserWithRoles_Role)" />
</EntityType>
<EntityType Name="XtdUserWithRoles_Role">
  <Key>
    <PropertyRef Name="UniqueId" />
  </Key>

```

```

<Property Name="Uniqueld" Type="Edm.Guid" Nullable="false" />
<Property Name="Role" Type="IfdApiService.Models.XtdRoleEnum" Nullable="false" />
</EntityType>
<EntityType Name="XtdValue">
  <Key>
    <PropertyRef Name="Uniqueld" />
  </Key>
  <Property Name="Uniqueld" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <Property Name="NominalValue" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
</EntityType>
<EntityType Name="XtdValueList">
  <Key>
    <PropertyRef Name="Uniqueld" />
  </Key>
  <Property Name="Uniqueld" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Unit" Type="IfdApiService.Models.XtdUnit" />
  <NavigationProperty Name="Values" Type="Collection(IfdApiService.Models.XtdOrderedValue)" />
  <NavigationProperty Name="Language" Type="IfdApiService.Models.XtdLanguage" />
</EntityType>
<EntityType Name="XtdVisualRepresentation">
  <Key>
    <PropertyRef Name="Uniqueld" />
  </Key>
  <Property Name="Uniqueld" Type="Edm.Guid" Nullable="false" />
  <Property Name="Status" Type="IfdApiService.Models.XtdStatusOfActivationEnum" Nullable="false" />
  <Property Name="MajorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="MinorVersion" Type="Edm.Int32" Nullable="false" />
  <Property Name="DateOfCreation" Type="Edm.DateTimeOffset" Nullable="false" />
  <Property Name="TypeOf" Type="Edm.String" />
  <NavigationProperty Name="Dictionary" Type="IfdApiService.Models.XtdDictionary" />
  <NavigationProperty Name="Names" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="ReplacedObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="DeprecationExplanation" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="ReplacingObjects" Type="Collection(IfdApiService.Models.XtdObject)" />
  <NavigationProperty Name="ReferenceDocuments" Type="Collection(IfdApiService.Models.XtdExternalDocument)" />
  <NavigationProperty Name="Definition" Type="IfdApiService.Models.XtdMultiLanguageText" />
  <NavigationProperty Name="Descriptions" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="Examples" Type="Collection(IfdApiService.Models.XtdMultiLanguageText)" />
  <NavigationProperty Name="LanguageOfCreator" Type="IfdApiService.Models.XtdLanguage" />
  <NavigationProperty Name="CountryOfOrigin" Type="IfdApiService.Models.XtdCountry" />
  <NavigationProperty Name="SimilarTo" Type="Collection(IfdApiService.Models.XtdConcept)" />
  <NavigationProperty Name="VisualRepresentations" Type="Collection(IfdApiService.Models.XtdVisualRepresentation)" />
  <NavigationProperty Name="Media" Type="Collection(IfdApiService.Models.XtdMedia)" />
  <NavigationProperty Name="Language" Type="IfdApiService.Models.XtdLanguage" />
</EntityType>
<EnumType Name="XtdStatusOfActivationEnum">
  <Member Name="XTD_ACTIVE" Value="0" />
  <Member Name="XTD_INACTIVE" Value="1" />
</EnumType>
<EnumType Name="XtdNatureOfChangeEnum">
  <Member Name="XTD_SIMPLE_CREATION" Value="0" />
  <Member Name="XTD_SIMPLE_MODIFICATION" Value="1" />
  <Member Name="XTD_SIMPLE_DEACTIVATION" Value="2" />
  <Member Name="XTD_REPLACEMENT" Value="3" />
  <Member Name="XTD_FRAGMENTATION" Value="4" />
  <Member Name="XTD_MERGING" Value="5" />
</EnumType>

```

```

<EnumType Name="XtdExternalStatusEnum">
  <Member Name="XTD_PENDING_ASSIGNMENT" Value="0" />
  <Member Name="XTD_UNDERGOING_ANALYSIS" Value="1" />
  <Member Name="XTD_PENDING_INFORMATION_REQUEST" Value="2" />
  <Member Name="XTD_VALIDATED" Value="3" />
  <Member Name="XTD_REJECTED" Value="4" />
</EnumType>
<EnumType Name="XtdRoleEnum">
  <Member Name="XTD_READER" Value="0" />
  <Member Name="XTD_CONTRIBUTOR" Value="1" />
  <Member Name="XTD_EXPERT" Value="2" />
  <Member Name="XTD_ADMINISTRATOR" Value="3" />
</EnumType>
<EnumType Name="XtdDataTypeEnum">
  <Member Name="XTD_BOOLEAN" Value="0" />
  <Member Name="XTD_INTEGER" Value="1" />
  <Member Name="XTD_RATIONAL" Value="2" />
  <Member Name="XTD_REAL" Value="3" />
  <Member Name="XTD_COMPLEX" Value="4" />
  <Member Name="XTD_STRING" Value="5" />
  <Member Name="XTD_DATETIME" Value="6" />
</EnumType>
<EnumType Name="XtdUnitScaleEnum">
  <Member Name="XTD_LINEAR" Value="0" />
  <Member Name="XTD_LOGARITHMIC" Value="1" />
</EnumType>
<EnumType Name="XtdUnitBaseEnum">
  <Member Name="XTD_ONE" Value="0" />
  <Member Name="XTD_TWO" Value="1" />
  <Member Name="XTD_E" Value="2" />
  <Member Name="XTD_PI" Value="3" />
  <Member Name="XTD_TEN" Value="4" />
</EnumType>
<EnumType Name="XtdPropertyRelationshipTypeEnum">
  <Member Name="XTD_DEPENDS" Value="0" />
  <Member Name="XTD_SPECIALIZES" Value="1" />
</EnumType>
<EnumType Name="XtdRelationshipKindEnum">
  <Member Name="XTD_INSTANCE_LEVEL" Value="0" />
  <Member Name="XTD_SCHEMA_LEVEL" Value="1" />
</EnumType>
<EnumType Name="XtdInternalStatusEnum">
  <Member Name="XTD_UNDERGOING_ANALYSIS" Value="0" />
  <Member Name="XTD_PENDING_INFORMATION_REQUEST" Value="1" />
  <Member Name="XTD_NOT_COMPETENT" Value="2" />
  <Member Name="XTD_VALIDATED" Value="3" />
  <Member Name="XTD_REJECTED" Value="4" />
</EnumType>
</Schema>
<Schema Namespace="Default" xmlns="http://docs.oasis-open.org/odata/ns/edm">
  <EntityContainer Name="IfdApiServiceContainer">
    <EntitySet Name="XtdChangeRequest" EntityType="IfdApiService.Models.XtdChangeRequest">
      <NavigationPropertyBinding Path="Applicant" Target="XtdUser" />
      <NavigationPropertyBinding Path="ApplicantExplanation" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
      <NavigationPropertyBinding Path="Experts" Target="XtdExpertWithStatus" />
      <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="NewObjects" Target="XtdObject" />
      <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
      <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
    </EntitySet>
    <EntitySet Name="XtdConcept" EntityType="IfdApiService.Models.XtdConcept" />
    <EntitySet Name="XtdCountry" EntityType="IfdApiService.Models.XtdCountry">
      <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
      <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
      <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
      <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
      <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
      <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
      <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
      <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
      <NavigationPropertyBinding Path="Subdivisions" Target="XtdSubdivision" />
      <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
    </EntitySet>
    <EntitySet Name="XtdDictionary" EntityType="IfdApiService.Models.XtdDictionary">
      <NavigationPropertyBinding Path="Name" Target="XtdMultiLanguageText" />
    </EntitySet>
    <EntitySet Name="XtdDimension" EntityType="IfdApiService.Models.XtdDimension">
      <NavigationPropertyBinding Path="AmountOfSubstanceExponent" Target="XtdRational" />
      <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
    </EntitySet>
  </EntityContainer>

```

```

<NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
<NavigationPropertyBinding Path="ElectricCurrentExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
<NavigationPropertyBinding Path="LengthExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="LuminousIntensityExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="MassExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
<NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
<NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
<NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
<NavigationPropertyBinding Path="ThermodynamicTemperatureExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="TimeExponent" Target="XtdRational" />
<NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdExpert" EntityType="IfdApiService.Models.XtdExpert">
  <NavigationPropertyBinding Path="AreasOfExpertise" Target="XtdSubject" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Roles" Target="XtdUserWithRoles_Role" />
  <NavigationPropertyBinding Path="User" Target="XtdUser" />
</EntitySet>
<EntitySet Name="XtdExpertWithStatus" EntityType="IfdApiService.Models.XtdExpertWithStatus">
  <NavigationPropertyBinding Path="Expert" Target="XtdExpert" />
  <NavigationPropertyBinding Path="ExpertExplanation" Target="XtdMultiLanguageText" />
</EntitySet>
<EntitySet Name="XtdExternalDocument" EntityType="IfdApiService.Models.XtdExternalDocument">
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Languages" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
  <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdFilter" EntityType="IfdApiService.Models.XtdFilter">
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="FilteringInterval" Target="XtdInterval" />
  <NavigationPropertyBinding Path="FilteringValue" Target="XtdValue" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Property" Target="XtdProperty" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
  <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdInterval" EntityType="IfdApiService.Models.XtdInterval">
  <NavigationPropertyBinding Path="Maximum" Target="XtdValueList" />
  <NavigationPropertyBinding Path="Minimum" Target="XtdValueList" />
</EntitySet>
<EntitySet Name="XtdLanguage" EntityType="IfdApiService.Models.XtdLanguage">
  <NavigationPropertyBinding Path="Comments" Target="XtdLanguage_Comment" />
</EntitySet>
<EntitySet Name="XtdLanguage_Comment" EntityType="IfdApiService.Models.XtdLanguage_Comment" />
<EntitySet Name="XtdMedia" EntityType="IfdApiService.Models.XtdMedia" />
<EntitySet Name="XtdMultiLanguageText" EntityType="IfdApiService.Models.XtdMultiLanguageText">
  <NavigationPropertyBinding Path="Texts" Target="XtdText" />
</EntitySet>
<EntitySet Name="XtdObject" EntityType="IfdApiService.Models.XtdObject" />
<EntitySet Name="XtdOrderedValue" EntityType="IfdApiService.Models.XtdOrderedValue">
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="Value" Target="XtdValue" />
</EntitySet>
<EntitySet Name="XtdProperty" EntityType="IfdApiService.Models.XtdProperty">

```

[illegible]

```

<NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
<NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
<NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
<NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
<NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
<NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
<NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
<NavigationPropertyBinding Path="Subdivisions" Target="XtdSubdivision" />
<NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdSubject" EntityType="IfdApiService.Models.XtdSubject">
  <NavigationPropertyBinding Path="ConnectedSubjects" Target="XtdRelationshipToSubject" />
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Filters" Target="XtdFilter" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Properties" Target="XtdProperty" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
  <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdSymbol" EntityType="IfdApiService.Models.XtdSymbol">
  <NavigationPropertyBinding Path="Subject" Target="XtdSubject" />
  <NavigationPropertyBinding Path="Symbol" Target="XtdText" />
</EntitySet>
<EntitySet Name="XtdText" EntityType="IfdApiService.Models.XtdText">
  <NavigationPropertyBinding Path="Language" Target="XtdLanguage" />
</EntitySet>
<EntitySet Name="XtdUnit" EntityType="IfdApiService.Models.XtdUnit">
  <NavigationPropertyBinding Path="Coefficient" Target="XtdRational" />
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Dimension" Target="XtdDimension" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Offset" Target="XtdRational" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
  <NavigationPropertyBinding Path="Symbol" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdUser" EntityType="IfdApiService.Models.XtdUser" />
<EntitySet Name="XtdUserWithRoles" EntityType="IfdApiService.Models.XtdUserWithRoles">
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Roles" Target="XtdUserWithRoles_Role" />
  <NavigationPropertyBinding Path="User" Target="XtdUser" />
</EntitySet>
<EntitySet Name="XtdUserWithRoles_Role" EntityType="IfdApiService.Models.XtdUserWithRoles_Role" />
<EntitySet Name="XtdValue" EntityType="IfdApiService.Models.XtdValue">
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
</EntitySet>
<EntitySet Name="XtdValueList" EntityType="IfdApiService.Models.XtdValueList">
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Language" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />

```

```

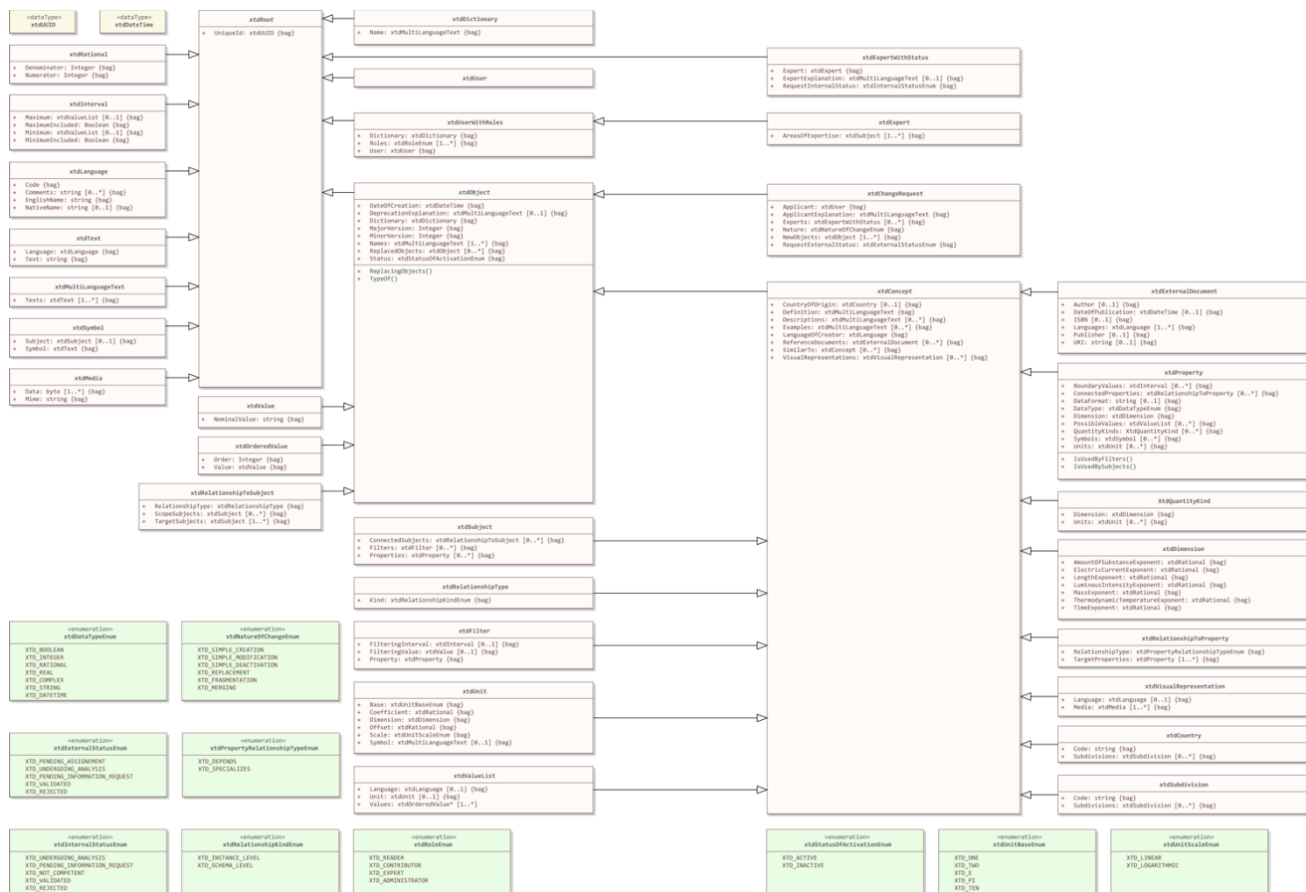
<NavigationPropertyBinding Path="Unit" Target="XtdUnit" />
<NavigationPropertyBinding Path="Values" Target="XtdOrderedValue" />
<NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
<EntitySet Name="XtdVisualRepresentation" EntityType="IfdApiService.Models.XtdVisualRepresentation">
  <NavigationPropertyBinding Path="CountryOfOrigin" Target="XtdCountry" />
  <NavigationPropertyBinding Path="Definition" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="DeprecationExplanation" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Descriptions" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Dictionary" Target="XtdDictionary" />
  <NavigationPropertyBinding Path="Examples" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="Language" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="LanguageOfCreator" Target="XtdLanguage" />
  <NavigationPropertyBinding Path="Media" Target="XtdMedia" />
  <NavigationPropertyBinding Path="Names" Target="XtdMultiLanguageText" />
  <NavigationPropertyBinding Path="ReferenceDocuments" Target="XtdExternalDocument" />
  <NavigationPropertyBinding Path="ReplacedObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="ReplacingObjects" Target="XtdObject" />
  <NavigationPropertyBinding Path="SimilarTo" Target="XtdConcept" />
  <NavigationPropertyBinding Path="VisualRepresentations" Target="XtdVisualRepresentation" />
</EntitySet>
</EntityContainer>
</Schema>
</edmx:DataServices>
</edmx:Edmx>

```

© ISO 2021 – All rights reserved

Figure C.1 - UML representation of Express

Figure C.1 - UML representation of Express



Annex D (informative)

XSD representation of the schema

```

<?xml version="1.0" encoding="utf-8" ?>
<xs:schema      xmlns="http://tempuri.org/lfdXml.xsd"      attributeFormDefault="unqualified"      elementFormDefault="unqualified"      id="lfdXml"
targetNamespace="http://tempuri.org/lfdXml.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:simpleType name="xtdDateTime">
    <xs:restriction base="xs:dateTime" />
  </xs:simpleType>
  <xs:simpleType name="xtdUUID">
    <xs:restriction base="xs:string">
      <xs:pattern value="[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdDataTypeEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_BOOLEAN" />
      <xs:enumeration value="XTD_INTEGER" />
      <xs:enumeration value="XTD_RATIONAL" />
      <xs:enumeration value="XTD_REAL" />
      <xs:enumeration value="XTD_COMPLEX" />
      <xs:enumeration value="XTD_STRING" />
      <xs:enumeration value="XTD_DATETIME" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdExternalStatusEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_PENDING_ASSIGNEMENT" />
      <xs:enumeration value="XTD_UNDERGOING_ANALYSIS" />
      <xs:enumeration value="XTD_PENDING_INFORMATION_REQUEST" />
      <xs:enumeration value="XTD_VALIDATED" />
      <xs:enumeration value="XTD_REJECTED" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdInternalStatusEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_UNDERGOING_ANALYSIS" />
      <xs:enumeration value="XTD_PENDING_INFORMATION_REQUEST" />
      <xs:enumeration value="XTD_NOT_COMPETENT" />
      <xs:enumeration value="XTD_VALIDATED" />
      <xs:enumeration value="XTD_REJECTED" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdNatureOfChangeEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_SIMPLE_CREATION" />
      <xs:enumeration value="XTD_SIMPLE_MODIFICATION" />
      <xs:enumeration value="XTD_SIMPLE_DEACTIVATION" />
      <xs:enumeration value="XTD_REPLACEMENT" />
      <xs:enumeration value="XTD_FRAGMENTATION" />
      <xs:enumeration value="XTD_MERGING" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdPropertyRelationshipTypeEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_DEPENDS" />
      <xs:enumeration value="XTD_SPECIALIZES" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdRelationshipKindEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_INSTANCE_LEVEL" />
      <xs:enumeration value="XTD_SCHEMA_LEVEL" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdRoleEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="XTD_READER" />
      <xs:enumeration value="XTD_CONTRIBUTOR" />
      <xs:enumeration value="XTD_EXPERT" />
      <xs:enumeration value="XTD_ADMINISTRATOR" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="xtdStatusOfActivationEnum">
    <xs:restriction base="xs:string">

```

```

    <xs:enumeration value="XTD_ACTIVE" />
    <xs:enumeration value="XTD_INACTIVE" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="xtdUnitBaseEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="XTD_ONE" />
    <xs:enumeration value="XTD_TWO" />
    <xs:enumeration value="XTD_E" />
    <xs:enumeration value="XTD_PI" />
    <xs:enumeration value="XTD_TEN" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="xtdUnitScaleEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="XTD_LINEAR" />
    <xs:enumeration value="XTD_LOGARITHMIC" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="xtdChangeRequest">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdObject">
      <xs:sequence>
        <xs:element name="NewObjects" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Experts" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Applicant" type="xtdUUID" use="required" />
      <xs:attribute name="Nature" type="xtdNatureOfChangeEnum" use="required" />
      <xs:attribute name="RequestExternalStatus" type="xtdExternalStatusEnum" use="required" />
      <xs:attribute name="ApplicantExplanation" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType abstract="true" name="xtdConcept">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdObject">
      <xs:sequence>
        <xs:element name="ReferenceDocuments" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Descriptions" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Examples" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="SimilarTo" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="VisualRepresentations" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

```

    <xs:attribute name="Definition" type="xtdUUID" use="required" />
    <xs:attribute name="LanguageOfCreator" type="xtdUUID" use="required" />
    <xs:attribute name="CountryOfOrigin" type="xtdUUID" use="optional" />
  </xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdCountry">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="Subdivisions" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Code" type="xs:string" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdDictionary">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot">
      <xs:attribute name="Name" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdDimension">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:attribute name="LengthExponent" type="xtdUUID" use="required" />
      <xs:attribute name="MassExponent" type="xtdUUID" use="required" />
      <xs:attribute name="TimeExponent" type="xtdUUID" use="required" />
      <xs:attribute name="ElectricCurrentExponent" type="xtdUUID" use="required" />
      <xs:attribute name="ThermodynamicTemperatureExponent" type="xtdUUID" use="required" />
      <xs:attribute name="AmountOfSubstanceExponent" type="xtdUUID" use="required" />
      <xs:attribute name="LuminousIntensityExponent" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdExpert">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdUserWithRoles">
      <xs:sequence>
        <xs:element name="AreasOfExpertise" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdExpertWithStatus">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot">
      <xs:attribute name="Expert" type="xtdUUID" use="required" />
      <xs:attribute name="RequestInternalStatus" type="xtdInternalStatusEnum" use="required" />
      <xs:attribute name="ExpertExplanation" type="xtdUUID" use="optional" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdExternalDocument">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="Languages" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="DateOfPublication" type="xtdDateTime" use="optional" />
      <xs:attribute name="Author" type="xs:string" use="optional" />
      <xs:attribute name="ISBN" type="xs:string" use="optional" />
      <xs:attribute name="Publisher" type="xs:string" use="optional" />
      <xs:attribute name="URI" type="xs:string" use="optional" />
    </xs:extension>
  </xs:complexContent>

```

```

</xs:complexType>
<xs:complexType name="xtdFilter">
  <xs:complexContent>
    <xs:extension base="xtdConcept">
      <xs:attribute name="Property" type="xtdUUID" use="required" />
      <xs:attribute name="FilteringValue" type="xtdUUID" use="optional" />
      <xs:attribute name="FilteringInterval" type="xtdUUID" use="optional" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdInterval">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:attribute name="Minimum" type="xtdUUID" use="optional" />
      <xs:attribute name="MinimumIncluded" type="xs:boolean" use="required" />
      <xs:attribute name="Maximum" type="xtdUUID" use="optional" />
      <xs:attribute name="MaximumIncluded" type="xs:boolean" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdLanguage">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot">
      <xs:sequence>
        <xs:element name="Comments" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xs:string" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="EnglishName" type="xs:string" use="required" />
      <xs:attribute name="NativeName" type="xs:string" />
      <xs:attribute name="Code" type="xs:string" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdMedia">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:sequence>
        <xs:element name="Data" type="xs:base64Binary" minOccurs="1" maxOccurs="1" />
      </xs:sequence>
      <xs:attribute name="Mime" type="xs:string" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdMultiLanguageText">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:sequence>
        <xs:element name="Texts" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType abstract="true" name="xtdObject">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot">
      <xs:sequence>
        <xs:element name="Names" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ReplacedObjects" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ReplacingObjects" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>

```

```

    </xs:sequence>
  </xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="Dictionary" type="xsd:UUID" use="required" />
<xs:attribute name="Status" type="xsd:StatusOfActivationEnum" use="required" />
<xs:attribute name="MajorVersion" type="xs:int" use="required" />
<xs:attribute name="MinorVersion" type="xs:int" use="required" />
<xs:attribute name="DateOfCreation" type="xsd:dateTime" use="required" />
<xs:attribute name="DeprecationExplanation" type="xsd:UUID" use="optional" />
<xs:attribute name="TypeOf" type="xsd:XmlTypeEnum" use="required" />
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="xsd:OrderedValue">
  <xs:complexContent>
    <xs:extension base="xsd:Object">
      <xs:attribute name="Value" type="xsd:UUID" use="required" />
      <xs:attribute name="Order" type="xs:integer" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xsd:Property">
  <xs:complexContent mixed="false">
    <xs:extension base="xsd:Concept">
      <xs:sequence>
        <xs:element name="Symbols" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="PossibleValues" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="BoundaryValues" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Units" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ConnectedProperties" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="QuantityKinds" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="IsUsedBySubjects" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="IsUsedByFilters" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsd:XmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Dimension" type="xsd:UUID" use="required" />
      <xs:attribute name="DataType" type="xsd:DataTypeEnum" use="required" />
    </xs:extension>
  </xs:complexContent>

```

```

    <xs:attribute name="DataFormat" type="xs:string" use="optional" />
  </xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdQuantityKind">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="Units" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Dimension" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdRational">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:attribute name="Numerator" type="xs:int" use="required" />
      <xs:attribute name="Denominator" type="xs:int" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdRelationshipToProperty">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="TargetProperties" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="RelationshipType" type="xtdPropertyRelationshipTypeEnum" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdRelationshipToSubject">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdObject">
      <xs:sequence>
        <xs:element name="TargetSubjects" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ScopeSubjects" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="RelationshipType" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdRelationshipType">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:attribute name="Kind" type="xtdRelationshipKindEnum" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType abstract="true" name="xtdRoot">
  <xs:attribute name="UniqueId" type="xtdUUID" use="required" />
</xs:complexType>
<xs:complexType name="xtdSubdivision">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="Subdivisions" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

```

        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
  <xs:attribute name="Code" type="xs:string" use="required" />
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdSubject">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdConcept">
      <xs:sequence>
        <xs:element name="Properties" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ConnectedSubjects" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Filters" minOccurs="0" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdXmlReferenceType" minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdSymbol">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:attribute name="Symbol" type="xtdUUID" use="required" />
      <xs:attribute name="Subject" type="xtdUUID" use="optional" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdText">
  <xs:complexContent>
    <xs:extension base="xtdRoot">
      <xs:attribute name="Text" type="xs:string" use="required" />
      <xs:attribute name="Language" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdUnit">
  <xs:complexContent>
    <xs:extension base="xtdConcept">
      <xs:attribute name="Dimension" type="xtdUUID" use="required" />
      <xs:attribute name="Symbol" type="xtdUUID" use="optional" />
      <xs:attribute name="Coefficient" type="xtdUUID" use="required" />
      <xs:attribute name="Scale" type="xtdUnitScaleEnum" use="required" />
      <xs:attribute name="Base" type="xtdUnitBaseEnum" use="required" />
      <xs:attribute name="Offset" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdUser">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot" />
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xtdUserWithRoles">
  <xs:complexContent mixed="false">
    <xs:extension base="xtdRoot">
      <xs:sequence>
        <xs:element name="Roles" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xtdRoleEnum" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Dictionary" type="xtdUUID" use="required" />
      <xs:attribute name="User" type="xtdUUID" use="required" />
    </xs:extension>
  </xs:complexContent>

```

```

</xs:complexContent>
</xs:complexType>
<xs:complexType name="xsdValue">
  <xs:complexContent mixed="false">
    <xs:extension base="xsdObject">
      <xs:attribute name="NominalValue" type="xs:string" use="required" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xsdValueList">
  <xs:complexContent mixed="false">
    <xs:extension base="xsdConcept">
      <xs:sequence>
        <xs:element name="Values" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Unit" type="xsdUUID" use="optional" />
      <xs:attribute name="Language" type="xsdUUID" use="optional" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="xsdVisualRepresentation">
  <xs:complexContent mixed="false">
    <xs:extension base="xsdConcept">
      <xs:sequence>
        <xs:element name="Media" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Item" type="xsdXmlReferenceType" minOccurs="1" maxOccurs="unbounded" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="Language" type="xsdUUID" use="optional" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="xsdXmlTypeEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="xsdChangeRequest" />
    <xs:enumeration value="xsdCountry" />
    <xs:enumeration value="xsdDictionary" />
    <xs:enumeration value="xsdDimension" />
    <xs:enumeration value="xsdExpert" />
    <xs:enumeration value="xsdExpertWithStatus" />
    <xs:enumeration value="xsdExternalDocument" />
    <xs:enumeration value="xsdFilter" />
    <xs:enumeration value="xsdInterval" />
    <xs:enumeration value="xsdLanguage" />
    <xs:enumeration value="xsdMedia" />
    <xs:enumeration value="xsdMultilingualText" />
    <xs:enumeration value="xsdOrderedValue" />
    <xs:enumeration value="xsdProperty" />
    <xs:enumeration value="xsdQuantityKind" />
    <xs:enumeration value="xsdRational" />
    <xs:enumeration value="xsdRelationshipToProperty" />
    <xs:enumeration value="xsdRelationshipToSubject" />
    <xs:enumeration value="xsdRelationshipType" />
    <xs:enumeration value="xsdSubdivision" />
    <xs:enumeration value="xsdSubject" />
    <xs:enumeration value="xsdSymbol" />
    <xs:enumeration value="xsdText" />
    <xs:enumeration value="xsdUnit" />
    <xs:enumeration value="xsdUser" />
    <xs:enumeration value="xsdUserWithRoles" />
    <xs:enumeration value="xsdValue" />
    <xs:enumeration value="xsdValueList" />
    <xs:enumeration value="xsdVisualRepresentation" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="xsdXmlReferenceType">
  <xs:attribute name="Ref" type="xsdUUID" use="required" />
</xs:complexType>
<xs:complexType name="xsdXmlProxy">
  <xs:complexContent>
    <xs:extension base="xsdRoot" />
  </xs:complexContent>
</xs:complexType>
<xs:element name="IFD">
  <xs:complexType>

```

```

<xs:choice minOccurs="0" maxOccurs="unbounded">
  <xs:element name="xtdChangeRequest" type="xtdChangeRequest" nillable="true" />
  <xs:element name="xtdCountry" type="xtdCountry" nillable="true" />
  <xs:element name="xtdDictionary" type="xtdDictionary" nillable="true" />
  <xs:element name="xtdDimension" type="xtdDimension" nillable="true" />
  <xs:element name="xtdExpert" type="xtdExpert" nillable="true" />
  <xs:element name="xtdExpertWithStatus" type="xtdExpertWithStatus" nillable="true" />
  <xs:element name="xtdExternalDocument" type="xtdExternalDocument" nillable="true" />
  <xs:element name="xtdFilter" type="xtdFilter" nillable="true" />
  <xs:element name="xtdInterval" type="xtdInterval" nillable="true" />
  <xs:element name="xtdLanguage" type="xtdLanguage" nillable="true" />
  <xs:element name="xtdMedia" type="xtdMedia" nillable="true" />
  <xs:element name="xtdMultiLanguageText" type="xtdMultiLanguageText" nillable="true" />
  <xs:element name="xtdOrderedValue" type="xtdOrderedValue" nillable="true" />
  <xs:element name="xtdProperty" type="xtdProperty" nillable="true" />
  <xs:element name="xtdQuantityKind" type="xtdQuantityKind" nillable="true" />
  <xs:element name="xtdRational" type="xtdRational" nillable="true" />
  <xs:element name="xtdRelationshipToProperty" type="xtdRelationshipToProperty" nillable="true" />
  <xs:element name="xtdRelationshipToSubject" type="xtdRelationshipToSubject" nillable="true" />
  <xs:element name="xtdRelationshipType" type="xtdRelationshipType" nillable="true" />
  <xs:element name="xtdSubdivision" type="xtdSubdivision" nillable="true" />
  <xs:element name="xtdSubject" type="xtdSubject" nillable="true" />
  <xs:element name="xtdSymbol" type="xtdSymbol" nillable="true" />
  <xs:element name="xtdText" type="xtdText" nillable="true" />
  <xs:element name="xtdUnit" type="xtdUnit" nillable="true" />
  <xs:element name="xtdUser" type="xtdUser" nillable="true" />
  <xs:element name="xtdUserWithRoles" type="xtdUserWithRoles" nillable="true" />
  <xs:element name="xtdValue" type="xtdValue" nillable="true" />
  <xs:element name="xtdValueList" type="xtdValueList" nillable="true" />
  <xs:element name="xtdVisualRepresentation" type="xtdVisualRepresentation" nillable="true" />
  <xs:element name="xtdXmlProxy" type="xtdXmlProxy" nillable="true" />
</xs:choice>
</xs:complexType>
<xs:key name="ChangeRequest_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Concept_Key">
  <xs:selector
    xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Country_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Dictionary_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Dimension_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Expert_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="ExpertWithStatus_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="ExternalDocument_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Filter_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Interval_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Language_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="Media_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>
<xs:key name="MultiLanguageText_Key">
  <xs:selector xpath="."/>
  <xs:field xpath="@UniqueId" />
</xs:key>

```

```

    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Object_Key">
    <xs:selector
      xpath="//xtdOrderedValue|./xtdValue|./xtdChangeRequest|./xtdSubject|./xtdRelationshipType|./xtdRelationshipToSubject|./xtdFilter|./xtdUnit|./xtdValueList|./xtdExternalDocument|./xtdProperty|./xtdQuantityKind|./xtdDimension|./xtdRelationshipToProperty|./xtdVisualRepresentation|./xtdCountry|./xtdSubdivision|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="OrderedValue_Key">
    <xs:selector xpath="//xtdOrderedValue|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Property_Key">
    <xs:selector xpath="//xtdProperty|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="QuantityKind_Key">
    <xs:selector xpath="//xtdQuantityKind|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Rational_Key">
    <xs:selector xpath="//xtdRational|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="RelationshipToProperty_Key">
    <xs:selector xpath="//xtdRelationshipToProperty|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="RelationshipToSubject_Key">
    <xs:selector xpath="//xtdRelationshipToSubject|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="RelationshipType_Key">
    <xs:selector xpath="//xtdRelationshipType|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Subdivision_Key">
    <xs:selector xpath="//xtdSubdivision|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Subject_Key">
    <xs:selector xpath="//xtdSubject|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Symbol_Key">
    <xs:selector xpath="//xtdSymbol|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Text_Key">
    <xs:selector xpath="//xtdText|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Unit_Key">
    <xs:selector xpath="//xtdUnit|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="User_Key">
    <xs:selector xpath="//xtdUser|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="UserWithRoles_Key">
    <xs:selector xpath="//xtdUserWithRoles|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="Value_Key">
    <xs:selector xpath="//xtdValue|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="ValueList_Key">
    <xs:selector xpath="//xtdValueList|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:key name="VisualRepresentation_Key">
    <xs:selector xpath="//xtdVisualRepresentation|./xtdXmlProxy" />
    <xs:field xpath="@UniqueId" />
  </xs:key>
  <xs:keyref name="Interval_Minimum_Ref" refer="ValueList_Key">
    <xs:selector xpath="//xtdInterval" />
    <xs:field xpath="@Minimum" />
  </xs:keyref>
  <xs:keyref name="Interval_Maximum_Ref" refer="ValueList_Key">
    <xs:selector xpath="//xtdInterval" />
    <xs:field xpath="@Maximum" />
  </xs:keyref>

```

```

<xs:keyref name="Text_Language_Ref" refer="Language_Key">
  <xs:selector xpath="."/xtdText" />
  <xs:field xpath="@Language" />
</xs:keyref>
<xs:keyref name="MultiLanguageText_Texts_Ref" refer="Text_Key">
  <xs:selector xpath="."/xtdMultiLanguageText/Texts/" />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Symbol_Symbol_Ref" refer="Text_Key">
  <xs:selector xpath="."/xtdSymbol" />
  <xs:field xpath="@Symbol" />
</xs:keyref>
<xs:keyref name="Symbol_Subject_Ref" refer="Subject_Key">
  <xs:selector xpath="."/xtdSymbol" />
  <xs:field xpath="@Subject" />
</xs:keyref>
<xs:keyref name="OrderedValue_Value_Ref" refer="Value_Key">
  <xs:selector xpath="."/xtdOrderedValue" />
  <xs:field xpath="@Value" />
</xs:keyref>
<xs:keyref name="Dictionary_Name_Ref" refer="MultiLanguageText_Key">
  <xs:selector xpath="."/xtdDictionary" />
  <xs:field xpath="@Name" />
</xs:keyref>
<xs:keyref name="UserWithRoles_Dictionary_Ref" refer="Dictionary_Key">
  <xs:selector xpath="."/xtdUserWithRoles" />
  <xs:field xpath="@Dictionary" />
</xs:keyref>
<xs:keyref name="UserWithRoles_User_Ref" refer="User_Key">
  <xs:selector xpath="."/xtdUserWithRoles|./xtdExpert" />
  <xs:field xpath="@User" />
</xs:keyref>
<xs:keyref name="Object_Dictionary_Ref" refer="Dictionary_Key">
  <xs:selector
    xpath="."/xtdOrderedValue|./xtdValue|./xtdChangeRequest|./xtdSubject|./xtdRelationshipType|./xtdRelationshipToSubject|./xtdFilter|./xtdUnit|./xtdValueList|./xtdExternalDocument|./xtdProperty|./xtdQuantityKind|./xtdDimension|./xtdRelationshipToProperty|./xtdVisualRepresentation|./xtdCountry|./xtdSubdivision" />
    <xs:field xpath="@Dictionary" />
  </xs:selector>
</xs:keyref>
<xs:keyref name="Object_Names_Ref" refer="MultiLanguageText_Key">
  <xs:selector
    xpath="."/xtdOrderedValue/NAMES|./xtdValue/NAMES|./xtdChangeRequest/NAMES|./xtdSubject/NAMES|./xtdRelationshipType/NAMES|./xtdRelationshipToSubject/NAMES|./xtdFilter/NAMES|./xtdUnit/NAMES|./xtdValueList/NAMES|./xtdExternalDocument/NAMES|./xtdProperty/NAMES|./xtdQuantityKind/NAMES|./xtdDimension/NAMES|./xtdRelationshipToProperty/NAMES|./xtdVisualRepresentation/NAMES|./xtdCountry/NAMES|./xtdSubdivision" />
    <xs:field xpath="@Ref" />
  </xs:selector>
</xs:keyref>
<xs:keyref name="Object_ReplacedObjects_Ref" refer="Object_Key">
  <xs:selector
    xpath="."/xtdOrderedValue/ReplacedObjects|./xtdValue/ReplacedObjects|./xtdChangeRequest/ReplacedObjects|./xtdSubject/ReplacedObjects|./xtdRelationshipType/ReplacedObjects|./xtdRelationshipToSubject/ReplacedObjects|./xtdFilter/ReplacedObjects|./xtdUnit/ReplacedObjects|./xtdValueList/ReplacedObjects|./xtdExternalDocument/ReplacedObjects|./xtdProperty/ReplacedObjects|./xtdQuantityKind/ReplacedObjects|./xtdDimension/ReplacedObjects|./xtdRelationshipToProperty/ReplacedObjects|./xtdVisualRepresentation/ReplacedObjects|./xtdCountry/ReplacedObjects|./xtdSubdivision/ReplacedObjects/" />
    <xs:field xpath="@Ref" />
  </xs:selector>
</xs:keyref>
<xs:keyref name="Object_DeprecationExplanation_Ref" refer="MultiLanguageText_Key">
  <xs:selector
    xpath="."/xtdOrderedValue|./xtdValue|./xtdChangeRequest|./xtdSubject|./xtdRelationshipType|./xtdRelationshipToSubject|./xtdFilter|./xtdUnit|./xtdValueList|./xtdExternalDocument|./xtdProperty|./xtdQuantityKind|./xtdDimension|./xtdRelationshipToProperty|./xtdVisualRepresentation|./xtdCountry|./xtdSubdivision" />
    <xs:field xpath="@DeprecationExplanation" />
  </xs:selector>
</xs:keyref>
<xs:keyref name="Object_ReplacingObjects_Ref" refer="Object_Key">
  <xs:selector
    xpath="."/xtdOrderedValue/ReplacingObjects|./xtdValue/ReplacingObjects|./xtdChangeRequest/ReplacingObjects|./xtdSubject/ReplacingObjects|./xtdRelationshipType/ReplacingObjects|./xtdRelationshipToSubject/ReplacingObjects|./xtdFilter/ReplacingObjects|./xtdUnit/ReplacingObjects|./xtdValueList/ReplacingObjects|./xtdExternalDocument/ReplacingObjects|./xtdProperty/ReplacingObjects|./xtdQuantityKind/ReplacingObjects|./xtdDimension/ReplacingObjects|./xtdRelationshipToProperty/ReplacingObjects|./xtdVisualRepresentation/ReplacingObjects|./xtdCountry/ReplacingObjects|./xtdSubdivision/ReplacingObjects/" />
    <xs:field xpath="@Ref" />
  </xs:selector>
</xs:keyref>
<xs:keyref name="Subject_Properties_Ref" refer="Property_Key">
  <xs:selector xpath="."/xtdSubject/Properties/" />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Subject_ConnectedSubjects_Ref" refer="RelationshipToSubject_Key">
  <xs:selector xpath="."/xtdSubject/ConnectedSubjects/" />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Subject_Filters_Ref" refer="Filter_Key">
  <xs:selector xpath="."/xtdSubject/Filters/" />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="RelationshipToSubject_RelationshipType_Ref" refer="RelationshipType_Key">

```

```

    <xs:selector xpath="//xtdRelationshipToSubject" />
    <xs:field xpath="@RelationshipType" />
</xs:keyref>
<xs:keyref name="RelationshipToSubject_TargetSubjects_Ref" refer="Subject_Key">
    <xs:selector xpath="//xtdRelationshipToSubject/TargetSubjects/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="RelationshipToSubject_ScopeSubjects_Ref" refer="Subject_Key">
    <xs:selector xpath="//xtdRelationshipToSubject/ScopeSubjects/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Filter_Property_Ref" refer="Property_Key">
    <xs:selector xpath="//xtdFilter" />
    <xs:field xpath="@Property" />
</xs:keyref>
<xs:keyref name="Filter_FilteringValue_Ref" refer="Value_Key">
    <xs:selector xpath="//xtdFilter" />
    <xs:field xpath="@FilteringValue" />
</xs:keyref>
<xs:keyref name="Filter_FilteringInterval_Ref" refer="Interval_Key">
    <xs:selector xpath="//xtdFilter" />
    <xs:field xpath="@FilteringInterval" />
</xs:keyref>
<xs:keyref name="Unit_Dimension_Ref" refer="Dimension_Key">
    <xs:selector xpath="//xtdUnit" />
    <xs:field xpath="@Dimension" />
</xs:keyref>
<xs:keyref name="Unit_Symbol_Ref" refer="MultiLanguageText_Key">
    <xs:selector xpath="//xtdUnit" />
    <xs:field xpath="@Symbol" />
</xs:keyref>
<xs:keyref name="Unit_Coefficient_Ref" refer="Rational_Key">
    <xs:selector xpath="//xtdUnit" />
    <xs:field xpath="@Coefficient" />
</xs:keyref>
<xs:keyref name="Unit_Offset_Ref" refer="Rational_Key">
    <xs:selector xpath="//xtdUnit" />
    <xs:field xpath="@Offset" />
</xs:keyref>
<xs:keyref name="ValueList_Unit_Ref" refer="Unit_Key">
    <xs:selector xpath="//xtdValueList" />
    <xs:field xpath="@Unit" />
</xs:keyref>
<xs:keyref name="ValueList_Values_Ref" refer="OrderedValue_Key">
    <xs:selector xpath="//xtdValueList/Values/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="ValueList_Language_Ref" refer="Language_Key">
    <xs:selector xpath="//xtdValueList" />
    <xs:field xpath="@Language" />
</xs:keyref>
<xs:keyref name="ExpertWithStatus_Expert_Ref" refer="Expert_Key">
    <xs:selector xpath="//xtdExpertWithStatus" />
    <xs:field xpath="@Expert" />
</xs:keyref>
<xs:keyref name="ExpertWithStatus_ExpertExplanation_Ref" refer="MultiLanguageText_Key">
    <xs:selector xpath="//xtdExpertWithStatus" />
    <xs:field xpath="@ExpertExplanation" />
</xs:keyref>
<xs:keyref name="Expert_AreasOfExpertise_Ref" refer="Subject_Key">
    <xs:selector xpath="//xtdExpert/AreasOfExpertise/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="ChangeRequest_Applicant_Ref" refer="User_Key">
    <xs:selector xpath="//xtdChangeRequest" />
    <xs:field xpath="@Applicant" />
</xs:keyref>
<xs:keyref name="ChangeRequest_NewObjects_Ref" refer="Object_Key">
    <xs:selector xpath="//xtdChangeRequest/NewObjects/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="ChangeRequest_Experts_Ref" refer="ExpertWithStatus_Key">
    <xs:selector xpath="//xtdChangeRequest/Experts/_ " />
    <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="ChangeRequest_ApplicantExplanation_Ref" refer="MultiLanguageText_Key">
    <xs:selector xpath="//xtdChangeRequest" />
    <xs:field xpath="@ApplicantExplanation" />
</xs:keyref>
<xs:keyref name="Concept_ReferenceDocuments_Ref" refer="ExternalDocument_Key">
    <xs:selector
xpath="//xtdSubject/ReferenceDocuments/_./xtdRelationshipType/ReferenceDocuments/_./xtdRelationshipToSubject/ReferenceDocuments/_./xtdFilter/
ReferenceDocuments/_./xtdUnit/ReferenceDocuments/_./xtdValueList/ReferenceDocuments/_./xtdExternalDocument/ReferenceDocuments/_./xtdPrope
rty/ReferenceDocuments/_./xtdQuantityKind/ReferenceDocuments/_./xtdDimension/ReferenceDocuments/_./xtdRelationshipToProperty/ReferenceDocu
ments/_./xtdVisualRepresentation/ReferenceDocuments/_./xtdCountry/ReferenceDocuments/_./xtdSubdivision/ReferenceDocuments/_ " />

```

```

    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Concept_Definition_Ref" refer="MultiLanguageText_Key">
    <xs:selector
      xpath="//xtdSubject|//xtdRelationshipType|//xtdRelationshipToSubject|//xtdFilter|//xtdUnit|//xtdValueList|//xtdExternalDocument|//xtdProperty|//xtd
      QuantityKind|//xtdDimension|//xtdRelationshipToProperty|//xtdVisualRepresentation|//xtdCountry|//xtdSubdivision" />
    <xs:field xpath="@Definition" />
  </xs:keyref>
  <xs:keyref name="Concept_Descriptions_Ref" refer="MultiLanguageText_Key">
    <xs:selector
      xpath="//xtdSubject/Descriptions/_|//xtdRelationshipType/Descriptions/_|//xtdRelationshipToSubject/Descriptions/_|//xtdFilter/Descriptions/_|//xtdUnit/
      Descriptions/_|//xtdValueList/Descriptions/_|//xtdExternalDocument/Descriptions/_|//xtdProperty/Descriptions/_|//xtdQuantityKind/Descriptions/_|//xtd
      Dimension/Descriptions/_|//xtdRelationshipToProperty/Descriptions/_|//xtdVisualRepresentation/Descriptions/_|//xtdCountry/Descriptions/_|//xtdSubdivi
      sion/Descriptions/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Concept_Examples_Ref" refer="MultiLanguageText_Key">
    <xs:selector
      xpath="//xtdSubject/Examples/_|//xtdRelationshipType/Examples/_|//xtdRelationshipToSubject/Examples/_|//xtdFilter/Examples/_|//xtdUnit/Examples/_|
      //xtdValueList/Examples/_|//xtdExternalDocument/Examples/_|//xtdProperty/Examples/_|//xtdQuantityKind/Examples/_|//xtdDimension/Examples/_|//x
      tdRelationshipToProperty/Examples/_|//xtdVisualRepresentation/Examples/_|//xtdCountry/Examples/_|//xtdSubdivision/Examples/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Concept_LanguageOfCreator_Ref" refer="Language_Key">
    <xs:selector
      xpath="//xtdSubject|//xtdRelationshipType|//xtdRelationshipToSubject|//xtdFilter|//xtdUnit|//xtdValueList|//xtdExternalDocument|//xtdProperty|//xtd
      QuantityKind|//xtdDimension|//xtdRelationshipToProperty|//xtdVisualRepresentation|//xtdCountry|//xtdSubdivision" />
    <xs:field xpath="@LanguageOfCreator" />
  </xs:keyref>
  <xs:keyref name="Concept_CountryOfOrigin_Ref" refer="Country_Key">
    <xs:selector
      xpath="//xtdSubject|//xtdRelationshipType|//xtdRelationshipToSubject|//xtdFilter|//xtdUnit|//xtdValueList|//xtdExternalDocument|//xtdProperty|//xtd
      QuantityKind|//xtdDimension|//xtdRelationshipToProperty|//xtdVisualRepresentation|//xtdCountry|//xtdSubdivision" />
    <xs:field xpath="@CountryOfOrigin" />
  </xs:keyref>
  <xs:keyref name="Concept_SimilarTo_Ref" refer="Concept_Key">
    <xs:selector
      xpath="//xtdSubject/SimilarTo/_|//xtdRelationshipType/SimilarTo/_|//xtdRelationshipToSubject/SimilarTo/_|//xtdFilter/SimilarTo/_|//xtdUnit/SimilarTo/_
      |//xtdValueList/SimilarTo/_|//xtdExternalDocument/SimilarTo/_|//xtdProperty/SimilarTo/_|//xtdQuantityKind/SimilarTo/_|//xtdDimension/SimilarTo/_|//x
      tdRelationshipToProperty/SimilarTo/_|//xtdVisualRepresentation/SimilarTo/_|//xtdCountry/SimilarTo/_|//xtdSubdivision/SimilarTo/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Concept_VisualRepresentations_Ref" refer="VisualRepresentation_Key">
    <xs:selector
      xpath="//xtdSubject/VisualRepresentations/_|//xtdRelationshipType/VisualRepresentations/_|//xtdRelationshipToSubject/VisualRepresentations/_|//xtdFilt
      er/VisualRepresentations/_|//xtdUnit/VisualRepresentations/_|//xtdValueList/VisualRepresentations/_|//xtdExternalDocument/VisualRepresentations/_|//xt
      dProperty/VisualRepresentations/_|//xtdQuantityKind/VisualRepresentations/_|//xtdDimension/VisualRepresentations/_|//xtdRelationshipToProperty/Visua
      lRepresentations/_|//xtdVisualRepresentation/VisualRepresentations/_|//xtdCountry/VisualRepresentations/_|//xtdSubdivision/VisualRepresentations/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="ExternalDocument_Languages_Ref" refer="Language_Key">
    <xs:selector xpath="//xtdExternalDocument/Language/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_Dimension_Ref" refer="Dimension_Key">
    <xs:selector xpath="//xtdProperty" />
    <xs:field xpath="@Dimension" />
  </xs:keyref>
  <xs:keyref name="Property_Symbols_Ref" refer="Symbol_Key">
    <xs:selector xpath="//xtdProperty/Symbols/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_PossibleValues_Ref" refer="ValueList_Key">
    <xs:selector xpath="//xtdProperty/PossibleValues/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_BoundaryValues_Ref" refer="Interval_Key">
    <xs:selector xpath="//xtdProperty/BoundaryValues/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_Units_Ref" refer="Unit_Key">
    <xs:selector xpath="//xtdProperty/Units/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_ConnectedProperties_Ref" refer="RelationshipToProperty_Key">
    <xs:selector xpath="//xtdProperty/ConnectedProperties/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_QuantityKinds_Ref" refer="QuantityKind_Key">
    <xs:selector xpath="//xtdProperty/QuantityKinds/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>
  <xs:keyref name="Property_IsUsedBySubjects_Ref" refer="Subject_Key">
    <xs:selector xpath="//xtdProperty/IsUsedBySubjects/_ " />
    <xs:field xpath="@Ref" />
  </xs:keyref>

```

```

</xs:keyref>
<xs:keyref name="Property_IsUsedByFilters_Ref" refer="Filter_Key">
  <xs:selector xpath="//xtdProperty/IsUsedByFilters/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="QuantityKind_Dimension_Ref" refer="Dimension_Key">
  <xs:selector xpath="//xtdQuantityKind" />
  <xs:field xpath="@Dimension" />
</xs:keyref>
<xs:keyref name="QuantityKind_Units_Ref" refer="Unit_Key">
  <xs:selector xpath="//xtdQuantityKind/Units/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Dimension_LengthExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@LengthExponent" />
</xs:keyref>
<xs:keyref name="Dimension_MassExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@MassExponent" />
</xs:keyref>
<xs:keyref name="Dimension_TimeExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@TimeExponent" />
</xs:keyref>
<xs:keyref name="Dimension_ElectricCurrentExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@ElectricCurrentExponent" />
</xs:keyref>
<xs:keyref name="Dimension_ThermodynamicTemperatureExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@ThermodynamicTemperatureExponent" />
</xs:keyref>
<xs:keyref name="Dimension_AmountOfSubstanceExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@AmountOfSubstanceExponent" />
</xs:keyref>
<xs:keyref name="Dimension_LuminousIntensityExponent_Ref" refer="Rational_Key">
  <xs:selector xpath="//xtdDimension" />
  <xs:field xpath="@LuminousIntensityExponent" />
</xs:keyref>
<xs:keyref name="RelationshipToProperty_TargetProperties_Ref" refer="Property_Key">
  <xs:selector xpath="//xtdRelationshipToProperty/TargetProperties/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="VisualRepresentation_Media_Ref" refer="Media_Key">
  <xs:selector xpath="//xtdVisualRepresentationMedia/Media/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="VisualRepresentation_Language_Ref" refer="Language_Key">
  <xs:selector xpath="//xtdVisualRepresentation" />
  <xs:field xpath="@Language" />
</xs:keyref>
<xs:keyref name="Country_Subdivisions_Ref" refer="Subdivision_Key">
  <xs:selector xpath="//xtdCountry/Subdivisions/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
<xs:keyref name="Subdivision_Subdivisions_Ref" refer="Subdivision_Key">
  <xs:selector xpath="//xtdSubdivision/Subdivisions/_ " />
  <xs:field xpath="@Ref" />
</xs:keyref>
</xs:element>
</xs:schema>

```

Annex E

(informative)

Naming conventions

E.1 General

The following naming convention has been used in the development of this part of ISO 12006. These conventions do not apply to the population or use of the framework.

E.2 Characters used for names

The characters [A-Z] upper case, [a-z] lower case and [0-9] numeric are used for names.

E.3 Case of names

Names are written in upper- and lower-case characters as a single name without spaces.

The first character of each word in normal usage following the schema prefix is written as an upper-case character. All other characters forming part of the same word in normal usage are written in lower case characters.

E.4 Length of names

The length of names is not restricted.

E.5 xtd prefix

Names are prefixed by the term “xtd” to identify their usage within the ISO 12006-3 information model. “xtd” is an acronym for extensible taxonomy definition.

E.6 Names of entities other than relationship entities

The name of an entity is a noun or combination of nouns denoting the “content” or “type” of the entity.

E.7 Names of relationship entities

Entities acting as relationships within the model contain the term “Rel” following the “xtd” prefix and before the name of the entity in normal usage. The inserted “Rel” is treated as a word in normal usage and the “Case of names” rule applied. Relationships are named starting from the related (SET [1:?]) of objects ending on the relating object, i.e. xtdRelComposes means that the relationship composes the parts (SET [1:?]) into a whole.

The name of the relationship entity is a verb or verb phrase that denotes the “function” of the relationship.

E.8 Plural naming of aggregation

Names of attributes and relationships within an aggregation are expressed in the plural form.

Annex F (informative) Examples

F.1 Example of change request

F.1.1 Scenario

In this example, see figure F.1, a data dictionary contains:

- a property “thermal conductivity”
- a subject “thermal domain”
- an expert attached to the thermal domain
- a user

The user will ask to add the property “thermal conductivity” to the subject “thermal domain”.

The following process will be applied:

- creation of a change request
- Assignment of the change request to the expert
- Validation of the change request by the expert

The entities used in the process are:

- xtdSubject
- xtdProperty
- xtdUser
- xtdExpert
- xtdExpertWithStatus
- xtdChangeRequest

F.1.2 Data dictionary content

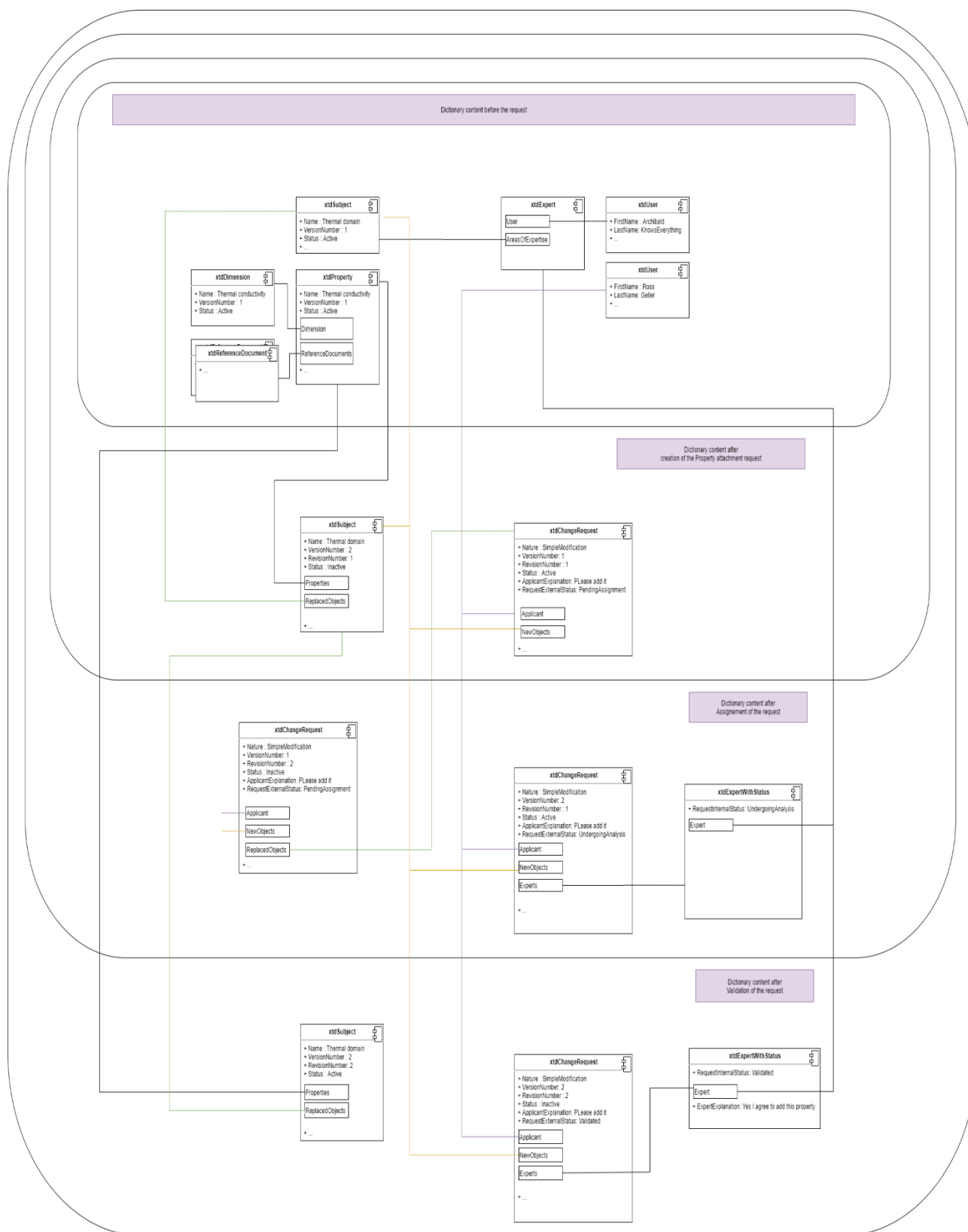


Figure F.1 — Example of content of a data dictionary after a change request

F.2 Examples of xtdUnit

F.2.1 Example 1: Fahrenheit

Task: There is a temperature of k °K, what is the equivalent temperature f in Fahrenheit?

Equation:

$$f = 1,8 * (k - 273,15) + 32$$

$$= \frac{9}{5} * \frac{k}{1} - \frac{9}{5} * 273,15 + 32$$

$$= \frac{9}{5} * \frac{k}{1} + \frac{-45967}{100}$$

Coefficient:	$\frac{9}{5}$
Scale:	linear
Base:	1
offset:	$\frac{-45967}{100}$

F.2.2 Example 2: Degree

Task: There is an angle in radian (r), what is the same angle in degree (d)?

Equation:

$$d = \frac{180}{\pi} * r$$

Coefficient:	$\frac{180}{1}$
Scale:	linear
Base:	π
offset:	$\frac{0}{1}$

F.2.3 Example 3: Decibel

Task: Expression of an attenuation (L_P ?) in dB

Equation:

$$L_P = 10 * \log_{10} \frac{P}{P_0} + 0$$

Coefficient:	$\frac{10}{1}$
Scale:	logarithmic
Base:	10
offset:	$\frac{0}{1}$

F.3 Example of use of xtdRelationshipKindEnum :

F.3.1 Example of subtype relationship

Assume the following structure as shown in figure F.2 that describes different types of motors, an *Electrical Motor* and a *Combustion Motor* as subtypes of a generic concept *Motor*. Any motor is an instance of either Electric Motor or Combustion Motor, but there does not exist an instance of the generic concept *Motor*, and either no instantiation of the *isSubtypeOf* relationship. Rather, the generic concept *Motor* describes a more abstract view of some instances used when dealing with the dictionary level. Therefore the *is subtype of* relationship is tagged with the relationshipKind *SchemaLevel*.

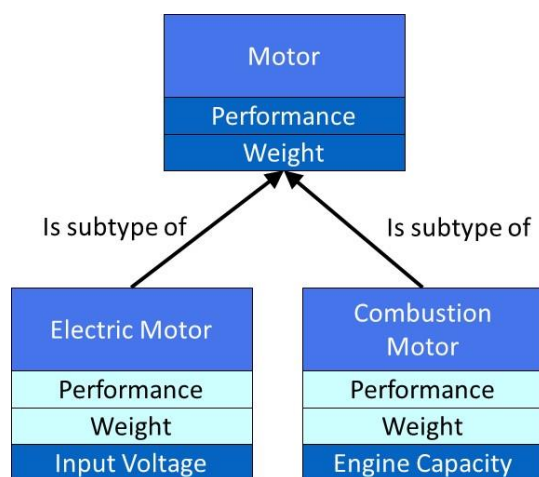


Figure F.2 — Example of subtype relationship

F.3.2 Example of has-part relationships

A different case is a relationship like the part-of relationship between a composite product and its constituent parts. The structure depicted in the figure F.3 defines on the dictionary level that an *Electric Motor* is composed of *Stators*, *Rotors*, a *Motor Housing*, a *Transmission* and a *Power Inverter*. For that purpose, the *Electric Motor* is related to its components by means of *has-part* relationships.

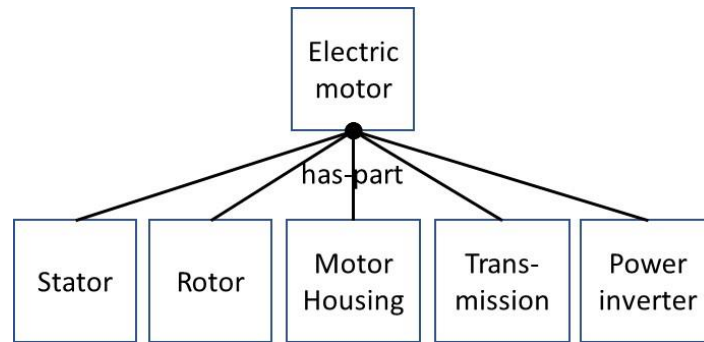


Figure F.3 — Example of has-part relationship

In this case, the various elements can actually be instantiated. A specific Electric motor of a company M is built up of a specific Stator, a specific Rotor, etc. And the objects representing the Motor, the Stator and the Rotor are instantiated (e.g. in an exchange file), and the components may be related to the composite by means of an instance of the *has-part* relationship. Therefore the *has-parts* relationship is tagged with the relationshipKind *INSTANCELEVEL*.

F.4 Example of use of a Filter

In this example, see figure F.4, 2 classifications providing a specific classification code for exterior walls are mapped to the IfcWall IFC class where the property IsExternal has the value “TRUE”.

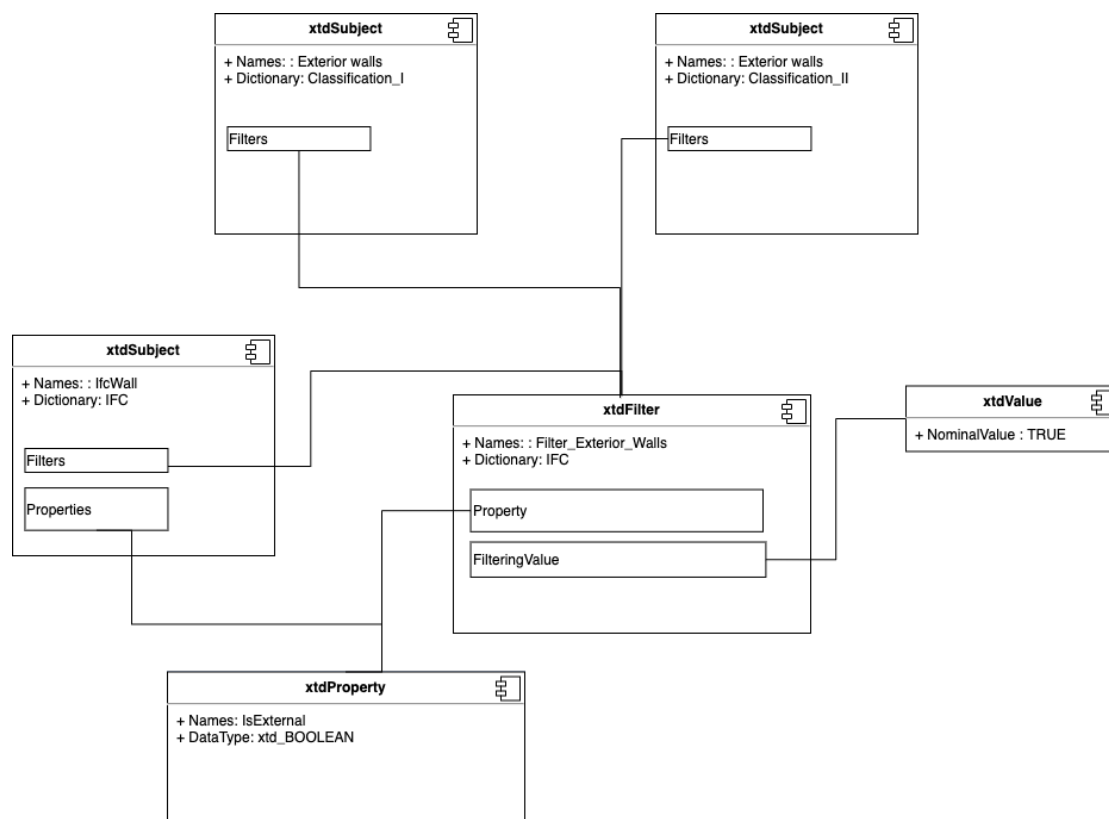


Figure F.4 Implementation of a filter

Bibliography

- [1] ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*
- [2] ISO 10303-41, *Industrial automation systems and integration — Product data representation and exchange — Part 41: Integrated generic resource: Fundamentals of product description and support*
- [3] ISO 10303-221, *Industrial automation systems and integration — Product data representation and exchange — Part 221: Application protocol: Functional data and their schematic representation for process plants*
- [4] ISO/IEC 10646:2003, *Information technology — Universal Multiple-Octet Coded Character Set (UCS), Annex D* (Technically equivalent to the definitions in the Unicode Standard)
- [5] ISO 12006-2, *Building Construction — Organization of information about construction works — Part 2: Framework for classification of information*
- [6] ISO 15926-2, *Industrial automation systems and integration — Integration of life-cycle data for process plants including oil and gas production facilities — Part 2: Data model*
- [7] ISO 16739-1, *Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries — Part 1: Data schema*
- [8] ISO 23386, *Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries*
- [9] ISO 23387, *Building information modelling (BIM) — Data templates for construction objects used in the life cycle of built assets — Concepts and principles*
- [10] The Unicode Consortium. *The Unicode Standard, Version 4.0*. Boston, MA, Addison-Wesley, 2003, ISBN 0-321-18578-1
- [11] (<https://tools.ietf.org/html/rfc2046>)