ENTSO-E Common information model (CIM) European style market profile User guide

2017-01-03

VERSION 3.0
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## Revision History

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INTRODUCTION

This document describes the way to develop UML (Unified Modelling Language) models based on IEC 62325-450 methodology in the context of the European style market profile. This document is to be applied for the development of EDI documents supporting automation of business processes related to the European internal electricity market.

1 Scope

The objective of this guide is to enable a person to work based on the common information model (CIM, IEC 61968-11, IEC 61970-301 and IEC 62325-301) and in particular

- to enrich the European style market profile (IEC 62325-351);
- to develop new business processes within the IEC 62325-451-n series for international standardization purpose or a specific business process complying with the IEC 62325-450 methodology.

The pre-requisites for this guide are the following ones:

- The person shall have some knowledge about UML modeling.
- The person shall have the Enterprise Architect version 10 or later from Sparx System on its computer.
- The person shall have some knowledge about XML (RDF).
- The person shall have the plugins CIMContextor and CIMSyntaxgen installed (these are available on the ENTSO-E Extranet web site).
- The person shall have the latest version of the iecesmp.dotm macro to generate the documentation (this is available on the ENTSO-E Extranet web site).
- The person shall have the latest merged CIM model (this is available on the ENTSO-E Extranet web site).
- The person shall be acquainted with the CIM, either by buying the IEC international standards or using the draft versions from the ENTSO-E Extranet web site.
- The person shall be acquainted with the ENTSO-E business processes for the market.

Note: all the information and files are available on the ENTSO-E Extranet web site in the WG EDI section. The ENTSO-E Extranet web site is only for ENTSO-E members and access is password protected. IEC international standards are copyrighted protected and thus they are only available from IEC webstore site, CEN/CENELEC site or National standardization organization.

All the work hereafter described could be made without tools such as CIMContextor and CIMSyntaxgen; however, in such a case respect of the IEC 62325-450 rules as well as the IEC 62361-100 ones are the responsibility of the user. The use of tools such as CIMContextor and CIMSyntaxgen are only to speed up the process of generating UML document profiles, XML schema and documentation.

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 62325-301, Framework for energy market communications – Part 301: Common information model (CIM) extensions for markets.
3 Terms and definitions

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

3.1 aggregate business information entity

ABIE

re-use of an aggregate core component (ACC) in a specified business

3.2 aggregate core component

ACC

collection of related pieces of business information that together convey a distinct business meaning, independent of any specific business context

Note 1 to entry: Expressed in modelling terms, this is the representation of an object class, independent of any specific business context.


3.3 application program interface

API

set of public functions provided by an executable application component for use by other executable application components


3.4 based on

IsBasedOn

use of an artefact that has been restricted according to the requirements of a specific business context

[SOURCE IEC 62325-450:2013, 3.4]

3.5 business context

specific business circumstance as identified by the values of a set of context categories, allowing different business circumstances to be uniquely distinguished


3.6 core component

CC

building block for the creation of a semantically correct and meaningful information exchange package. It contains only the information pieces necessary to describe a specific concept.

[SOURCE: UN/CEFACT Core component technical specification – Part 8 of the ebXML framework, version 2.01 2003 ]

3.7 information model

information model is a representation of concepts, relationships, constraints, rules, and operations to specify data semantics for a chosen domain of discourse

Note 1 to entry: It can provide shareable, stable, and organized structure of information requirements for the domain context.
3.8 Internal European market

IEM

Market of any commodity, service, etc. within the European Community

Note 1 to entry: In particular, European Directives and Regulation are defining the energy IEM.

3.9 Market management system

MMS

computer system comprised of a software platform providing basic support services and a set

of applications that provide the functionality needed for the effective management of the

electricity market

Note 1 to entry: These software systems in an electricity market may include support for capacity allocation,

scheduling energy, ancillary or other services, real-time operations and settlements.

3.10 Message business information entity

MBIE

Re-use of an aggregate business information entity (ABIE) in a specific document.

3.11 Profile

Basic outline of all the information that is required to satisfy a specific environment

4 Basic concepts

4.1 Overview of the modelling methodology

IEC 62325-450 enables to generate a set of CIM profiles that follows a layered modelling

framework as outlined in Figure 1 going from the common information model (CIM), to

different regional contextual models and their subsequent contextualized documents for

information exchange; the final step being the message specifications for information

interchange.

![Figure 1 – IEC 623235-450 modelling framework](image-url)
The regional contextual model contains the basic core components that are necessary to build electronic documents for information interchange. This is defined in the European style market contextual model (IEC 62325-351). These core components are also termed aggregate core components (ACCs).

A document contextual model is based upon a specific business requirements specification and is constructed from the contextualisation of the ACCs that can be found in the European style market contextual model. The contextualised ACCs at this stage are called aggregate business information entities (ABIEs). These ABIEs are the constructs that are assembled together into a specific electronic document to satisfy the information requirements outlined in the business requirements specification. The transformation from an ACC to an ABIE shall respect the rules defined in IEC 62325-450.

Once a document contextual model has been built that satisfactorily meets the business requirements, a message assembly model can be automatically generated from it. If necessary specific mapping can take place at this stage to transform the CIM class and attribute names into more market legacy names.

XML schema then may be automatically generated from the message assembly model.

4.2 File name convention

There are two kinds of Enterprise Architect file that can be used:

- The CIM file from the CIM model manager: This file is the result of the merge of the three CIM packages, i.e. IEC 61968-11, IEC 61970-301 and IEC 62325-301. The name of the file is as follows: iec61970cimNN_iec61968cimNN_iec62325cimNN.eap, where NN is a two digit value providing for release and version of each package. As an example, iec61970cim17v04_iec61968cim12v09_iec62325cim03v02 is the CIM file with version 17v04 of IEC 61970-301, version 12v09 of IEC 61968-11 and version 03v02 of IEC 62325-301 (see Figure 2).

- The full European style market profile: This file is the result of the merge of the CIM file with the European style market profile. The name is the concatenation of a date (YYYYMMDD), of the version of IEC 62325-351 and of the name of the CIM file, as an example, 20150209_ESMPv3_iec61970cim17v04_iec61968cim12v09_iec62325cim03v03, i.e. version 3 of the European style market profile (ESMP, IEC 62325-351) with documents models updates up to 2015-02-09 and based on the CIM file with version 17v04 of IEC 62325-301.
61970-301, version 12v09 of IEC 61968-11 and version 03v03 of IEC 62325-301 (see Figure 3).

The CIM with the three main packages:
- IEC 61968-11
- IEC 61970-301
- IEC 62325-301

The European style market profile

The library of all the use cases, workflow, sequence diagrams, etc.

The IEC 62325-351 package including the classes, datatypes and enumerations.

Package of each IEC 62325-451-n International Standard.

The specific ENTSO-E packages (IEC coding scheme, RGCE, etc.) compliant with CIM but not to be set as International Standards.

The new version under development of an IEC standard.

The former version of an IEC standard.

Figure 3 – Full ESMP file content

The “Use Case Library”, see Figure 4, in the “EuropeanStyleMarketProfile” contains only the information related to IEC or CENELEC standards.

Figure 4 – Use Case Library in ESMP package

All the roles used in the use cases, sequence diagrams, workflows, etc. of the ESMP package are described in this “Roles” package.
In the ENTSO-E packages, see Figure 5, there is also a “Use Case Library” package that contains only the specific roles, i.e. only role not existing in the ESMP package, used in use cases, sequence diagrams, workflows, etc. of ENTSO-E business processes. These processes have not been decided to standardise them as IEC or CENELEC standards; but they are 100% CIM compliant as per IEC 62325-450.

4.3 Parameters for Enterprise Architect

4.3.1 Additional stereotypes

As per IEC 62325-450, the European style market profile needs additional UML stereotypes. They are the following ones:

- **ACC**: aggregated core component. This stereotype is used for the classes in the IEC 62325-351 package.
- **ABIE**: aggregated business information entity. This stereotype is used for the classes in the contextual model within an IEC 62325-451-n package.
- **MBIE**: message business information entity. This stereotype is used for the classes generated by CIMContextor in the assembly model within an IEC 62325-451-n package.
- **IsBasedOn**: IsBasedOn dependency. This dependency is the relation when using a class from a “upper level” package (see Figure 1).

These stereotypes are not available in the “standard” Enterprise Architect product.

The following steps are thus to be carried out:

- **Automatic process:**
  a) Download from the ENTSO-E Extranet web site, the file “references_ESMP.xml”.
  b) Download and open the “eap” file containing the project (either a CIM merged file or the complete CIM with European style market profile).
  c) See Figure 6 to select the “Import Reference Data” (in version 12.1, Project\Data Management\Import Reference Data)
d) The following dialog box will open (see Figure 7). Select the location of the “references_ESMP.xml” file, then select “Stereotypes” option and click on “Import”.

e) Then, the following message will be displayed (see Figure 8)
f) Check the successful import (see Figure 9) by clicking on “Settings” and then selecting “UML Types”. The additional stereotypes shall be listed (in version 12.1 Project\Settings\UML Types).

![Check the successful import](image)

**Figure 9 – Import of reference data in Entreprise Architecte 4/4**

- Manual process:
  a) Open the “eap” file containing the project (either a CIM merged file or the complete CIM with European style market profile).
  b) Click on “Settings” and select “UML Types” (see Figure 9). In the dialog window, click on “New” and enter for each stereotype the following information (see Table 1) and then for each stereotype click on “Save”.

<table>
<thead>
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<th>Stereotype</th>
<th>Group name</th>
<th>Base Class</th>
<th>Notes</th>
</tr>
</thead>
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<tr>
<td>ACC</td>
<td>Class</td>
<td></td>
<td>Aggregated core component</td>
</tr>
<tr>
<td>ABIE</td>
<td>Class</td>
<td></td>
<td>Aggregated business info</td>
</tr>
<tr>
<td>MBIE</td>
<td>Class</td>
<td></td>
<td>Message business info</td>
</tr>
<tr>
<td>IsBasedOn</td>
<td>Dependency</td>
<td></td>
<td>IsBasedOn</td>
</tr>
</tbody>
</table>

Table 1 – Stereotype information

With the new edition of Entreprise Architecte (version 12), it is necessary in addition to do the following configuration:

- Select “Extensions” and then in the menu “MDG Technologies”.
- In the panel deselect the items UPPC2 and UPPC3.
- Click OK.

Otherwise, in the description of ACC and ABIE classes additional tags will be automatically added.

**4.3.2 Order of attributes in classes**

In the contextual and assembly models of the European style market profile, the attributes are ordered in a “business oriented” way and not in an alphabetical order. This is of importance.
as the order of attributes in an XML schema is of matter. Thus, the “standard” setting of
Entreprise Architect is to be modified as follows:

a) Click on “Tools” and select “Options…”, the following dialog box open (see Figure 10) and
select “Objects”:

![Figure 10 – Attributes order 1/3](image)

b) Unselect the option “Sort Features Alphabetically” (see Figure 11)

![Figure 11 – Attributes order 2/3](image)
c) And click on close (see Figure 12).

Figure 12 – Attributes order 3/3

4.4 CIMContextor and CIMSyntaxgen plugins

Two plugins are used in order to:

- Develop the regional contextual model, the document contextual and the assembly model; this is done with CIMContextor
- Generate the documentation (IEC standard documentation or ENTSO-E documentation) and the XML schema; this is done with CIMSyntaxgen.

Executables are provided to install these plugins.

At the end of the installation, two configuration files are generated:

- `./user/AppData/Roaming/Zamiren/CimContextor CimContextor-Config.xml`
- `./user/AppData/Roaming/Zamiren/CimSyntaxGen CimSyntaxgen-Config.xml`

It is highly recommended to copy these two files in the same directory as the one that will contain the eap file (see Figure 13).

Figure 13 – CIMContextor and CIMSyntaxgen configuration files

Starting from version 2.2.18 of CIMContextor, a new parameter has been introduced, i.e. NavigationEnabled. This parameter shall be unchecked for the European style market profile. Figure 14 provides the recommended parameters.
In addition, in order to have an appropriate working of CIMContextor and CIMSyntaxgen, to start to work on a given file, it is mandatory to open the ".eap" file by double-clicking on the file name, i.e. it is not recommended to open the ".eap" file through the Entreprise Architect interface. If this recommendation is not followed, then generated files will not be written in the appropriate folders.

The Log.xml file is a file containing all the actions carried out on the eap file.

To check if the installation was successful, click on the "Extensions" to assess that CIMContextor and CIMSyntaxgen are there (see Figure 15).

Figure 14 –CIMContextor configuration file recommended parameters

Figure 15 –CIMContextor and CIMSyntaxgen checking installation

5 European style market package structure

5.1 Overview

Figure 16 describes the main package structure of the European style market profile.
Figure 16 – Overview of European style market profile dependency

For each business process, a business process package is described in an IEC 62325-451-x (x from 1 to n) standard. A business process package contains:

- The document contextual model (ABIE) derived by restriction from the European style market profile.
- The automatically generated message assembly model (MBIE). This message assembly model enables to generate the XML schema of the business document.

The European style market profile (ESMP), as defined in IEC 62325-351, provides the core components that are to be used in an IEC 62325-451-x standard as all ABIEs shall be “based on” the IEC 62325-351 core components.

- ESMPClasses: Defining all the contextual classes of the European style market profile derived by restriction from the CIM model.
- ESMPDataTypes: Defining all the core datatypes used within the ESMP classes.

All the core components that are used in every electronic document structure have been harmonized and centralized in the European style market profile. These core components are consequently the basic building blocks from which all electronic document information entities are derived.

5.2 From the European style market profile to the document contextual model

The document contextual model for a given business process is constructed by an information analyst who identifies all the information requirements necessary to satisfy the business process.

Once the information requirements have been identified the information analyst identifies the related ACCs that are available in the European style market profile and contextualises them to meet the information requirements. This contextualisation step creates a set of aggregate business information entities (ABIEs).

In a final step the information analyst assembles together into a specific document contextual model package the ABIEs to form a document model satisfying the business requirements.
5.3 From the document contextual model to the message assembly model

Once the document contextual model has been finalised, the message assembly model may be automatically generated.

All document contextual models share the same core components and core datatypes. These are defined in the European style market profile (IEC 62325-351) and are contextualised and refined in all document contextual models (IEC 62325-451-x series) respecting the rules as described in IEC 62325-450.

5.4 From the assembly model to the XML schema

The final modelling step applies a standardized set of criteria in order to generate a uniform XML schema from the assembly model. This transformation process respects the rules defined in IEC 62361-100.

Refer to § 8.2 to generate a XML schema from the assembly model.

6 Rules to create a new business package in the UML model

6.1 Generic rules.

The following rules are to be strictly respected:

a) A new class or association to be included in the IEC 62325-301 package is to be discussed within IEC TC 57 WG 16 for approval.

b) A new class, attribute or association to be included in the IEC 62325-351 package is to be discussed first within ENTSO-E WG EDI and then submitted to IEC TC 57 WG 16 for approval. Such class or association is to be “IsBasedOn” a CIM class or association (IEC 61968-11, IEC 61970-301 or IEC 62325-301). Otherwise, rule a) is to be applied.

c) A new enumeration (or codelist) to be included in the IEC 62325-351 package is to be discussed first within ENTSO-E WG EDI; to enable the development, the new enumeration is to be created in the "ENTSO-E package" in the "Enumeration" temporary package in order to have the correct reference. If approved, this new enumeration is to be moved in the IEC 62325-351 package.

d) A new item in an existing enumeration (or codelist) is to be discussed first within ENTSO-E WG EDI.

e) When designing a contextual document UML model (IEC 62325-451-x), all classes, attributes and associations are to be “IsBasedOn” an IEC 62325-351 class, attribute or association. Otherwise, rule b) is to be applied.

f) Any development carried out within ENTSO-E for electronic data exchanges shall be based on CIM as per ENTSO-E decision.

g) Depending upon the harmonization level of the business process, the corresponding UML package should be submitted to IEC for standardization or should remain at ENTSO-E level as “harmonization” process. As an example a number of ENTSO-E business processes have been submitted to IEC, such as IEC 62325-451-1 for acknowledgment, IEC 62325-451-2 for the scheduling process, IEC 62325-451-3 for the transmission capacity allocation, etc. Other business processes have not been submitted to IEC such as the ENTSO-E Regional Group Continental Europe (RGCE) accounting process or the energy identification coding scheme (EIC) document. The decision to submit or not the UML package to IEC is a decision of ENTSO-E.

6.2 Rules about the organization of the European style market profile package.

The following “practical” rules enable to ease the development of a new document package:

a) When a new package is to be developed, a use case, sequence and/or workflow diagrams shall be drafted. These diagrams are to be in the “Use Case Library” of the “EuropeanStyleMarketProfile” package.

b) All the rules to be used in these diagrams are to be in the “Role” package of the “Use Case Library”; if a role is missing, a maintenance request is to be made at ENTSO-E WG EDI for its creation.
c) It is forbidden to create a diagram using a role not defined in the reference “Role” package.

d) When creating a new package for a business process, the following steps are to be carried out:

- Create the new package either in the “IEC62325-451 New” package or “ENTSO-E packages” depending whether the business process will be an IEC International Standards or an internal ENTSO-E business process.
- Create a “Package diagram” selected from the “UML Structural” type of EA.
- Create the two packages that will contain the contextual model and the assembly model. The names of the package shall be “Namebusiness process contextual model” and “Namebusiness process assembly model” respectively.
- Drag and drop the IEC 62325-351 package and the contextual model package, and do a “Dependency” association with a type “IsBasedOn” (see Figure 17) in the “Package diagram”.

e) Then, refer to § 0.

f) The ENTSO-E codelist is to be managed within the UML model. All new codes used in data exchanges are to be generated in the IEC 62325-351 “Enumeration” package. A dedicated function from CIMSyntaxgen is to be used to generate the corresponding codelists (urn-entsoe-eu-wgedi-codelists.xsd and urn-entsoe-eu-local-extension-types.xsd) compatibility with ENTSO-E schema is ensured through the etso-code-lists.xsd generation).

6.3 Rules about the organization of the ENTSO-E package.

The following “practical” rules enable to ease the development of a new document package and in particular its export or import in the reference package:

g) When a new package is to be developed, a use case, sequence and/or workflow diagrams shall be drafted. These diagrams are to be in the “Use Case Library” of the “ENTSO-E” package.

h) The roles to be used in these diagrams shall either be roles defined in the “Role” package of the “Use Case Library” of the ESPM package or new roles for the specific business process; in such a case, a maintenance request is to be made at ENTSO-E WG EDI in order that WG EDI is aware that a new ENTSO-E role will be used. If ENTSO-E decided

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Figure 17 – “Package” diagram example
that the specific business process is to be an IEC or CENELEC standards, then the new role will be moved in the ESMP package.

i) It is forbidden to create a diagram using a role not defined in the ESMP “Role” package or ENTSO-E “Role” package.

j) When creating a new package for a business process, the steps described in §6.2 apply.

6.4 Rules on the use of Enterprise Architect

6.4.1 Description of packages

In order to have a well documented UML package, it is necessary to provide the description of each package except the description of the UML assembly package which is automatically generated by CIMContextor.

6.4.2 Description of contextual classes and attributes

In the same manner, the descriptions of the classes and the attributes are to be checked depending upon the contextualisation. Usually, the description is sufficient and it is the description of the association that will complement the specific use of the class and or attribute in the resulting assembly model.

6.4.3 Description of contextual mRID attribute

When a class contains a mRID attribute, the generic description is inherited from the IEC 61970, i.e. the description is the following one: "Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements."

When a class containing an mRID attribute is put in the IEC 62325-351 UML class diagram, the description of the mRID shall be contextualized, i.e. additional description is to be provided; the descriptions in Table 2 provide examples of such contextualisation:

Table 2 – mRID description contextualisation in IEC 62325-351

<table>
<thead>
<tr>
<th>ACC Class</th>
<th>mRID description - examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>MarketDocument</td>
<td>The unique identification of the document being exchanged within a business process flow.</td>
</tr>
<tr>
<td></td>
<td>In the ESMP context, the &quot;model authority&quot; is defined as a party (originator of the exchange)</td>
</tr>
<tr>
<td></td>
<td>that provides an identification in the context of a business exchange such as document identification, ...</td>
</tr>
<tr>
<td></td>
<td>Master resource identifier issued by a model authority. The mRID is globally unique within an</td>
</tr>
<tr>
<td></td>
<td>exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is</td>
</tr>
<tr>
<td></td>
<td>strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to</td>
</tr>
<tr>
<td></td>
<td>rdf:ID or rdf:about attributes that identify CIM object elements.</td>
</tr>
<tr>
<td>MarketParticipant</td>
<td>The identification of a party in the energy market.</td>
</tr>
<tr>
<td></td>
<td>In the ESMP context, the &quot;model authority&quot; is defined as an authorized issuing office that</td>
</tr>
<tr>
<td></td>
<td>provides an agreed identification coding scheme for market participant, domain, measurement</td>
</tr>
<tr>
<td></td>
<td>point, resources (generator, lines, substations, etc.) identification.</td>
</tr>
<tr>
<td></td>
<td>Master resource identifier issued by a model authority. The mRID is globally unique within</td>
</tr>
<tr>
<td></td>
<td>an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It</td>
</tr>
<tr>
<td></td>
<td>is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped</td>
</tr>
<tr>
<td></td>
<td>to rdf:ID or rdf:about attributes that identify CIM object elements.</td>
</tr>
<tr>
<td>ACC Class</td>
<td>mRID description - examples</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MarketAgreement</td>
<td>The unique identification of the agreement. In the ESMP context, the “model authority” is defined as an emitting company that provides an agreed identification unique within a business context such as capacity auction identification, market agreement identification, etc. Master resource identifier issued by a model authority. The mRID is globally unique within an exchange context. Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</td>
</tr>
</tbody>
</table>

When a class containing an mRID attribute is put in an IEC 62325-451-n UML class diagram, the description of the mRID shall be restricted to the description of the mRID attribute without specification of who generates the mRID, examples are provided in Table 3.

### Table 3 – mRID description in IEC 62325-451-n contextual model

<table>
<thead>
<tr>
<th>ABIE Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MarketDocument</td>
<td>The unique identification of the document being exchanged within a business process flow.</td>
</tr>
<tr>
<td>MarketParticipant</td>
<td>The identification of a party in the energy market.</td>
</tr>
<tr>
<td>MarketAgreement</td>
<td>The unique identification of the agreement.</td>
</tr>
</tbody>
</table>

6.4.4 Description of contextual association

Each association shall have a description of the end role.

When a class contains an association with an end role name, the generic description is inherited from the IEC 61325-301. When this class association is used in the IEC 62325-351 UML class diagram, the description of the end role name shall be contextualized, i.e. additional description is to be provided, Table 4 provide examples of such contextualisation:

### Table 4 – End role name description contextualisation in IEC 62325-351

<table>
<thead>
<tr>
<th>ACC Class</th>
<th>Association end role name</th>
<th>End role name Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
</tbody>
</table>

When a class containing an association with an end role name is put in an IEC 62325-451-n UML class diagram, the description of the end role name shall be contextualized according to derived end role names, examples are provided in Table 3.

### Table 5 – Association end role name description in IEC 62325-451-n contextual model

<table>
<thead>
<tr>
<th>ABIE Class</th>
<th>Association end role name</th>
<th>End role name Description</th>
</tr>
</thead>
</table>
Thus, associations in an IEC 62325-451-n contextual model shall have a full description of the role. This end role name description will be used for attributes description that are the result of assembly model property grouping results.

### 6.4.5 Description of assembly model class and association

The description of the assembly model classes and association end role names are the same as the contextual ones.

### 6.4.6 Description of assembly model attribute

When generating assembly model, the generated class has two kinds of attribute:

- native attributes, that are part of the class and keep their original contextual description,
- attributes that are the result of the assembly process (property Grouping see section 7.2.6), whose description has been adapted as described below.

When generating from a contextual model the assembly model, some grouping happens according to some rules. The following example provides information about the grouping:

Consider the following classes association in a contextual document model (see Figure 18).

![Figure 18 – Contextual model example](image)

When the assembly model is generated, the result is the following class (see Figure 19):

![Figure 19 – Assembly model example](image)

The attributes of contextual Process class have been grouped in the assembly model Schedule_MarketDocument class, following a special naming rules, example "process.processType", where the assembly model attribute name is the concatenation of the contextual end role name (i.e. process) and the contextual attribute name (i.e. processType), separated by a dot.

The description of these grouped attributes reflect the grouping. The following example provides information about the automated generation of the assembly attribute description:

a) In the contextual model, the descriptions are the following ones:

- Class Process, attribute processType description “The identification of the nature of process that the document addresses."
- Class Process, attribute classificationType description “The classification mechanism used to group a set of objects together within a business process. The grouping may be of a detailed or a summary nature.”
b) In the generated assembly model, the definition of the regrouped attributes will be the concatenation of the contextual attribute description and the association end role name description, see Table 6.

### Table 6 – Generated description in assembly model

<table>
<thead>
<tr>
<th>Regrouped Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>process.processType</td>
<td>The identification of the nature of process that the document addresses.</td>
</tr>
<tr>
<td></td>
<td>--- The process dealt with in the document.</td>
</tr>
<tr>
<td>process.classificationType</td>
<td>The classification mechanism used to group a set of objects together within a business process. The grouping may be of a detailed or a summary nature.</td>
</tr>
<tr>
<td></td>
<td>--- The process dealt with in the document.</td>
</tr>
</tbody>
</table>

### 6.4.7 Guide lines for description

Thus, in order to have an appropriate documentation, iterations are to be carried out, i.e.

a) In the contextual model, initiate the process of documenting the classes, attributes and associations descriptions;

b) Generate the assembly model using CIMContextor and the associated documentation with CIMSyntaxgen;

c) Check the attributes description;

d) Apply correction as in step a).

### 7 Use of CIMContextor

#### 7.1 General overview

To call the CIMContextor menu, an object (class or package) is to be selected and then a right click is to be made to open the dialog box (see Figure 20) and “CimContextor” is to be selected to display the menu (see Figure 21 and Figure 22).
Figure 20 – Call CIMContextor menu

Figure 21 – CIMContextor main menu up to version 2.2.16

Figure 22 – CIMContextor main menu version 2.2.18
7.2 CIMContextor main menu

7.2.1 Adding a class in a diagram

To add a new class in a diagram, the following is to be done:

a) Select, in the appropriate “upper” package of classes, the class to be added:
   • To create a class in the IEC 62325-351 class package, a CIM class (IEC 61968-11, IEC 61970-301 or IEC 62325-301) is to be selected and dragged in the UML class diagram
   • To create a class in the IEC 62325-451-x contextual document package, a IEC 62325-351 class is to be dragged in the UML class diagram

b) Drag the class from the “upper” package in the UML class diagram.

c) The dialog boxes (see Figure 23 and Figure 24) are displayed and click “OK” for both.

d) The CIMContextor dialog window (see Figure 25) is displayed.

Figure 23 – Entreprise Architect menu

Figure 24 – Call CIMContextor

Figure 25 – CIMContextor dialog window
e) For the root class of the document, click on the button “is root (active)
   f) In the “Attribute” panel of the dialog box, all the attributes of the “upper” class are displayed with their cardinality. The following actions are to be made:

   - Unselect the “Copy parent’s stereotype” and click on “Edit class’s stereotype”, the following dialog box is open (see Figure 26). If the class is created in the IEC 62325-351 UML package, then “ACC” is to be selected, if in a contextual document UML package, then “ABIE” is to be selected. Then click “Save”.

   - The attributes could be selected (except if the attribute is mandatory in the “upper” package) and the cardinality could be changed, i.e. an optional item could be made mandatory. This is done by clicking on the “Edit cardinality” box (see Figure 27).
• If the “upper” class has already been used in the UML class diagram, then for the second
(or next one) class a “qualifier” is to be defined. The name of the new class will be
“Qualifier_ClassName”.

g) When all the customizations of the class have been made, then click on “Execute
IsBasedOn”. The class with the selected attributes is generated in the UML class diagram.

7.2.2 Change to the attributes of an existing class
To change any characteristic of an attribute, select the class in the UML class diagram, right
click to open the CIMContextor menu and select the “Edit IsBasedOn”.

Then refer to Figure 25 for the use of this option.

7.2.3 Create an association (up to version 2.2.16)
To create an association between two classes in the UML contextual class diagram, the
following steps are to be made:

a) Select one of the class to be associated.

Note: it is highly recommended to start from the class what will be the “source” of the association.

b) Right click, select “Extension”, then “CimContextor” and “Edit connectors”.

c) Click “OK” on the warning bow that may appear (see Figure 28).


d) The “Edit connectors” dialog box will open (see Figure 29). The example shows the result
of the action on the class “Name”. All the possible association from class “Name” with
other classes within the UML contextual model are listed.

Figure 27 – Attribute cardinality

Figure 28 – « Edit connectors » warning box
e) Click on the association to be created, as an example the association between the class “Name” and the class “EICCode_MarketParticipant” has been ticked up, then select the entire line and click on “Subdivide a connector” (see Figure 30).

f) A new dialog box will appear (see Figure 31).
g) The following actions are to be done:

- If necessary provide a qualifier to the “Parent’s role”;
- Click on the “Aggregate” box on the “Other end role”;
- Define the cardinality of the relation (see Figure 32);
- Click on “Save”;

Figure 31 – “Subdivide a connector” dialog box

Figure 32 – “Subdivide a connector” dialog box example
704  The “Edit connectors” dialog box is displayed.
705  h) Additional associations could be defined in the same process, by selecting a new line and
706  “Subdivide a connector” (see Figure 33).

![Figure 33 – « Edit connectors » dialog box example](image)

707

708

709  i) When all associations have been created, click on “Duplicate connectors” to generate the
710  associations in the UML contextual class diagram.
711  j) It is important to document properly the association role in order to have an appropriate
712  documentation (see § 6.4.4).

7.2.4  Create an association (from version 2.2.18)
715  7.2.4.1 New facility from CIMContextor 2.2.18
716
717  From version 2.2.18 of CIMContextor, the management of associations within the European
718  style market is improved.
719
720  Currently, in the CIM packages (IEC 61968-11, IEC 61970-301 and IEC 62325-301), all the
721  associations between classes are not oriented. In the package IEC 62325-351, it is necessary
722  to define an orientation of the association (restriction to the CIM), and then this orientation is
723  to be strictly respected within an IEC 62325-451-n package.
724
725  The following improvements have been made:
726
727  • Simplify the dialog box to select the association to be created;
728  • Enable the creation of oriented association within the IEC 62325-351 through a specific
dialog and then to have another dialog for the IEC 62325-451-n package where only the
729  cardinality could be updated.
730
731  It is important that the CIMContextor parameter “NavigationEnabled” is unchecked (see
732  Figure 22) otherwise the aggregation will not work in appropriate way.

7.2.4.2 Creating an association in IEC 62325-351 package
734  To create a new association in the IEC 62325-351 package based on an existing “not
735  oriented” association in the CIM packages, the following steps are to be made:
736
737  a) Select one of the class to be associated.
738  b) Right click, select “Extension”, then “CimContextor” and “Edit hierarchical connectors”.

– Page 31 of 45 –
c) The “Edit hierarchical connectors” dialog will open (see Figure 34). The possible associations are listed in alphabetic order and the roles are provided.

![Figure 34 – « Edit connectors » dialog box](image)

![Figure 35 – « Modify selected association » dialog box for IEC 62325-351 package](image)

d) Click on the association to be created to tick it up, then select the entire line and click on “Modify selected association”.

e) A new dialog box will appear (see Figure 31).

f) The following actions are to be done:
743  •  Click on the “Containment” box to define the class where the aggregation is to be made
744  •  Define the cardinality of the relation;
745  •  If necessary provide a qualifiers to the role (see Figure 36):

Figure 36 – Setting the cardinality

746

747  •  Click on “Save”;
748  •  The “Modify selected association” dialog box is displayed.
749
g)  Additional associations could be defined in the same process, by selecting a new line and
750  “Modify selected association”.
751  
h)  When all associations have been created, click on “Save” to generate the associations in
752  the UML contextual class diagram.
753
7.2.4.3  Creating an association in IEC 62325-451-n package
754
To create an association within an IEC 62325-451-n package, the dialog has been simplified
755  as all associations in the IEC 62325-351 package are oriented. Thus the only changes are on
756  the cardinality of the association and the qualifier of the roles.
757
The following steps are to be made:
758  a)  Select one of the class to be associated.
759  b)  Right click, select “Extension”, then “CimContextor” and “Edit hierarchical connectors”.
760  c)  The “Edit hierarchical connectors” dialog will open (see Figure 34). The possible
761  associations are listed in alphabetic order and the roles are provided.
762  d)  Click on the association to be created to tick it up, then select the entire line and click on
763  “Modify selected association”.
764  e)  A new dialog box will appear (see Figure 37). There is no way to change the association
765  orientation.
f) The following actions are to be done:

- If necessary provide a qualifier to the role;
- Define the cardinality of the relation;
- Click on “Save”;
- The “Modify selected association” dialog box is displayed.

g) Additional associations could be defined in the same process, by selecting a new line and “Modify selected association”.

h) When all associations have been created, click on “Save” to generate the associations in the UML contextual class diagram.

7.2.5 AttributeOrder

The “AttributeOrder” option is to be used, in the contextual model, to give, to the assembly process, the order in which attributes within a class and the attributes resulting from the grouping must appear in the assembly model. The attribute order will also be used to drive the order of the element in the generated XSD.

This feature is to be applied to each class in the contextual model. This activity generates a tagged value called “ESMPRG”.

To order the attributes and the associations in the UML contextual class diagram, the following steps are to be made:

a) Select one of the class to be associated.

Note: it is highly recommended to start from the “bottom” classes up to the root class.

b) Right click, select “Extension”, then “CimContextor” and “AttributeOrder”.

c) A dialog box will appear (see Figure 38).

d) Use the “up” or “down” button to order each attribute of the class (element type “A”) or the association end role name for the associated classes (element type “C”).

e) When the order is fine, click on “ok” to end the dialog and save the configuration.
It is recommended that the association of multiplicity 0..* be put at the end of the list of attributes.

![Figure 38 – « AttributeOrder » dialog box example](image)

With the change made in § 4.3.2, the attributes in a class will respect the ESMPRG tagged value and no longer the alphabetical order.

In case the attributes have not been order, there will be an error message at the following step, i.e. PropertyGrouping.

### 7.2.6 PropertyGrouping

The “PropertyGrouping” option is to be used to generate from a contextual model the associated assembly model.

All the classes associated with a multiplicity of 0..1 or 1..1 to a class are inserted within this later class, and the order is provided by the AtributeOrder option.

To generate the assembly model, the following steps are to be made:

1. In the package browser, select the assembly package to be generated.
2. Right click, select “Extension”, then “CimContextor” and “PropertyGrouping”.

Note: if the assembly package is not empty, all its content will be deleted.

Note: if the name of the assembly package does not follow the rule (§ 6.2), an error message is displayed.
The generation process starts, and some confirmation will be asked during the process; click “Ok” when requested.

At the end of the process, the assembly diagram is displayed.

It is recommended to “arrange” the display (position of the classes, position of the association, etc.) to enhance the visual aspect. In particular, for the associations “auto routing” facility, it is recommended to select the assembly package and launch the IntegrityCheck (see § 7.2.7), this will set the “auto routing” status to all the associations.

It is also recommended to check that all the attributes are in the appropriate order; otherwise the steps described in § 4.3.2 are to be resumed.

### 7.2.7 IntegrityCheck

The “IntegrityCheck” option is to be used to check the validity of the UML packages versus the IEC 62325-450 rules.

To check an UML package, the following steps are to be made:

a) In the package browser, select the UML package to be checked.

Note: This may be a single UML contextual model, or a UML assembly model or a set of packages, and even the ESMP package.

b) Right click, select “Extension”, then “CimContextor” and “IntegrityCheck”.

The results of the IntegrityCheck option are stored in the “log.xml” file of CIMContextor.

### 8 Use of CIMSyntaxgen

#### 8.1 General overview

CIMSyntaxgen is the plug-in use to generate from the UML model either the XML schema (XSD), the ENTSO-E codelist (XSD) or the documentation.

As concerns the documentation, CIMSyntaxgen generates an HTML file, and a MS Word macro is to be used in order to convert this HTML file into the appropriate MS Word document as per IEC requirements.

Note: see on [http://www.iec.ch/](http://www.iec.ch/) and search for “IEC_template” for the iecsdt.dot. The IEC site will enable to download the IEC user guide for generating the documentation.

Figure 39 shows the options of the CIMSyntaxgen menu.

![Figure 39 – CIMSyntaxgen menu](image)

The options of interest are the following ones:

- XSD: to generate the schema from the UML assembly model (see § 8.2).
- HtmlDocumentation: to generate the HTML file of the documentation (see § 8.3).
- ManageCodeLists: to import a XSD codelist or to generate the XSD codelists and the associated documentation (see § 8.4).
8.2 Generating a XML schema from an assembly model

When the assembly model of a document is generated, the associated XML schema could be generated.

To run CIMSyntaxgen in order to generate a XML schema, the following steps as described in Figure 40 are to be done:

- In the UML project browser, click right on the assembly package of the document (in the example, the acknowledgement assembly package);
- Select “Extension”;
- Select “CimSyntaxgen”;
- Select “XSD”;
- Select “XSD WG16”

Figure 40 – Running CIMSyntaxgen to generate a XSD

The following dialog box opens, see Figure 41.

Figure 41 – CIMSyntaxgen dialog box to generate a XSD (import option)
The user shall then provide the following information:

- **Result File**: the name of the XSD file to be generated (there is a new dialog box to state in which folder the file is to be registered);
- **ProfileURI**: this is the standard namespace and it is composed as follow:

  urn:iec62325.351:tc57wg16:<process>::<document>::<version>::<release>

  where:

  a) iec62325.351 shall be the stem of all European style market profile XML schema namespaces.
  b) tc57wg16 identifies the organisation or group of organisations within IEC that own the object being referenced. In the case of TC57 this shall be the WG16.
  c) <process> identifies the specific process where the object is situated, e.g. the part of the IEC 62325 standards in which the XML schema is defined, e.g. 451-1, 451-2, 451-3, etc.
  d) <document> identifies the electronic document schema.
  e) <version> identifies the version of the document schema.
  f) <release> identifies the release of the document schema.
- **Prefix**: blank value.
- **RootModelURI**: http://iec.ch/TC57/2013/CIM-schema-cim16#.
- **URI Codelist**: the URI of the codelist to be used, i.e. urn:entsoe.eu:wgedi:codelists.
- **SchemaName**: the filename of the codelist, i.e. urn:entsoe.eu-wgedi-codelists.xsd.
- **PrefixCodelist**: the prefix used in the schema for the codelist, i.e. cl.
- The case “import” enables to generate a schema with the “import” option of the codelist, if the case is not selected, see Figure 42, an xsd with the “include” option of the codelist is generated.
- Then click “OK” to generate the xsd; a at the end a dialog box “End” will be displayed.

![Figure 42 – CIMSyntaxgen dialog box to generate a XSD (no import option)](image)

The “import” option is the currently used option for ENTSO-E xsd.

The main differences between the two generated schema are as follows:
In the “import option”, the xsd first lines are as follows:

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:sawsd="http://www.w3.org/ns/sawsd1" xmlns="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0" xmlns:cimp="http://www.iec.ch/cimprofile" attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
</xs:schema>
```

And the reference to the codelist is done as follows:

```xml
<xs:simpleType name="MarketRoleKind_String" sawsd1:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="cl:RoleTypeList"/>
</xs:simpleType>
```

In the “no import” option, these are as follows:

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:sawsd1="http://www.w3.org/ns/sawsd1" xmlns="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0" xmlns:cimp="http://www.iec.ch/cimprofile" attributeFormDefault="unqualified"
targetNamespace="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:include schemaLocation="urn:entsoe-eu:wgedi:codelists.xsd"/>
</xs:schema>
```

And there is no reference to the namespace “cl”:

```xml
<xs:simpleType name="MarketRoleKind_String" sawsd1:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
<xs:restriction base="RoleTypeList"/>
</xs:simpleType>
```

8.3 Generating the documentation of UML models

8.3.1 Overview

To run CIMSyntaxgen to generate documentation, the following steps are to be carried out (see Figure 43):

- Select the package to be printed (see after the various options), and click right;
- Select “Extensions”;
- Select “CimSyntaxgen”;
- Select “HtmlDocumentation”;
- Select “ESMPHtmlDocumentation”.

---

-- Page 39 of 45 --
Then select one of the options. A dialog box will open asking for the filename and the folder location.

Once the package selected, the procedure described in § 8.3.1 is to be used with the selection of option “ENTSO-E documentation”.

The generated html file outlines are as follows:

- Contextual model
  a) Diagram of the contextual model
  b) IsBasedOn dependency
- Assembly model
  a) Diagram of the assembly model
  b) IsBasedOn dependency
- List of classes: first the root class and then the other classes by alphabetic order. For each class, the attributes are ordered as per business requirements, i.e. as they will be...
listed in the XML schema. The associations between classes are also described and the
order ranking is also provided.

d) List of datatypes: the list of datatypes used within the document is provided, the order is
alphabetical with first the compounds and then the CIM datatypes. In addition for the CIM
datatypes based on a codelist, the name of the codelist is provided.

8.3.3 Generating the IEC standard documentation

8.3.3.1 Part 351
The “part 351” documentation, i.e. IEC 62325-351 Chapter 6.1, “European style market
classes”, is generated from the UML package “ESMPClasses” in the package “IEC62325-
351”.

Once the “ESMPClasses” package selected, the procedure described in § 8.3.1 is to be used
with the selection of option “Creation 351”.

8.3.3.2 A conceptual and assembly models
The conceptual and assembly models documentation for a document is generated from the
document package, e.g. for the acknowledgement document by selection the UML package
“Acknowledgement Document”. The generated part is the one corresponding to Chapter 6,
“Contextual and assembly models”.

Note: the order in the package is important, first the contextual document model and then the assembly document
model, otherwise the generated document is not good.

Once the package selected, the procedure described in § 8.3.1 is to be used with the
selection of option “Contextual and Assembly”.

8.3.3.3 A set of conceptual and assembly models
The conceptual and assembly models documentation for a set of documents is generated
from the “standard” package, e.g. for the IEC 62325-451-2 Ed.1 by selection the UML
package “IEC62325-451-2 Ed.1” (see Figure 45). This will generate the documentation for the
“Schedule Document”, the “Anomaly Report Document” and the “Confirmation Report
Document”. The generated part is the one corresponding to Chapter 6, “Contextual and
assembly models”.

Figure 45 – “FullPackage” option

Note: the order in the package is important, first the contextual document model and then the assembly document
model, otherwise the generated document is not good.

Once the package selected, the procedure described in § 8.3.1 is to be used with the
selection of option “FullPackage”.

8.3.4 Generating the MS Word file.
Once the html file is generated, some updates are to be carried out in order to have an
appropriate MS Word file as per the requirements of IEC, in particular, tables and figures
numbering, standard styles to be used, etc.

The following procedure is to be applied:

- The iec_esmpvnn.dotm file (where vnn is the version number) that contains the macro is
to be downloaded from the ENTSO-E extranet site.
- This dotm file is to be saved in the MS Word template folder, i.e., for MS Windows 7,
C:\Users\[user name]\AppData\Roaming\Microsoft\Templates.
8.4 Management of codelist

8.4.1 Description

The ESMPEnumerations package contains all the enumerations used within ENTSO-E. All the schema developed in the framework of the European style market profile are using external XML documents to provide the list of codes to be used in the various enumerations.

The following XSD documents are to be used:

- urn-entsoe-eu-wgedi-codelists.xsd – the XSD to be used with all the CIM XSD.
- urn-entsoe-eu-local-extension-types.xsd – the XSD to be used with all the CIM XSD.
- etso-code-lists.xsd – the XSD to be used with all the ENTSO-E nonamespace XSD.

This module of CIMSyntaxgen enables:

- to import an existing urn-entsoe-eu-wgedi-codelists.xsd in a package;
- to generate from the ESMPEnumerations package the three codelists (previously described) and the associated documentation.

8.4.2 Import

In order to carry out the import, the following steps are to be carried out:

- Create a new package in the UML model with an associated class diagram.
- Select this new package and right click in the menu to select Extension, CimSyntaxGen, ManageCodeLists and ImportCodeLists.
- A dialog box will open (see Figure 46) and enter the StdCodeLists, i.e. the path of the codelist to be imported.
- Click “OK” and the codes defined in the file “StdCodeLists” are imported.
The import function is to be carried out on an empty package, however an empty “class” diagram is to be included in the package before running the import function.

The enumerations generated shall not be copied into the ESMPEnumerations package, as each enumeration has a unique GUID and enumeration is referred to, based on this GUID, in the EMSPClasses (and thus in all the IEC 62325-451-n classes).

Only the attributes of an enumeration could be copied from the import codelist in the ESMPEnumerations package.

### 8.4.3 Generation of the codelists and documentation.

In order to carry out the export, the following steps are to be carried out:

- Select the ESMPEnumerations package and right click in the menu to select Extension, CimSyntaxGen, ManageCodeLists and ExportCodeLists.
- A dialog box will open (see Figure 47). Check that the prefix to be used in the codelist is set to “ecl”, then click “OK” and the files will be generated in a folder “YYYY-MM-DD-HH-mm” (where YYYY is the year, MM the month, DD the day, HH the hour and mm the minute when the export function is executed). The content of the folder is described in Figure 48.
The names of the codelist schema are provided in the CimSyntaxgen-Config.xml file as parameters, i.e.:

```
<profdata name="ExtensiontCodeListsFile" value="urn-entsoe-eu-local-extension-types.xsd" />
<profdata name="StandardCodeListsFile" value="urn-entsoe-eu-wgedi-codelists.xsd" />
```

To generate the ENTSO-E document about the codelist, the process described in § 8.3.4 is to be applied.

Then, the folder should be published on the ENTSO-E web site.

Note: in order to ensure backward compatibility, a “DocumentTypeList” enumeration has been introduced in the ESMPEnumerations package although it is not used in IEC 62325.

Note: in order to ensure backward compatibility, the following XML code is added in the urn-entsoe-eu-wgedi-codelists.xsd:

```
<xsd:simpleType name="CodingSchemeType">
  <xsd:union memberTypes="ecl:StandardCodingSchemeTypeList ecl:LocalCodingSchemeType"/>
</xsd:simpleType>
```

### 9 Updates of IEC 62325-301 MarketManagement package

As per rule a) in § 6, new classes or associations necessary for the development of the European style market profile should be added in the IEC 62325-301 MarketManagement package.

It is important to remind that such creation is to be first discussed within the IEC TC 57 WG 16 and in particular to assess that there is no existing class or association in the CIM corresponding to the need.

However, if the need is confirmed, an evolution of the IEC 62325-301 MarketManagement package is to be initiated.

The work is to be carried out locally in the copy of the IEC 62325-301 as well as within the new packages in the ESMP profiles.

When the developments no longer require new classes or associations, then an XMI version 2.1 file of the IEC 62325-301 MarketManagement profile is to be provided to the IEC TC 57 WG 16 model manager in order to merge all the changes in the future IEC 62325-301 version and in particular to keep the appropriate GUID.

### 10 Practical rules for the management of the reference package

The purpose of this section is to provide some guidelines in order to ease the management of the reference package when specific business packages are developed by different parties.

These rules are to be strictly applied otherwise the structure of the packages, based on GUID, will not be preserved, and in particular the GUID. It is to be reminded that any object in the EA data base is identified through a unique identifier, i.e. a GUID. This GUID is used for all the relations between the objects and in particular for the IsBasedOn associations.
The rules to create a package in the ESMP or ENTSO-E packages have been presented. They have to be strictly applied.

The hereafter rules are specific when someone wants to initiate a specific projects in another package:

a) It is highly recommended to apply the same structure as in ESMP package or ENTSO-E package to the new package, i.e. to create a package for the "Use Case Library", and one package for the new document.

b) Use as much as possible the roles, the classes and associations already existing in the ESMP package; as concerns role, you may also used the ones in the ENTSO-E package.

c) If a new role is to be created, create it inside your "Use Case Library/Role" package and inform WG EDI of the role (in case the role will be created for an ENTSO-E requirement in parallel).

d) If a new class or association is needed, contact the WG EDI person in charge of the reference model for the actions. If you create your own class, this will not be IsBasedOn and thus it could not be incorporated in the reference package.