



BSI Standards Publication

# Standardized product ontology register and transfer by spreadsheets

Part 2: Application guide for use with the IEC common data dictionary (CDD)

License: Tech Street, ISO Exchange - Michigan, Version correct as of 14/10/2013, (c) The British Standards Institution 2013

Currently in preview, click buy full version

### National foreword

This Published Document is the UK implementation of IEC/TS 62656-2:2013.

The UK participation in its preparation was entrusted to Technical Committee GEL/3, Documentation and graphical symbols.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013.  
Published by BSI Standards Limited 2013

ISBN 978 0 580 75061 8  
ICS 01.040.01; 01.110

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 1 October 2013.

### Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

---



# TECHNICAL SPECIFICATION

# SPÉCIFICATION TECHNIQUE



**Standardized product ontology register and transfer by spreadsheets –  
Part 2: Application guide for use with the IEC common data dictionary (CDD)**

**Enregistrement d'ontologie de produits normalisés et transfert par tableurs –  
Partie 2: Guide d'application pour l'utilisation avec le Dictionnaire de données  
communes de la CEI (le CEI CDD)**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE **XB**  
CODE PRIX

ICS 01.040.01; 01.110

ISBN 978-2-8322-1114-4

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Overview .....	9
4.1 General.....	9
4.2 Data dictionary.....	9
4.3 Data parcel .....	11
4.4 Blank parcel sheets.....	12
5 Common cases for defining ontological elements.....	13
5.1 Semantics.....	13
5.2 Assigning an identifier.....	14
5.3 Assigning a definition class.....	15
5.4 Attributes to be considered .....	16
6 Specifying structures for data dictionaries .....	16
6.1 General.....	16
6.2 Classification tree .....	16
6.3 Reuse of properties, data types and documents in other branches.....	17
6.4 Composition tree.....	18
7 Defining ontological elements by optional parameters.....	20
7.1 Defining enumerations .....	20
7.2 Defining named data types.....	22
7.3 Defining information of external resources .....	24
7.4 Defining units of measurement.....	25
7.5 Defining relationships between ontological elements.....	27
8 Advanced concepts .....	30
8.1 Implementation of condition .....	30
8.2 Implementation of cardinality .....	31
8.3 Implementation of blocks and lists of properties (LOPs).....	32
8.4 Implementation of polymorphism.....	35
8.5 Alternatives.....	39
9 Data file representation for storage and exchange.....	40
9.1 CSV format for representation of data parcels.....	40
9.2 Cell delimiter.....	40
9.3 Line feed character .....	40
9.4 Space character.....	41
9.5 Character encoding.....	41
10 Conformance to implementation for the IEC CDD .....	41
Annex A (normative) Information object registration – Document identification.....	43
Annex B (informative) Examples of pattern constraints for attributes.....	44
Annex C (informative) Examples for attribute values .....	47
Annex D (informative) Sample data.....	51
Annex E (informative) Parcelling tools .....	52
Bibliography.....	53

Figure 1 – Typical use scenario .....	9
Figure 2 – Data dictionary .....	10
Figure 3 – Spreadsheet implementation .....	11
Figure 4 – Parcel sheet .....	12
Figure 5 – Semantic definitions of ontological elements .....	14
Figure 6 – Identification of ontological elements .....	15
Figure 7 – Example of a simple classification tree .....	17
Figure 8 – Parcel implementation for simple classification trees .....	17
Figure 9 – Example of import mechanism .....	18
Figure 10 – Parcel implementation for case of relationships .....	18
Figure 11 – Composition relationship between two branches .....	19
Figure 12 – Example of a composition tree .....	19
Figure 13 – Parcel implementation for composition trees .....	20
Figure 14 – Example of a use case of enumeration .....	21
Figure 15 – Parcel implementation for enumerations .....	22
Figure 16 – Parcel implementation for named data types .....	24
Figure 17 – Parcel implementation for document references .....	25
Figure 18 – Parcel implementation for unit of measurement .....	27
Figure 19 – UML package diagram by relations .....	28
Figure 20 – Parcel implementation of UML packages by predicate relations .....	29
Figure 21 – UML package diagram by functions .....	29
Figure 22 – Parcel implementation of UML packages by functions .....	30
Figure 23 – Example of condition .....	31
Figure 24 – Parcel implementation for condition .....	31
Figure 25 – Example of cardinality .....	32
Figure 26 – Parcel implementation for cardinality .....	32
Figure 27 – View example for LOP and nested blocks .....	33
Figure 28 – Example of use case of blocks .....	34
Figure 29 – Example of composition view of an LOP .....	34
Figure 30 – Parcel implementation for blocks .....	35
Figure 31 – Example of a use case of polymorphism .....	36
Figure 32 – Example of composition view for polymorphism .....	36
Figure 33 – Parcel implementation for polymorphism .....	37
Figure 34 – Example of a use case of polymorphism with multiple choices .....	38
Figure 35 – Example of composition view for polymorphism with multiple choices .....	38
Figure 36 – Parcel implementation for polymorphism with multiple choices .....	39
Figure 38 – Example of how to escape the line feed characters .....	41
Table 1 – Property data element type for condition .....	31
Table 2 – POM conformance classes .....	42
Table B.1 – Examples of pattern constraints for attributes (1 of 3) .....	44
Table C.1 – Examples of attribute values (1 of 3) .....	48

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

### Part 2: Application guide for use with the IEC common data dictionary (CDD)

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use, and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, accept to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62656-2, which is a technical specification, has been prepared by subcommittee 3D, Product properties and classes and their identification, of IEC technical committee 3: Information structures, documentation and graphical symbols.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
3D/202/DTS	3D/213/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts of the IEC 62656 series under the general title *Standardized product ontology register and transfer by spreadsheets* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION

The IEC 62656 series entitled *Standardized product ontology register and transfer by spreadsheets* defines the means and methods for registering and exchanging product ontology(ies) expressed in spreadsheet forms.

IEC 62656 consists of the following parts:

- Part 1: Logical structure for data parcels<sup>1</sup>;
- Part 2: Application guide for use with the IEC common data dictionary (IEC CDD);
- Part 3: Interface for common information model<sup>2</sup>.

---

<sup>1</sup> To be published.

<sup>2</sup> To be published.

## STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

### Part 2: Application guide for use with the IEC common data dictionary (CDD)

#### 1 Scope

This part of IEC 62656 provides an application guide for the data parcels specified in IEC 62656-1 and used for the definition of a domain data dictionary that may be imported from and exported to the IEC common data dictionary, or IEC CDD for short, maintained at the IEC 61360-4 database [1]<sup>3</sup>. This part of IEC 62656 provides instructions for the interpretation and use of the technical specification defined in IEC 62656-1 within a software application, to avoid misuse of the data constructs available in IEC 62656-1.

This application guide contains the following items:

- principal information for implementing data parcels for data dictionaries from/to the IEC CDD,
- typical examples of how to implement typical features on data parcels,
- extension of conformance classes for implementation of parcel-based systems to import/export data parcels from/to the IEC CDD.

The following items are outside the scope of this part of IEC 62656:

- procedures for building IEC 61360 compliant domain data dictionaries,
- semantics of a standard data dictionary itself,
- theoretical explanation of the logical structure of data parcels, which is considered in IEC 62656-1,
- interface for the common information model (IEC 61970-301 [2]), which is considered in IEC 62656-3 [3].

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61360-1, *Standard data element types with associated classification scheme for electric items – Part 1: Definitions – Principles and methods*

IEC 61360-2, *Standard data element types with associated classification scheme for electric components – Part 2: EXPRESS dictionary schema*

IEC 61987-10:2009, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 10: List of properties (LOPs) for industrial-process measurement and control for electronic data exchange – Fundamentals*

<sup>3</sup> Numbers in square brackets refer to the Bibliography.