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**Management von Systemen der Energietechnik und zugehöriger
Datenaustausch –
Langfristige Interoperabilität –
Teil 100: Abbilden von CIM-Profilen auf XML-Schemen
(IEC 62361-100:2016);
Englische Fassung EN 62361-100:2016**

Power systems management and associated information exchange –
Interoperability in the long term –
Part 100: CIM profiles to XML schema mapping
(IEC 62361-100:2016);
English version EN 62361-100:2016

Gestion des systèmes de puissance et échanges d'informations associés –
Interopérabilité à long terme –
Partie 100: Mapping des profils CIM avec le schéma XML
(IEC 62361-100:2016);
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Anwendungsbeginn

Anwendungsbeginn für die von CENELEC am 2016-07-20 angenommene Europäische Norm als DIN-Norm ist 2017-10-01.

Nationales Vorwort

Vorausgegangener Norm-Entwurf: E DIN EN 62361-100:2013-04.

Für dieses Dokument ist das nationale Arbeitsgremium K 952 „Netzleittechnik“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE (www.dke.de) zuständig.

Die enthaltene IEC-Publikation wurde vom TC 57 „Power systems management and associated information exchange“ erarbeitet.

Das IEC-Komitee hat entschieden, dass der Inhalt dieser Publikation bis zu dem Datum (stability date) unverändert bleiben soll, das auf der IEC-Website unter „<http://webstore.iec.ch>“ zu dieser Publikation angegeben ist. Zu diesem Zeitpunkt wird entsprechend der Entscheidung des Komitees die Publikation

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Der Zusammenhang der zitierten Dokumente mit den entsprechenden Deutschen Dokumenten ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Das Präsidium des DIN hat mit Präsidialbeschluss 1/2004 festgelegt, dass DIN-Normen, deren Inhalt sich auf internationale Arbeitsergebnisse der Informationsverarbeitung gründet, unter bestimmten Bedingungen allein in englischer Sprache veröffentlicht werden dürfen. Diese Bedingungen sind für die vorliegende Norm erfüllt.

Da sich die Anwender der vorliegenden Norm der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der EN 62361-100 veröffentlicht. Zu deren Einleitung, deren Abschnitt 1, der den Anwendungsbereich festlegt, und deren Abschnitt 3, der die Begriffe festlegt, wurde eine Übersetzung angefertigt und als Nationaler Anhang NA der vorliegenden Norm hinzugefügt. Für einige der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Diese Norm steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

Nationaler Anhang NA (informativ)

Auszugsweise Übersetzung^{N1)}

Einleitung

Die Reihe der IEC 62361 definiert Normen, die Interessensgebiete berühren, welche Auswirkungen auf mehrere Normen haben, und Konsistenz bei der Umsetzung Implementierungen ermöglichen.

Dieser Teil der Reihe der IEC 62361 beschreibt die Abbildung von CIM-Profilen auf W3C-XML-Schemata und definiert Regeln, denen Nutzlasten von CIM-XML-Nachrichten entsprechen müssen.

Das Hauptziel dieses Teil der IEC 62361 liegt in der Vereinfachung des Informationsaustausches in Form von XML-Dokumenten, deren Semantik durch das IEC CIM definiert ist und deren Syntax durch ein W3C-XML-Schema definiert ist. Dadurch wird die Integration aller Anwendungen vereinfacht, die die Nutzlasten von XML-Schema-Nachrichten verwenden, welche von den WGs entwickelt und von unterschiedlichen Anbietern unabhängig voneinander in den jeweiligen Systemen implementiert umgesetzt wurden.

Das allgemeine Informationsmodell (CIM) (en: Common Information Modell) legt die Grundlage für die Semantik von durch IEC definierten Austauschen von Nachrichten-Nutzlasten fest. Die Profilspezifikationen, die in anderen Teilen der Reihe der IEC 62361 enthalten sind, legen den Inhalt der ausgetauschten Nachrichten-Nutzlasten fest. Das Format/die Syntax dieser Nutzlasten wird in diesem Teil der IEC 62361 festgelegt.

^{N1)} Nationale Fußnote: Die Nummerierung aus IEC 62361-100:2016 wurde beibehalten.

1 Anwendungsbereich

Dieser Teil der IEC 62361 beschreibt eine Abbildung von CIM-Profilen auf W3C-XML-Schemata.

Das Hauptziel dieser Abbildung liegt in der Vereinfachung des Informationsaustausches in Form von XML-Dokumenten, deren Semantiken durch das IEC CIM definiert sind und deren Syntax durch ein W3C-XML-Schema definiert ist.

2 Normative Verweisungen

Die folgenden Dokumente, die in diesem Dokument teilweise oder als Ganzes zitiert werden, sind für die Anwendung dieses Dokuments erforderlich. Bei datierten Verweisungen gilt nur die in Bezug genommene Ausgabe. Bei undatierten Verweisungen gilt die letzte Ausgabe des in Bezug genommenen Dokuments (einschließlich aller Änderungen).

IEC 61968-11, *Application integration at electric utilities – System interfaces for distribution management – Part 11: Common information model (CIM) extensions for distribution*

IEC TS 61970-2, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

IEC 61970-301, *Energy management system application program interface (EMS-API) – Part 301: Common information model (CIM) base*

IEC 62325-301, *Framework for energy market communications – Part 301: Common information model (CIM) extensions for markets*

IEC 62325-450:2013, *Framework for energy market communications – Part 450: Profile and context modelling rules*

XML-Schema Part 1: Structures Second Edition W3C Recommendation 28 October 2004

IETF RFC 3986 Uniform Resource Identifier (URI): Generic Syntax January 2005

Semantic Annotations for WSDL and XML Schema W3C Recommendation 28 August 2007

3 Begriffe

Für die Anwendung dieses Dokuments gelten die Begriffe nach IEC TS 61970-2 und die folgenden Begriffe.

ANMERKUNG Allgemeine Begriffe sind dem International Electrotechnical Vocabulary, IEC 60050, zu entnehmen.

3.1

Artefakt

(en: artefact)

Element eines Modells, das Objekte einer gegebenen Domäne und deren Merkmale darstellt

3.2

kanonisches Modell

(en: canonical model)

abstraktes Modell, das die wichtigsten Objekte einer gegebenen Domäne (Energie, Elektrizität, ...) mit Artefakten darstellt

3.3**allgemeines Informationsmodell**

(en: common information model)

CIM

kanonisches Modell (abstraktes Modell), das die wichtigsten Objekte in einem Elektrizitätsversorgungsunternehmen wiedergibt, die üblicherweise für die Modellierung der den Betrieb betreffenden Aspekte eines Unternehmens benötigt werden

Anmerkung 1 zum Begriff: CIM wird in den Reihen IEC 61968, IEC 61970 und IEC 62325 definiert.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.4**kontextuelles Modell**

(en: contextual model)

eingeschränkte Teilmenge von CIM-Artefakten

3.5**erweiterbare Auszeichnungssprache**

(en: extensible markup language)

XML

Auszeichnungssprache, die einen Regelsatz zur Kodierung von Dokumenten definiert in einem Format, das sowohl für Menschen als auch für Maschinen lesbar ist

Anmerkung 1 zum Begriff: Diese wird in der von dem World Wide Web Consortium (W3C) erstellten XML-Spezifikation definiert.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.6**Profil**

(en: profile)

eindeutig benannte Teilmenge von CIM-Klassen, -Beziehungen und -Attributen, die benötigt wird, um einen speziellen Schnittstellentyp zu definieren

Anmerkung 1 zum Begriff: Ein Profil, wie in diesem Dokument verwendet, ist in der IEC 62325-450:2013 und der IEC 62361-101¹⁾ festgelegt.

3.7**Ressourcen-Beschreibungsformat**

(en: resource description format)

RDF

Familie von Spezifikationen des World Wide Web Consortium (W3C), die ursprünglich als Datenmodell für Metadaten entwickelt wurde

Anmerkung 1 zum Begriff: Diese Benennung wird mittlerweile als allgemeines Verfahren zur konzeptuellen Beschreibung oder Modellierung von in Webressourcen eingebetteten Informationen mittels unterschiedlicher Syntaxformate verwendet.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.8**semantische Annotation für WSDL- und XML-Schema**

(en: semantic annotation for WSDL and XML Schema)

SAWSDL

Menge von erweiterbaren Attributen für die Webdienste-Definitionssprache (WSDL) (en: Web Services Description Language) und die XML-Schema-Definitionssprache

¹⁾ In Beratung.

Anmerkung 1 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.9

einheitliche Modellierungssprache

(en: unified modelling language)

UML

formal und umfassend beschreibende Sprache mit Diagrammtechniken zur Darstellung von Software-Systemen von der Anforderungsanalyse über Auslegung und Umsetzung Implementierung bis zur Dokumentation

Anmerkung 1 zum Begriff: UML ist ein von der Object Management Group (OMG) definierter Standard. UML wird für die Beschreibung von CIM verwendet.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.10

einheitlicher Bezeichner für Ressourcen

(en: uniform resource indicator)

URI

Zeichenkette, die der Identifizierung eines Namens oder einer Ressource dient und die Interaktion mit Darstellungen der Ressource über ein Netzwerk (typischerweise das World Wide Web) unter Verwendung spezieller Protokolle ermöglicht

Anmerkung 1 zum Begriff: Jeder URI wird von Schemata, die eine konkrete Syntax festlegen, und zugehörigen Protokollen definiert.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

3.11

XML-Schema

Familie von Spezifikationen des World Wide Web Consortium (W3C), die zur Definition von Struktur, Inhalt und Bedeutung von XML-Dateien verwendet wird

Anmerkung 1 zum Begriff: XML-Schemata sind in der Regel in Dateien mit einer „xsd“-Erweiterung zu finden. xsd-Dateien werden für die Definition von Nachrichten zwischen Anwendungsprogrammen verwendet.

3.12

Web-Ontologiesprache

(en: web ontology language)

OWL

Familie von Wissensdarstellungs-Sprachen für Autoren-Ontologien zur Erstellung, die sich durch eine formale Semantik und RDF-/XML-basierte Fortsetzung Serialisierung für das semantische Web auszeichnet

Anmerkung 1 zum Begriff: Die OWL wird vom World Wide Web Consortium (W3C) unterstützt.

Anmerkung 2 zum Begriff: Diese Anmerkung gilt nur für die französische Sprache.

English Version

**Power systems management and associated information
exchange – Interoperability in the long term –
Part 100: CIM profiles to XML schema mapping
(IEC 62361-100:2016)**

Gestion des systèmes de puissance et échanges
d'informations associés – Interopérabilité à long terme –
Partie 100: Mapping des profils CIM avec le schéma XML
(IEC 62361-100:2016)

Management von Systemen der Energietechnik und
zugehöriger Datenaustausch – Langfristige Interoperabilität –
Teil 100: Abbilden von CIM-Profilen auf XML-Schemata
(IEC 62361-100:2016)

This European Standard was approved by CENELEC on 2016-07-20. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 57/1704/FDIS, future edition 1 of IEC 62361-100, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62361-100:2016.

The following dates are 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) 2017-04-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-07-20

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 62361-100:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61968	NOTE	Harmonized in EN 61968 series.
IEC 62325	NOTE	Harmonized in EN 62325 series.

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INTRODUCTION

The IEC 62361 series defines standards which address areas of interest that impact multiple standards and provide consistency for implementations.

This part of the IEC 62361 series describes a mapping from CIM profiles to W3C XML Schemas and defines the rules that CIM XML message payloads shall adhere to.

The principle objective of this part of IEC 62361 is to facilitate the exchange of information in the form of XML documents whose semantics are defined by the IEC CIM and whose syntax is defined by a W3C XML schema. This will facilitate the integration of all applications that use the XML Schema message payloads developed by the WGs and implemented independently by different vendors into their systems.

The common information model (CIM) specifies the basis for the semantics for message payload exchanges defined by the IEC. The profile specifications, which are contained in other parts of the IEC 62361 series, specify the content of the message payloads exchanged. The format/syntax of those payloads is specified in this part of IEC 62361.

POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE – INTEROPERABILITY IN THE LONG TERM –

Part 100: CIM profiles to XML schema mapping

1 Scope

This part of IEC 62361 describes a mapping from CIM profiles to W3C XML Schemas.

The purpose of this mapping is to facilitate the exchange of information in the form of XML documents whose semantics are defined by the IEC CIM and whose syntax is defined by a W3C XML schema.

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 61968-11, *Application integration at electric utilities – System interfaces for distribution management – Part 11: Common information model (CIM) extensions for distribution*

IEC TS 61970-2, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

IEC 61970-301, *Energy management system application program interface (EMS-API) – Part 301: Common information model (CIM) base*

IEC 62325-301, *Framework for energy market communications – Part 301: Common information model (CIM) extensions for markets*

IEC 62325-450:2013, *Framework for energy market communications – Part 450: Profile and context modelling rules*

XML Schema Part 1: Structures Second Edition W3C Recommendation 28 October 2004

IETF RFC 3986 Uniform Resource Identifier (URI): Generic Syntax January 2005

Semantic Annotations for WSDL and XML Schema W3C Recommendation 28 August 2007

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC TS 61970-2 apply, as well as the following.

NOTE Refer to the International Electrotechnical Vocabulary, IEC 60050, for general glossary definitions.

3.1

artefact

element of a model that represents objects of a given domain and their characteristics

3.2

canonical model

abstract model that represents all the major objects of a given domain (energy, electricity...) with artefacts

3.3

common information model

CIM

canonical model (abstract model) that represents all the major objects in an electric utility enterprise typically needed to model the operational aspects of a utility

Note 1 to entry: CIM is defined in the IEC 61968, IEC 61970 and IEC 62325 series.

Note 2 to entry: This note applies to the French language only.

3.4

contextual model

restricted subset of CIM artefacts

3.5

extensible markup language

XML

markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable

Note 1 to entry: This is defined in the XML Specification produced by the World Wide Web Consortium (W3C).

Note 2 to entry: This note applies to the French language only.

3.6

profile

uniquely named subset of CIM classes, associations and attributes needed to accomplish a specific type of interface

Note 1 to entry: A profile, as used in this document, is defined in IEC 62325-450:2013 and IEC 62361-101¹.

3.7

resource description format

RDF

family of World Wide Web Consortium (W3C) specifications originally designed as a metadata data model

Note 1 to entry: This term has come to be used as a general method for conceptual description or modelling of information that is implemented in web resources, using a variety of syntax formats.

Note 2 to entry: This note applies to the French language only.

3.8

semantic annotation for WSDL and XML Schema

SAWSDL

set of extension attributes for the Web Services Description Language (WSDL) and XML Schema definition language

Note 1 to entry: This note applies to the French language only.

¹ Under consideration.

3.9 unified modelling language UML

formal and comprehensive descriptive language with diagramming techniques used to represent software systems, from requirements analysis, through design and implementation, to documentation

Note 1 to entry: UML is a standard defined by the Object Management Group (OMG). UML is used to describe CIM.

Note 2 to entry: This note applies to the French language only.

3.10 uniform resource indicator URI

string of characters used to identify a name or a resource, enabling interaction with representations of the resource over a network (typically the World Wide Web) using specific protocols

Note 1 to entry: Schemes specifying a concrete syntax and associated protocols define each URI.

Note 2 to entry: This note applies to the French language only.

3.11 XML Schema

family of World Wide Web Consortium (W3C) specifications, used to define the structure, content, and semantics of eXtensible Markup Language (XML) files

Note 1 to entry: XML Schemas are generally found in files with an "xsd" extension. XSD files are used to define inter-application messages.

3.12 Web Ontology Language OWL

family of knowledge representation languages for authoring ontologies, characterised by formal semantics and RDF/XML-based serializations for the Semantic Web

Note 1 to entry: OWL is endorsed by the World Wide Web Consortium (W3C).

Note 2 to entry: This note applies to the French language only.

4 System context

4.1 Profiling process

The profiling process aim is to define a syntactic model that will govern instance data that are exchanged in a given business context and whose semantic is defined by a canonical model (like CIM). The profiling process is in simple form a two steps process:

- Defining a contextual model that is a subset of the canonical model (subset that could include some restrictions). In this document, there is no assumption about the rules that are used to complete this step, but the contextual model artefacts are described in Table 1.
- Generating a syntactic model in the form of an XML Schema with a defined mapping of contextual model artefacts: this is the purpose of this standard IEC 62361-100.

IEC 62361-100 defines how a contextual model artefact is mapped to XML Schema artefacts (like element, simple and complex types). It does not define a mapping from canonical model artefacts to XML Schema ones, but it keeps the fact that there is relation between these two artefacts.

4.2 CIM

CIM is a canonical model that represents 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. Classes, attributes, relationships and attribute types like "Primitive", "enumeration", "CIMdatatype" and "Compound" are the main CIM artefacts.

CIM is defined by IEC standards IEC 61968-11, IEC 61970-301 and IEC 62325-301.

The CIM may be augmented with project or application-specific extensions. In that case, the references to the CIM in this subclause can be read as CIM with extensions.

4.3 Contextual model

The concept of a contextual model is borrowed from the UN/CEFACT modelling approach and may be used in CIM standards formation. The contextual model may be any one of several formats including OWL or a UML subset package.

No specific contextual modelling language is assumed by this specification. However, the artefacts defined in Table 1 are used in this document when referring to the contextual model and are assumed to be capable of expression in whichever language is used.

The mapping specifications (see Clause 5) apply to these contextual model artefacts which could be represented in a number of languages. Two possible representations are given in the appendices.

4.4 Contextual model artefacts

4.4.1 Contextual model artefacts and CIM subset

In Table 1, contextual artefacts are defined in relation to CIM artefacts. Here, the term subset is used: a contextual artefact is a subset of some CIM artefact. Subset means that a contextual artefact could have the same characteristics as its CIM counterpart or a subset of these characteristics. Examples:

- "IdentifiedObject" class in CIM has four attributes ("mRID", "aliasName", "name" and "description") and one association "Names", i.e. its characteristics. "IdentifiedObject" **structured class** in contextual model could have the same characteristics as its CIM counterpart or just some of them: so "IdentifiedObject" contextual artefact is defined as a subset of "IdentifiedObject" CIM artefact.
- "name" attribute of CIM "IdentifiedObject" class has two characteristics: a cardinality that is optional and a type that is a string. In contextual model, "name" **simple property** of "IdentifiedObject" **structured class** could have the same characteristics as its CIM counterpart or some more restricted ones: example, cardinality of "name" could be restricted to mandatory and/or string length could be defined. So "name" contextual artefact is defined as a subset of "name" CIM artefact.
- "Names" association end role name of CIM "IdentifiedObject" has one characteristic: a cardinality that is 0 to many. In contextual model, "Names" **object property** of "IdentifiedObject" **structured class** could have the same characteristic as its CIM counterpart or a more restricted one: example, cardinality of "Names" could be restricted to 1 or 1 to many. So "Names" contextual artefact is defined as a subset of "Names" CIM artefact.

4.4.2 Contextual model artefacts definition

Contextual model artefacts are listed and defined in Table 1.

Table 1 – Contextual model artefacts

Contextual model artefact	Definition
Structured class	subset of a CIM class not stereotyped with "enumeration", "Primitive", "CIMDatatype" or "Compound". A structured class may have zero or more object properties, compound properties and simple properties. Any subclass of a structured class is also a structured class.
Superclass	relative to a given structured class, a more general structured class whose extent is a superset of the given structured class.
Subclass	relative to a given structured class, a more specific structured class whose extent is a subset of the given structured class.
Root class	structured class that may have standalone instances which are not the referent of any object property. A contextual model may assign cardinality bounds to a root class limiting the number of standalone instances that may occur.
Union class	subset of a non-stereotyped CIM superclass defined as a union of (some of) its subclasses. Each member of the union is defined as a structured class. Each of these is a subclass of a single, given CIM class. An instance of a union is an instance of one of its constituent structured classes. Example: in CIM, "RegisteredResource" is a super class of "RegisteredLoad", "RegisteredTie" and "RegisteredGenerator". In contextual model, "RegisteredResource" could be a super class of some of these subclasses. When defined as a union, "RegisteredResource" defined the set of the subclasses ("RegisteredLoad", "RegisteredTie"...) that are going to be used as the referent classes for the "RegisteredResource" object property that in this case will be a union object property (see below). Note: this feature is used to get all the elements representing subclasses instances in a random order.
Compound class	subset of a CIM class defined as "Compound" with additional restrictions. An instance of a compound class is a structured value. It has one or more properties, but it has no identity distinct from the combination of its property values.
Basic type	CIM class defined as a "Primitive" (include "Integer", "Decimal", "Boolean", "Duration", "DateTime", "Date", "Time", "Float", "String"). A subset of the CIM "Float" class defined as a "Primitive" and marked as "Single" or "Double" precision. A subset of the CIM "String" class defined as a "Primitive" and marked as "normalized", "token", "NMTOKEN", "Name", "NCName" and "anyURI". A basic type may be used directly in a contextual model without further definition. The value range of each basic type is assumed to be that of the XML Schema Part II Datatype integer, decimal, boolean, duration, datetime, date, time, float, double, string, normalizedString, token, NMTOKEN, Name, NCName and anyURI respectively.
Simple type	subset of a CIM class defined as "Primitive" with additional restrictions. As defined above, the value range of such a CIM class is assumed to be one of the XML Schema Part II datatypes defined above. The additional restrictions narrow this value range by defining one or more facets for that datatype (example: "TwentyFourChar_String" is a string whose maximum length is 24 characters). A simple type instance does not have simple properties or object properties and has no identity distinct from its value.