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Irish Standard
I.S. EN 62656-3:2015

Standardized product ontology register and transfer by spreadsheets - Part 3: Interface for Common Information Model

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EN 62656-3

April 2015

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English Version

Standardized product ontology register and transfer by spreadsheets - Part 3: Interface for Common Information Model (IEC 62656-3:2015)

Enregistrement d'ontologie de produits normalisés et transfert par tableurs - Partie 3: Interface pour un modèle d'information commun (IEC 62656-3:2015)

Standardisierte Übertragung und Registrierung von Ontologien für Produkte mittels Tabellen - Teil 3: Schnittstellen für das allgemeine Informationsmodell (IEC 62656-3:2015)

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Foreword

The text of document 3D/234/FDIS, future edition 1 of IEC 62656-3, prepared by IEC/SC 3D "Product properties and classes and their identification", of IEC/TC 3 "Information structures, documentation and graphical symbols", was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62656-3.

The following dates were fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-12-31
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Normative references to international publications with their corresponding European publications

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IEC 61360-1	2009	Standard data elements types with associated classification scheme for electric items -- Part 1: Definitions - Principles and methods	EN 61360-1	2010
IEC 61360-4	-	Standard data element types with associated classification scheme for electric components -- Part 4: IEC reference collection of standard data element types and component classes	EN 61360-4	-
-	-		+corrigendum Dec.	-
IEC 61968-1	2003	Application integration at electric utilities - System interfaces for distribution management -- Part 1: Interface architecture and general requirements	EN 61968-1	2004
IEC 61968-11	2010	Application integration at electric utilities - System interfaces for distribution management -- Part 11: Common Information Model (CIM) extensions for distribution	EN 61968-11	2010
IEC 61970-1	2005	Energy management system application program interface (EMS-API) -- Part 1: Guidelines and general requirements	EN 61970-1	2006
IEC 61970-301	2013	Energy management system application program interface (EMS-API) -- Part 301: Common information model (CIM) base	EN 61970-301	2014
IEC 61970-501	2006	Energy management system application program interface (EMS-API) -- Part 501: Common Information Model Resource Description Framework (CIM RDF) schema	EN 61970-501	2006
IEC 62325-301	2014	Framework for energy market communications -- Part 301: Common Information Model (CIM) extensions for markets	EN 62325-301	2014
IEC 62656-1	2014	Standardized product ontology register and transfer by spreadsheets -- Part 1: Logical structure for data parcels	EN 62656-1	2015
ISO 639-1	2002	Codes for the representation of names of languages_- Part_1: Alpha-2 code	-	-

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ISO 8601	2004	Data elements and interchange formats - Information interchange - Representation of dates and times	-	-
IEC/TS 61970-2	2004	Energy management system application program interface (EMS-API) -- Part 2: Glossary	CLC/TS 61970-2	2005
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IEC 62656-3

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IEC 62656-3:2015-02(en-fr)

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Enregistrement d'ontologie de produits normalisés et transfert par tableurs – Partie 3: Interface pour un modèle d'information commun

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONTENTS

FOREWORD 7
INTRODUCTION 9
1 Scope 10
2 Normative references 10
3 Terms, definitions and abbreviations 11
3.1 Terms and definitions 11
3.2 Abbreviations 13
4 Generic rules and principles for the design of CIM interface 13
4.1 Comparative analysis of the structures and functionalities of POM and CIM 13
4.2 CIM standard series 14
5 Rules of transformation from CIM to POM 15
5.1 General rules 15
5.2 CIM Class 16
5.2.1 General 16
5.2.2 Name 17
5.2.3 Description 17
5.2.4 Generalization-specialization 17
5.3 CIM class attributes 18
5.3.1 General 18
5.3.2 Name 18
5.3.3 Native attribute 18
5.3.4 Type 18
5.3.5 Description 18
5.4 CIM association 19
5.4.1 General 19
5.4.2 CIM association end structure 19
5.4.3 General transformation rule for association 20
5.4.4 General transformation rule for association end 20
5.5 CIM Enumeration class 24
5.5.1 General 24
5.5.2 Name 25
5.5.3 Description 25
5.6 CIM Enumeration Attribute 25
5.6.1 General 25
5.6.2 Name 25
5.6.3 Description 25
5.7 Data type 26
5.7.1 CIM basic datatype 26
5.7.2 CIM named data types 26
5.8 Package 28
5.8.1 General 28
5.8.2 POM relation object 30
5.8.3 CIM packages described in POM relation 31
6 CIM description in IEC 62656 format 33
6.1 General 33
6.2 Class 34

This is a free page sample. Access the full version online.

6.2.1 General 34
6.2.2 Code 34
6.2.3 Version number 34
6.2.4 Revision number 35
6.2.5 Date of original definition 35
6.2.6 Date of current version 35
6.2.7 Preferred name 35
6.2.8 Short name 36
6.2.9 Definition 36
6.2.10 Note 36
6.2.11 Superclass 36
6.2.12 Class type 37
6.2.13 Alternate ID 37
6.2.14 CIM package 37
6.2.15 Applicable properties 38
6.3 Property 38
6.3.1 General 38
6.3.2 Property data element type 38
6.3.3 Definition class 38
6.3.4 Data type 39
6.3.5 Applicable relations 39
6.3.6 Condition 39
6.3.7 Unit in text 39
6.3.8 Alternative units 40
6.4 Data type 40
6.4.1 General 40
6.4.2 Definition class 40
6.4.3 Unit in text 40
6.4.4 Alternative units 41
6.4.5 Data type 41
6.5 Enumeration 41
6.5.1 General 41
6.5.2 Definition class 41
6.5.3 Enumerated list of terms 41
6.5.4 Enumerate code list 42
6.6 Term meta-class 42
6.6.1 General 42
6.6.2 Preferred letter symbol in text 42
6.7 Relation 42
6.7.1 General 42
6.7.2 Relation type 43
6.7.3 Domain of the relation 43
6.7.4 Domain of the function 43
6.7.5 Codomain of the function 43
6.7.6 Domain element type 44
6.7.7 Role of the relation 44
7 XML schema for updated CIM instances in IEC CDD 44
7.1 General 44
7.2 Principles 45

This is a free page sample. Access the full version online.

8 Version control mechanism in POM for the parcellized CIM 46
Annex A (normative) Mapping rules from CIM to POM – Mapping rules described in POM relation meta-class 47
Annex B (normative) CIM in IEC 62656 format – Normative meta-properties of the CIM in IEC 62656 model 56
Annex C (informative) XML Schema for parcellized CIM 63
C.1 XML schema for POM models 63
C.2 XML schema for a class 63
C.2.1 General 63
C.2.2 class.xsd 63
C.2.3 class1.xsd 64
C.2.4 class2.xsd 64
C.2.5 class3.xsd 64
C.2.6 class4.xsd 65
C.3 XML schema for a property 65
C.3.1 General 65
C.3.2 property.xsd 65
C.3.3 property1.xsd 66
C.3.4 property2.xsd 66
C.3.5 property3.xsd 67
C.3.6 property4.xsd 67
C.4 XML schema for a property derived from an association end 68
C.4.1 General 68
C.4.2 association.xsd 68
C.4.3 association1.xsd 68
C.4.4 association2.xsd 69
C.4.5 association3.xsd 70
C.4.6 association4.xsd 70
C.5 XML schema for a data type 70
C.5.1 General 70
C.5.2 datatype.xsd 71
C.5.3 datatype1.xsd 71
C.5.4 datatype2.xsd 71
C.5.5 datatype3.xsd 72
C.5.6 datatype4.xsd 72
C.6 XML schema for an enumeration and its enumerators 73
C.6.1 General 73
C.6.2 enum_term.xsd 73
C.6.3 enum_term1.xsd 73
C.6.4 enum_term2.xsd 74
C.6.5 enum_term3.xsd 74
C.6.6 enum_term4.xsd 75
C.7 XML schema for a CIM package 75
C.7.1 General 75
C.7.2 package.xsd example 75
C.7.3 package1.xsd example 76
C.7.4 package2.xsd example 76
C.7.5 package3.xsd example 76
C.7.6 package4.xsd example 77

This is a free page sample. Access the full version online.

Annex D (informative) XML examples for parcellized CIM 78
D.1 XML example for a CIM class with extended attributes 78
D.2 XML example for a property with extended attributes 78
D.3 XML example for a CIM association and aggregation with extended attributes 79
D.4 XML example for a CIM data type with extended attributes 81
D.5 XML example for a CIM enumeration and its enumerators with extended attributes 81
D.6 XML example for a CIM package with extended attributes 82
Annex E (informative) Property reference between CIM and IEC CDD – “Power transformer” definitions in both IEC CDD and CIM 84
Annex F (informative) Four Layer architecture of UML and POM – Four layer architecture of MOF (meta object facility) 87
Annex G (informative) POM Relation usage in IEC 62656-3 88
G.1 General 88
G.2 Meta-model mapping rules between UML and POM(M2) 88
G.3 UML Association(M1) 88
G.4 Model level relation definition(M1) 88
Annex H (informative) Parcellized CIM files access – URL for the parcellized CIM files 89
Bibliography 90

Figure 1 – CIM generalization example (from Figure 2 of IEC 61970-301:2013) 17
Figure 2 – Simple association example (from Figure 3 of IEC 61970-301:2013) 21
Figure 3 – Aggregation example (from Figure 4 of IEC 61970-301:2013) 21
Figure 4 – Property data element type definition 23
Figure 5 – CIM package example (from Figure 1 of IEC 61970-301:2013) 30
Figure 6 – POM relation model explanation in UML 31
Figure 7 – Class instances of parcellized CIM 45
Figure 8 – Conceptual reference mechanism with ID in POM 46

Table 1 – Mapping of CIM objects and POM objects 15
Table 2 – Correspondence between a CIM class in UML and a POM class 17
Table 3 – Mapping of CIM class attribute and POM property 18
Table 4 – CIM association end structure 19
Table 5 –CIM associations defined as POM relations 20
Table 6 – Mapping of CIM association end and POM property 21
Table 7 – CIM association ends described as POM properties 22
Table 8 – Mapping of CIM enumeration and POM enumeration 25
Table 9 – Mapping of CIM enumeration attribute and POM term 25
Table 10 – Mapping of CIM basic data type and POM simple data type 26
Table 11 – Mapping of CIM data type and a named data type in POM 27
Table 12 – Mapping of CIM package and POM relation 29
Table 13 – CIM package described as POM relation 32
Table A.1 – Mapping rule from CIM class to POM class 48
Table A.2 – Mapping rule from CIM class attribute to POM property 49
Table A.3 – Mapping rule from CIM association to POM relation 50

This is a free page sample. Access the full version online.

Table A.4 – Mapping rule from CIM association end to POM property 51
Table A.5 – Mapping rule between CIM enumeration and POM enumeration 52
Table A.6 – Mapping rule between CIM enumeration attribute and POM term 52
Table A.7 – Mapping rule between CIM data type and POM data type 53
Table A.8 – Mapping rule between CIM Package and POM relation 54
Table A.9 – Mapping rule from POM property to CIM aggregation/association/class attribute 55
Table B.1 – Meta-properties for class meta-class 57
Table B.2 – Meta-properties for property meta-class 58
Table B.3 –Meta-properties for datatype meta-class 59
Table B.4 – Meta-properties for enumeration meta-class 60
Table B.5 – Meta-properties for term meta-class 61
Table B.6 – Meta-properties for relation meta-class 62
Table C.1 – POM models and XML schemas 63
Table E.1 – Native properties of Power transformer class in the IEC CDD 85
Table E.2 – Native properties of Power transformer class in IEC 61970-301:2013 86

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STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 3: Interface for Common Information Model

FOREWORD

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International Standard IEC 62656-3 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 standard is based on the following documents:

FDIS	Report on voting
3D/234/FDIS	3D/245/RVD

Full information on the voting for the approval of this standard 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.

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A list of all parts in the IEC 62656 series, published 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 website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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INTRODUCTION

The IEC 62656 series, *Standardized product ontology register and transfer by spreadsheets* is a series of International standards that collectively define the methods for transferring and registering the ontologies of various products and services to and from the ontology registries and applications based on IEC 61360 / ISO13584 common data dictionary model. The IEC common data dictionary, or IEC CDD for short, is one of such registries maintained online as an IEC 61360-4 International Standard based on IEC database procedure stipulated in ISO/IEC Directives Supplement – Procedures specific to IEC. The IEC CDD is a cross-domain data dictionary covering all electro-technical products and services, maintained and updated through a database administered by IEC Central Office.

The common information model originally defined in IEC 61968 and IEC 61970 series of standards, often called by its short name “CIM” provides a standard way to represent all the major objects in an electric utility enterprise typically needed to model the operational aspects of a utility. This model includes public classes and attributes for these objects, as well as the relationships between them. It is known as an information model for energy management system (EMS) of power grids and currently is recognized as a standard ontology model for smart grids. An ontology specification conformant to the CIM data model is available in UML format according to IEC 61970-301, and in RDF format according to IEC 61970-501.

The IEC 62656 series consists of the following parts, under the general title *Standardized product ontology transfer and register by spreadsheets*:

– Part 1: Logical structure for data parcels;

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

– Part 3: Interface for common information model.

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STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 3: Interface for Common Information Model

1 Scope

This part of IEC 62656 specifies an interface between IEC 62656 series and meta-model for CIM originally defined in IEC 61968 and IEC 61970 series of standards. The current CIM includes IEC 62325 series and the interface specified in this part of IEC 62656 also applies to the model defined in IEC 62325-301:2014. More specifically, this standard defines a formal mapping between the IEC 62656 and meta-model for CIM in order to import the CIM ontology into the IEC CDD, and to ensure the interoperability of ontologies of two standards, or even among a wider spectrum of standards. For the basis of the mapping from CIM to the data model defined in IEC 62656-1, the UML representation of CIM is referenced.

As a result of the interface specification available from this part of IEC 62656, the smart grid ontology defined in CIM becomes accessible and interoperable in the midst of ontology pieces originating in other ontology standards, encompassing material, environmental, and mechanical, and logistic domains of information. In addition, the specification may also cover the lifecycle of products.

This part of IEC 62656 also defines methods for transforming the IEC CDD content into the format defined in IEC 61968 and IEC 61970 series. However, this standard does not intend any standardization of the elements defined in IEC CDD as part of the CIM ontology, for all the definitions of IEC CDD are already part of an acknowledged horizontal International Standard known as IEC 61360-4-DB. Rather it makes the pieces of information stored in IEC CDD available for further standardization or customization in power electric domains or more specific user communities as a basic resource, in particular for the purpose of extending the CIM series of standards.

The data model of this part is based on IEC 62656-1 which specifies the logical structure for a data parcel, or just simply “parcel,” that is a short name for the medium of registering or transferring of product ontology. Such a parcel may be typically implemented in a leaf of a spreadsheet. The data model built on a set of parcels is called “parcellized ontology model”, which is often abbreviated as “POM” in the remainder of this document.

This part of IEC 62656 specifies:

- the mapping rules and principles for importing CIM UML objects into POM;
- the syntactic and semantic requirements on the parcellized CIM objects;
- the piecewise version control mechanism in POM for the parcellized CIM objects.

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

- definition of the interface between CIM UML and CIM RDF;
- specification of syntactic and semantic requirements on CIM UML;
- specification of syntactic and semantic requirements on CIM RDF.

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

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