



European Network of
Transmission System Operators
for Electricity

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

2017-01-03

VERSION 3.0

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28 must be understood and carefully weighed before choosing a different course.
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Revision History

Version	Release	Date	Paragraph	Comments
0	0	2015-07-23		Release submitted to WG EDI comments.
1	0	2015-08-31		Review by WG EDI and submitted to Market Committee for approval
2	0	2016-08-31		Editorial corrections in edition 1. Add the description of use case library (chapter 4.2). Specific configuration when using Enterprise Architecte version 12. Clarifications about the rules in chapter 6.2 and 6.3. New chapter 10 on rules for the management of the reference package.
3	0	2017-01-03		Take into account the version CIMContextor 2.2.18 with an enhanced management of the associations between classes.

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152

INTRODUCTION

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

157 **1 Scope**

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

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

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

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

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

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

187 **2 Normative references**

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

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

194 IEC 62325-351, *Framework for energy market communications – Part 351: CIM European*
195 *market model exchange profile.*

196 IEC 62325-450, *Framework for energy market communications – Part 450: Profile and context*
197 *modeling rules.*

198 IEC 62361-100, *Interoperability in the Long Term – Part 100: Naming and design rules for*
199 *CIM profiles to XML schema mapping.*

200 **3 Terms and definitions**

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

203 **3.1**

204 **aggregate business information entity**

205 **ABIE**

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

207 **3.2**

208 **aggregate core component**

209 **ACC**

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

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

214 [SOURCE: ISO/TS 15000-5:2005, Clause 9]

215 **3.3**

216 **application program interface**

217 **API**

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

220 [SOURCE: IEC 61970-2:2004, 3.4]

221 **3.4**

222 **based on**

223 **IsBasedOn**

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

226 [SOURCE IEC 62325-450:2013, 3.4]

227 **3.5**

228 **business context**

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

231 [SOURCE: ISO/TS 15000-5:2005, 4.6.2]

232 **3.6**

233 **core component**

234 **CC**

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

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

239 **3.7**

240 **information model**

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

243 Note 1 to entry: It can provide shareable, stable, and organized structure of information requirements for the
244 domain context.

245 **3.8**
246 **internal European market**
247 **IEM**
248 market of any commodity, service, etc. within the European Community

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

250 **3.9**
251 **market management system**
252 **MMS**
253 computer system comprised of a software platform providing basic support services and a set
254 of applications that provide the functionality needed for the effective management of the
255 electricity market

256 Note 1 to entry: These software systems in an electricity market may include support for capacity allocation,
257 scheduling energy, ancillary or other services, real-time operations and settlements.

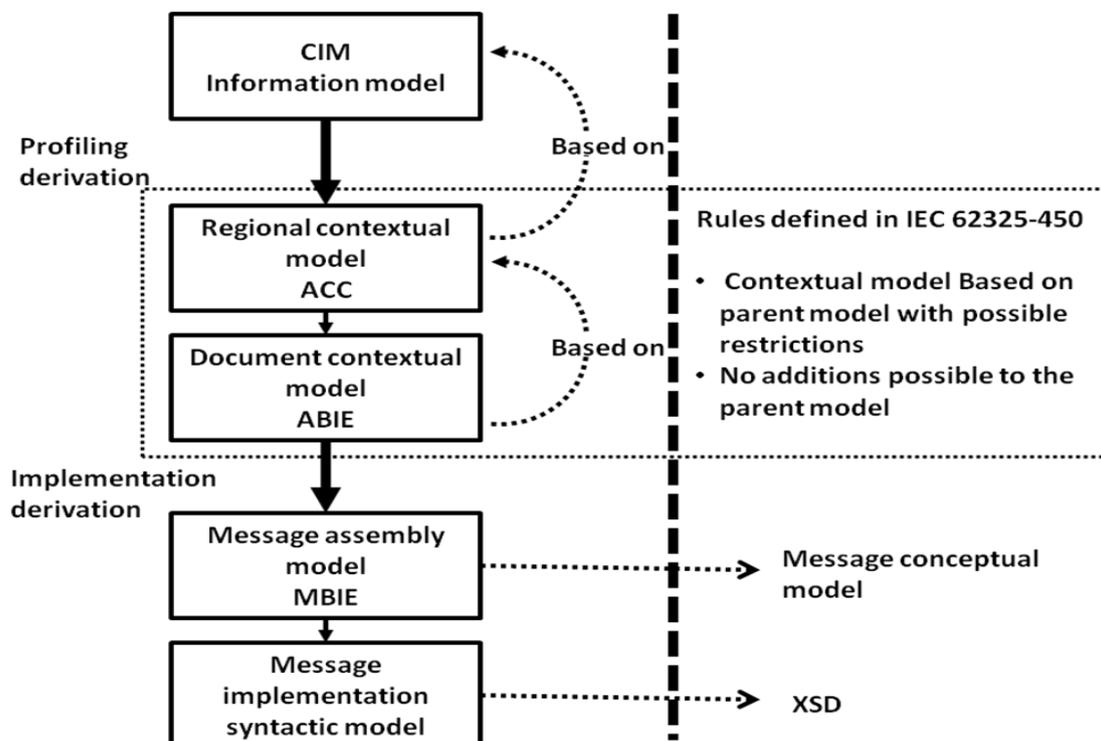
258 **3.10**
259 **message business information entity**
260 **MBIE**
261 re-use of an aggregate business information entity (ABIE) in a specific document.

262 **3.11**
263 **profile**
264 basic outline of all the information that is required to satisfy a specific environment

265 **4 Basic concepts**

266 **4.1 Overview of the modelling methodology**

267 IEC 62325-450 enables to generate a set of CIM profiles that follows a layered modelling
268 framework as outlined in Figure 1 going from the common information model (CIM), to
269 different regional contextual models and their subsequent contextualized documents for
270 information exchange; the final step being the message specifications for information
271 interchange.



272

273

Figure 1 – IEC 623235-450 modelling framework

274 The regional contextual model contains the basic core components that are necessary to build
275 electronic documents for information interchange. This is defined in the European style
276 market contextual model (IEC 62325-351). These core components are also termed
277 aggregate core components (ACCs).

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

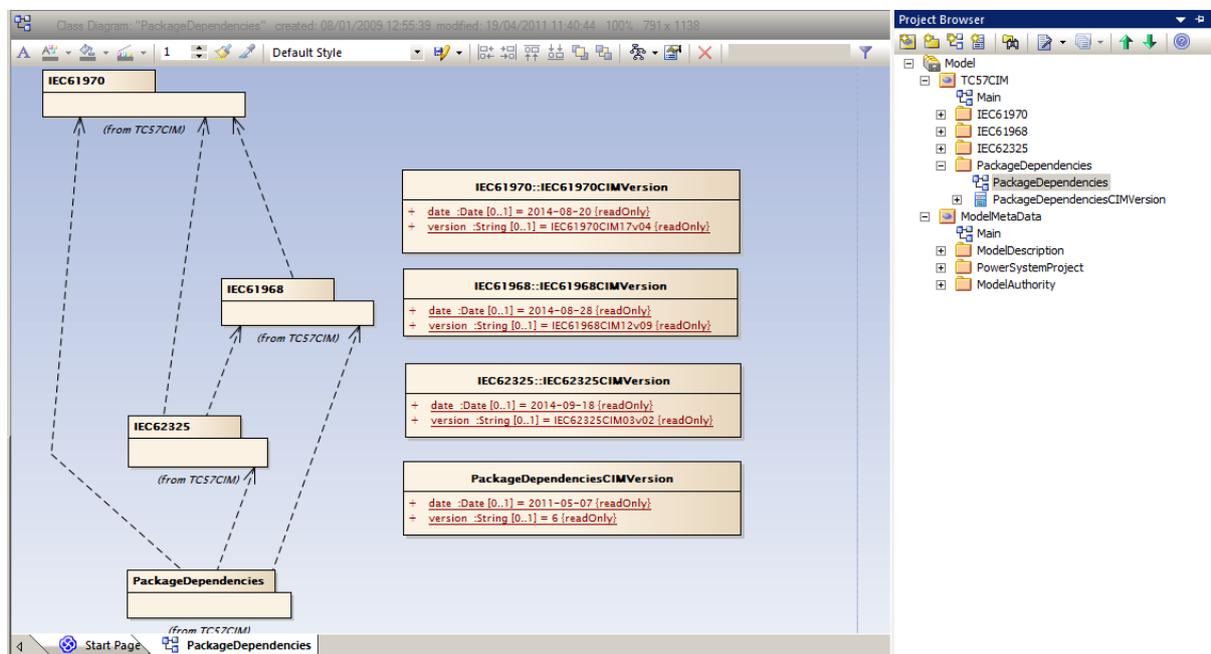
285 Once a document contextual model has been built that satisfactorily meets the business
286 requirements, a message assembly model can be automatically generated from it. If
287 necessary specific mapping can take place at this stage to transform the CIM class and
288 attribute names into more market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

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

290 4.2 File name convention

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

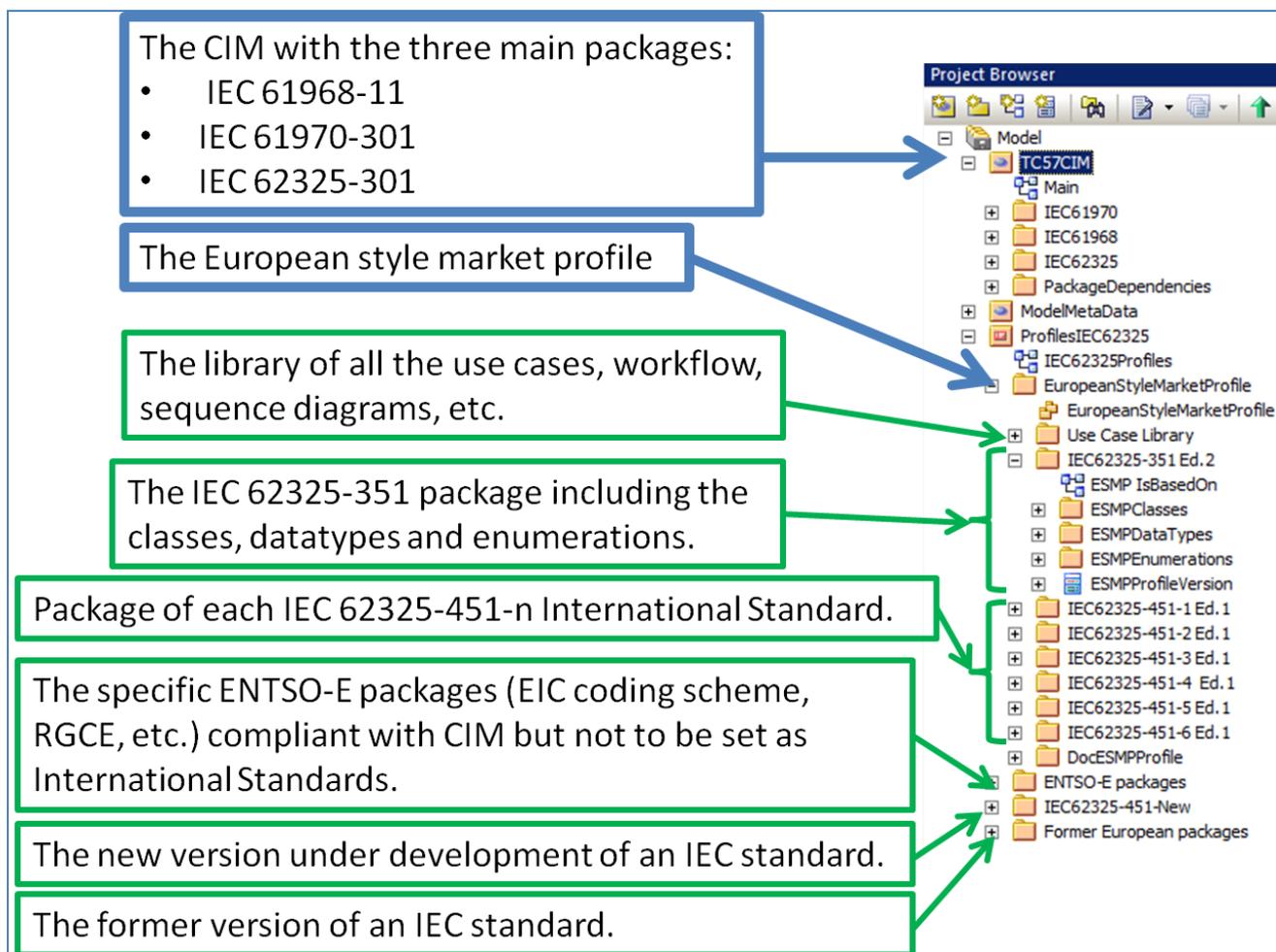
- 292 • The CIM file from the CIM model manager: This file is the result of the merge of the three
293 CIM packages, i.e. IEC 61968-11, IEC 61970-301 and IEC 62325-301. The name of the
294 file is as follows: `iec61970cimNNvNN_iec61968cimNNvNN_iec62325cimNNvNN.eap`,
295 where NN is a two digit value providing for release and version of each package. As an
296 example, `iec61970cim17v04_iec61968cim12v09_iec62325cim03v02` is the CIM file with
297 version 17v04 of IEC 61970-301, version 12v09 of IEC 61968-11 and version 03v02 of IEC
298 62325-301 (see Figure 2).



299
300 **Figure 2 – CIM file content**

- 301 • The full European style market profile: This file is the result of the merge of the CIM file
302 with the European style market profile. The name is the concatenation of a date
303 (YYYYMMDD), of the version of IEC 62325-351 and of the name of the CIM file, as an
304 example, `20150209_ESMPv3_iec61970cim17v04_iec61968cim12v09_iec62325cim03v03`,
305 i.e. version 3 of the European style market profile (ESMP, IEC 62325-351) with documents
306 models updates up to 2015-02-09 and based on the CIM file with version 17v04 of IEC

307 61970-301, version 12v09 of IEC 61968-11 and version 03v03 of IEC 62325-301 (see
308 Figure 3).

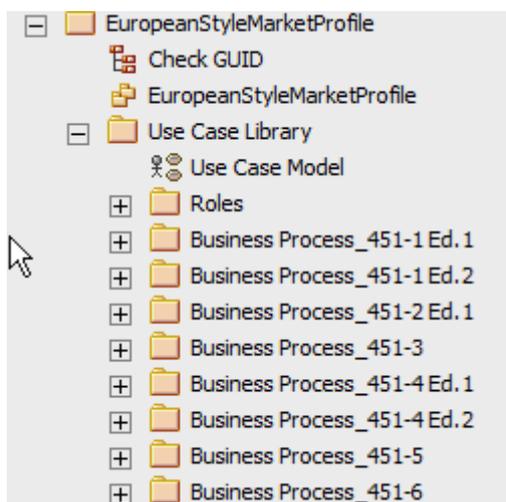


309

310

Figure 3 – Full ESMP file content

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



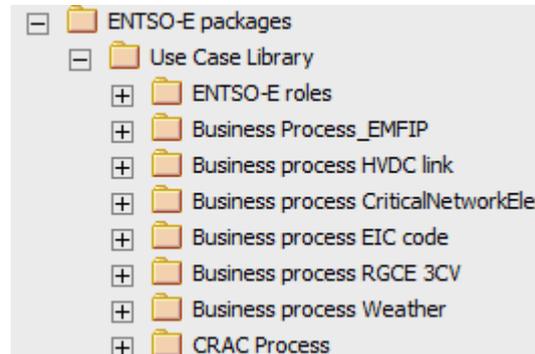
313

314

Figure 4 – Use Case Library in ESMP package

315 All the roles used in the use cases, sequence diagrams, workflows, etc. of the ESMP package
316 are described in this “Roles” package.

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



322

323

Figure 5 – Use Case Library in ENTSO-E package

324 4.3 Parameters for Enterprise Architect

325 4.3.1 Additional stereotypes

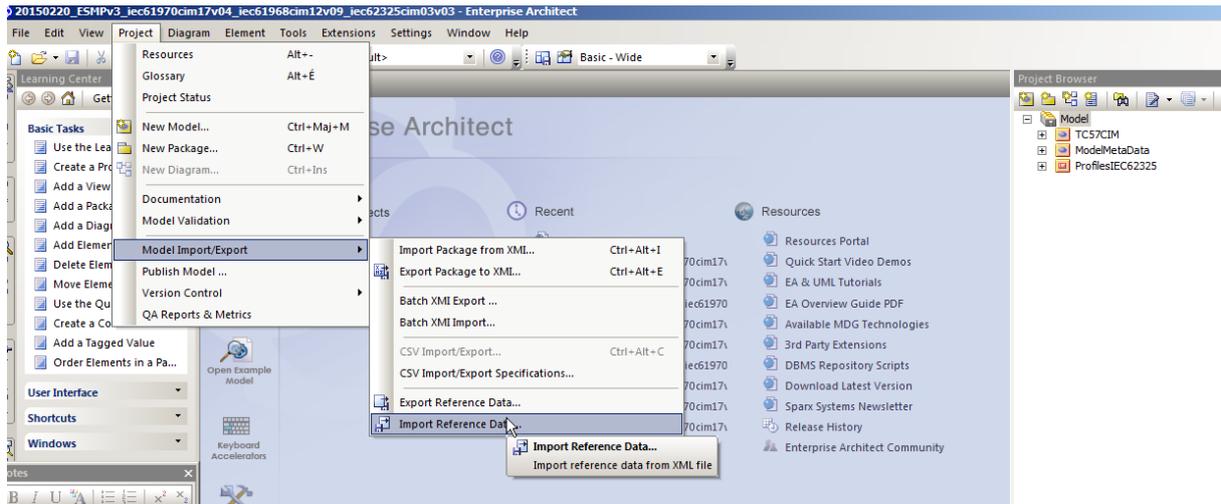
326 As per IEC 62325-450, the European style market profile needs additional UML stereotypes.
327 They are the following ones:

- 328 • ACC: aggregated core component. This stereotype is used for the classes in the IEC
329 62325-351 package.
- 330 • ABIE: aggregated business information entity. This stereotype is used for the classes in
331 the contextual model within an IEC 62325-451-n package.
- 332 • MBIE: message business information entity. This stereotype is used for the classes
333 generated by CIMContextor in the assembly model within an IEC 62325-451-n package.
- 334 • IsBasedOn: IsBasedOn dependency. This dependency is the relation when using a class
335 from a “upper level” package (see Figure 1).

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

337 The following steps are thus to be carried out:

- 338 • Automatic process:
 - 339 a) Download from the ENTSO-E Extranet web site, the file “references_ESMP.xml”.
 - 340 b) Download and open the “eap” file containing the project (either a CIM merged file or the
341 complete CIM with European style market profile).
 - 342 c) See Figure 6 to select the “Import Reference Data” (in version 12.1, Project\Data
343 Management\Import Reference Data)

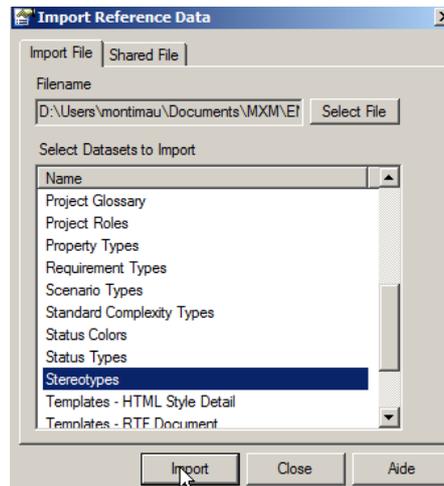


344

Figure 6 – Import of reference data in Enterprise Architect 1/4

345

346 d) The following dialog box will open (see Figure 7). Select the location of the
347 “references_ESMP.xml” file, then select “Stereotypes” option and click on “Import”.

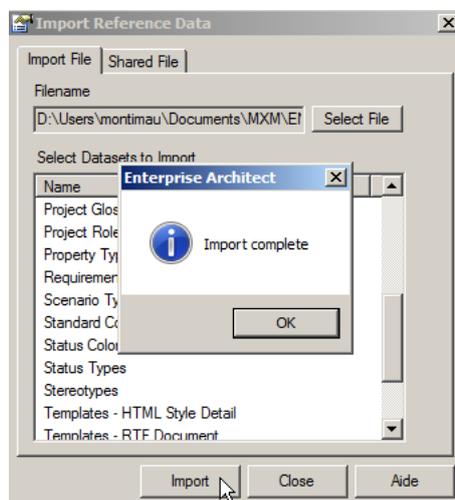


348

Figure 7 – Import of reference data in Enterprise Architect 2/4

349

350 e) Then, the following message will be displayed (see Figure 8)

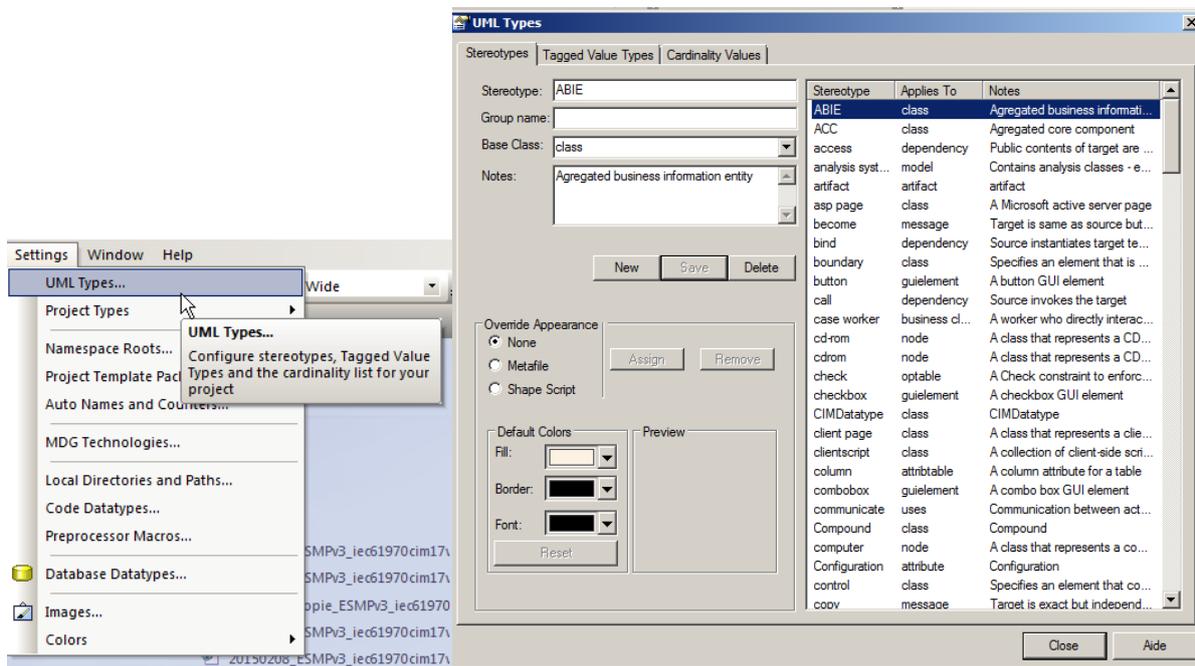


351

Figure 8 – Import of reference data in Enterprise Architect 3/4

352

- 353 f) Check the successful import (see Figure 9) by clicking on “Settings” and then selecting
354 “UML Types”. The additional stereotypes shall be listed (in version 12.1
355 Project\Settings\UML Types).



356

357 **Figure 9 – Import of reference data in Enterprise Architect 4/4**

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

364

Table 1 – Stereotype information

Stereotype	Group name	Base Class	Notes
ACC		Class	Aggregated core component
ABIE		Class	Aggregated business information entity
MBIE		Class	Message business information entity
IsBasedOn		Dependency	IsBasedOn

365

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

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

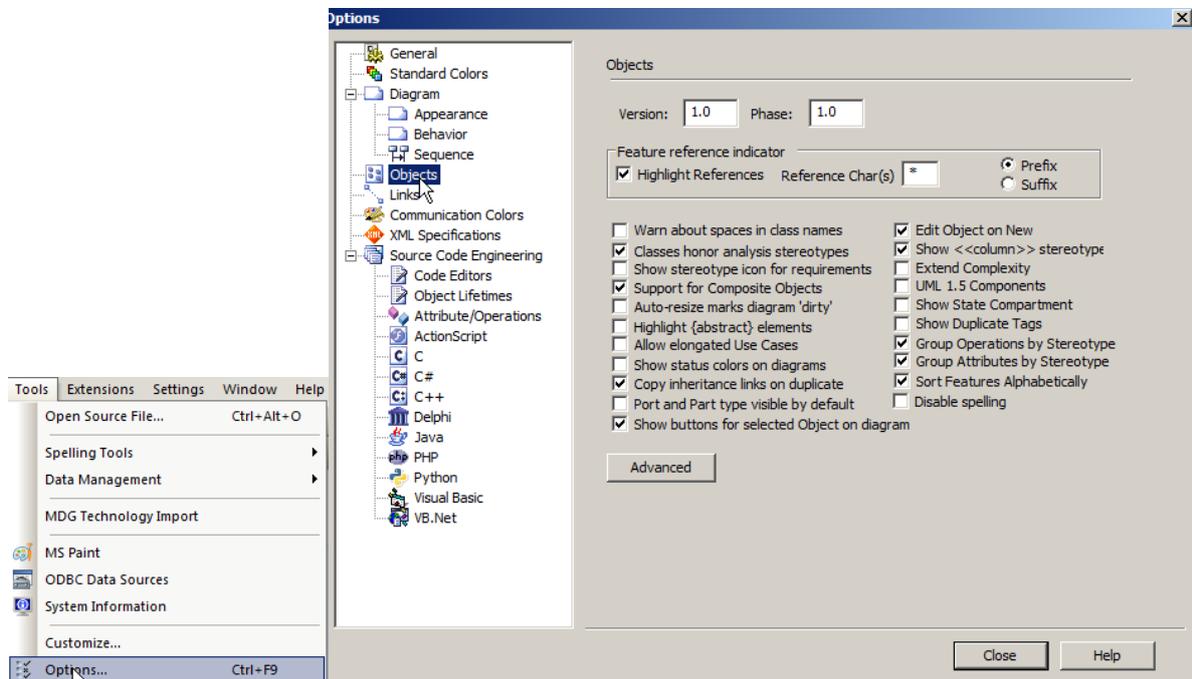
371 Otherwise, in the description of ACC and ABIE classes additional tags will be automatically
372 added.

373 4.3.2 Order of attributes in classes

374 In the contextual and assembly models of the European style market profile, the attributes are
375 ordered in a “business oriented” way and not in an alphabetical order. This is of importance

376 as the order of attributes in an XML schema is of matter. Thus, the “standard” setting of
377 Enterprise Architect is to be modified as follows:

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

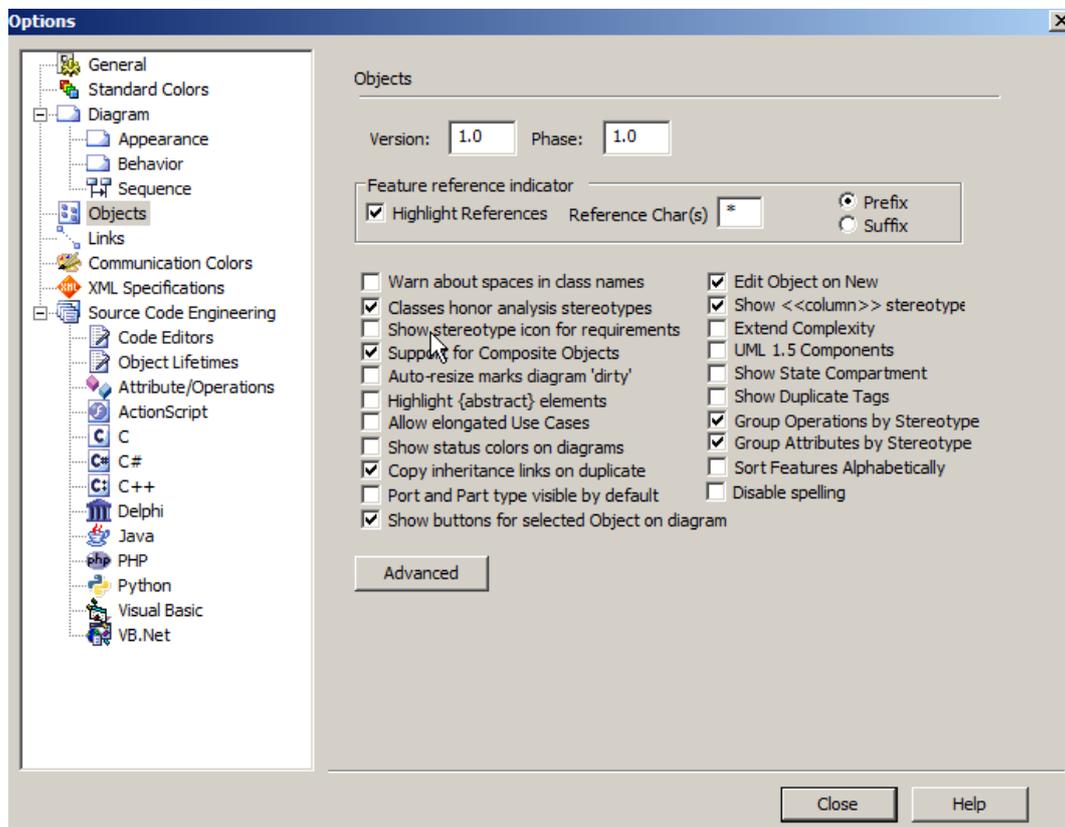


380

381

Figure 10 – Attributes order 1/3

382 b) Unselect the option “Sort Features Alphabetically” Sort Features Alphabetically (see Figure
383 11)

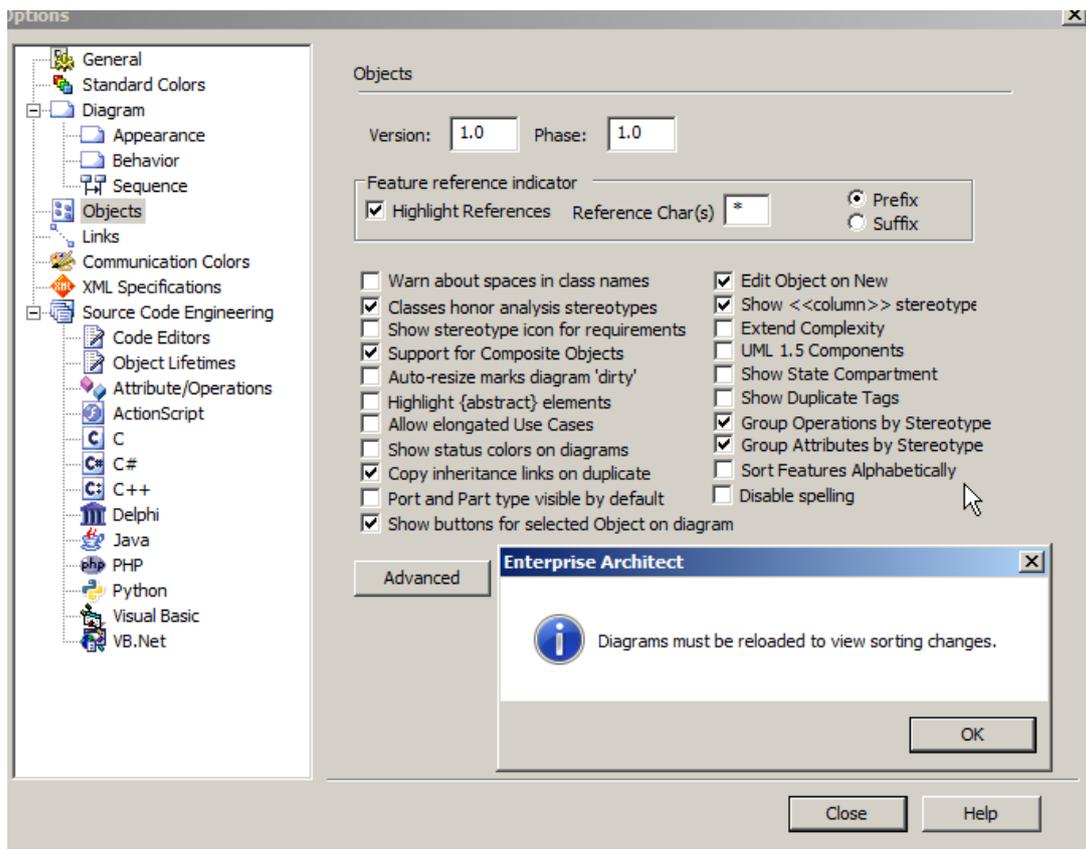


384

385

Figure 11 – Attributes order 2/3

386 c) And click on close (see Figure 12).



387

388

Figure 12 –Attributes order 3/3

389 4.4 CIMContextor and CIMSyntaxgen plugins

390 Two plugins are used in order to:

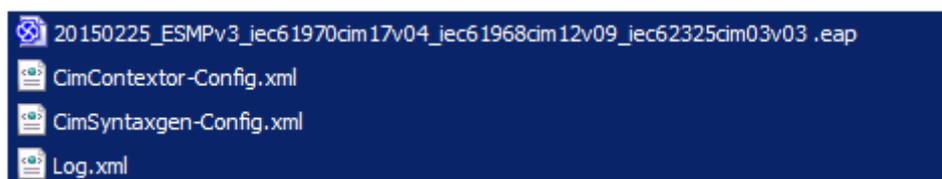
- 391 • Develop the regional contextual model, the document contextual and the assembly model;
392 this is done with CIMContextor
- 393 • Generate the documentation (IEC standard documentation or ENTSO-E documentation)
394 and the XML schema; this is done with CIMSyntaxgen.

395 Executables are provided to install these plugins.

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

- 397 • ./user/AppData/Roaming/Zamiren/CimContextor CimContextor-Config.xml
- 398 • ./user/AppData/Roaming/Zamiren/CimSyntaxGen CimSyntaxgen-Config.xml

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

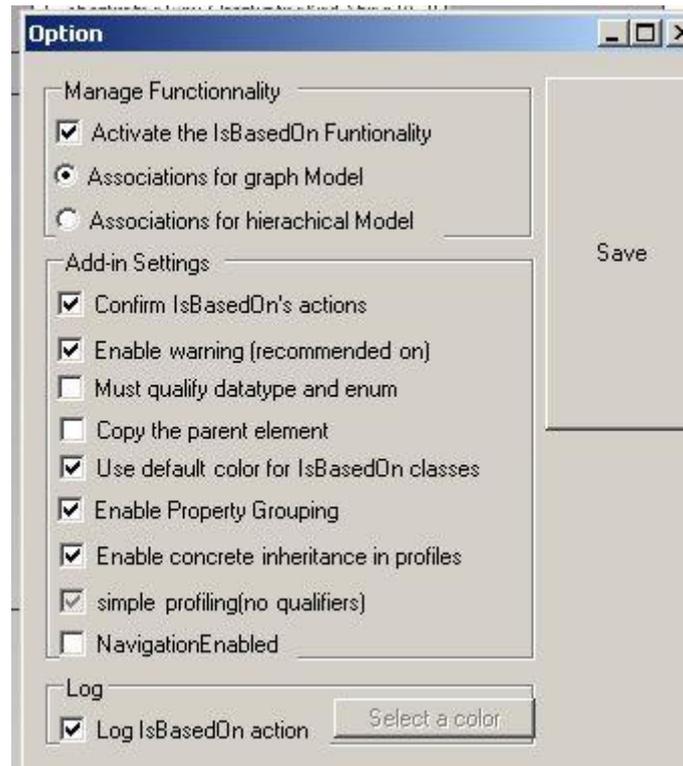


401

402

Figure 13 –CIMContextor and CIMSyntaxgen configuration files

403 Starting from version 2.2.18 of CIMContextor, a new parameter has been introduced, i.e.
404 NavigationEnabled. This parameter shall be unchecked for the European style market profile.
405 Figure 14 provides the recommended parameters.



406

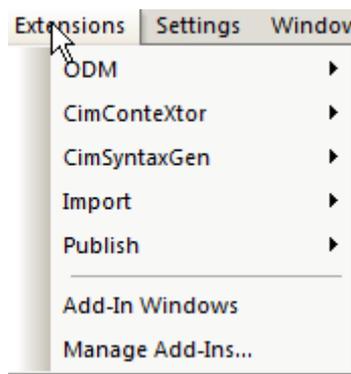
407

Figure 14 –CIMContextor configuration file recommended parameters

408 In addition, in order to have an appropriate working of CIMContextor and CIMSyntaxgen, to
409 start to work on a given file, it is mandatory to open the “.eap” file by double-clicking on the
410 file name, i.e. it is not recommended to open the “.eap” file through the Enterprise Architect
411 interface. If this recommendation is not followed, then generated files will not be written in the
412 appropriate folders.

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

414 To check if the installation was successfull, click on the “Extensions” to assess that
415 CIMContextor and CIMSyntaxgen are there (see Figure 15).



416

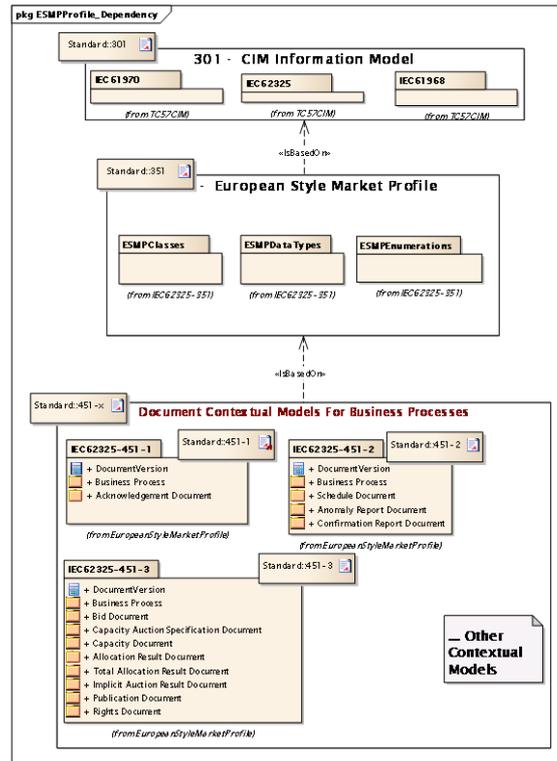
417

Figure 15 –CIMContextor and CIMSyntaxgen checking installation

418 5 European style market package structure

419 5.1 Overview

420 Figure 16 describes the main package structure of the European style market profile.



421

422

Figure 16 – Overview of European style market profile dependency

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

- 425
- 426 • The document contextual model (ABIE) derived by restriction from the European style market profile.
 - 427 • The automatically generated message assembly model (MBIE). This message assembly
428 model enables to generate the XML schema of the business document..

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

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

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

439 5.2 From the European style market profile to the document contextual model

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

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

447 In a final step the information analyst assembles together into a specific document contextual
448 model package the ABIEs to form a document model satisfying the business requirements.

449 **5.3 From the document contextual model to the message assembly model**

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

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

456 **5.4 From the assembly model to the XML schema**

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

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

461 **6 Rules to create a new business package in the UML model**

462 **6.1 Generic rules.**

463 The following rules are to be strictly respected:

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

466 b) A new class, attribute or association to be included in the IEC 62325-351 package is to be
467 discussed first within ENTSO-E WG EDI and then submitted to IEC TC 57 WG 16 for
468 approval. Such class or association is to be “IsBasedOn” a CIM class or association (IEC
469 61968-11, IEC 61970-301 or IEC 62325-301). Otherwise, rule a) is to be applied.

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

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

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

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

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

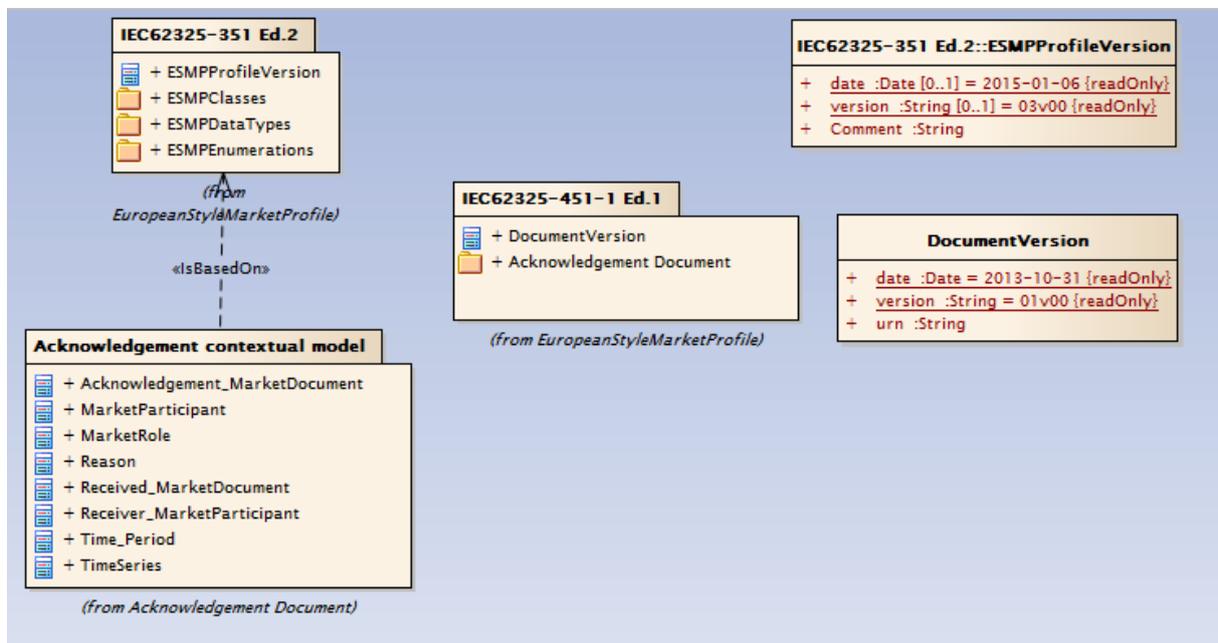
491 **6.2 Rules about the organization of the European style market profile package.**

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

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

496 b) All the roles to be used in these diagrams are to be in the “Role” package of the “Use
497 Case Library”; if a role is missing, a maintenance request is to be made at ENTSO-E WG
498 EDI for its creation.

- 499 c) It is forbidden to create a diagram using a role not defined in the reference “Role”
500 package.
- 501 d) When creating a new package for a business process, the following steps are to be
502 carried out:
- 503 • Create the new package either in the “IEC62325-451 New” package or “ENTSO-E
504 packages” depending whether the business process will be an IEC International
505 Standards or an internal ENTSO-E business process.
 - 506 • Create a “Package diagram” selected from the “UML Structural” type of EA.
 - 507 • Create the two packages that will contain the contextual model and the assembly
508 model. The names of the package shall be “*Namebusiness process contextual model*”
509 and “*Namebusiness process assembly model*” respectively
 - 510 • Drag and drop the IEC 62325-351 package and the contextual model package, and do
511 a “Dependency” association with a type “IsBasedOn” (see Figure 17) in the “Package
512 diagram”.
- 513 e) Then, refer to § 0



514

515

Figure 17 – “Package” diagram example

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

522 6.3 Rules about the organization of the ENTSO-E package.

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

- 525 g) When a new package is to be developed, a use case, sequence and/or workflow diagrams
526 shall be drafted. These diagrams are to be in the “Use Case Library” of the “ENTSO-E”
527 package.
- 528 h) The roles to be used in these diagrams shall either be roles defined in the “Role”
529 of the “Use Case Library” of the ESMP package or new roles for the specific business
530 process; in such a case, a maintenance request is to be made at ENTSO-E WG EDI in
531 order that WG EDI is aware that a new ENTSO-E role will be used. If ENTSO-E decided

532 that the specific business process is to be an IEC or CENELEC standards, then the new
533 role will be moved in the ESMP package.

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

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

537 **6.4 Rules on the use of Enterprise Architect**

538 **6.4.1 Description of packages**

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

542 **6.4.2 Description of contextual classes and attributes**

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

547 **6.4.3 Description of contextual mRID attribute**

548 When a class contains a mRID attribute, the generic description is inherited from the IEC
549 61970, i.e. the description is the following one: “Master resource identifier issued by a model
550 authority. The mRID is globally unique within an exchange context. Global uniqueness is
551 easily achieved by using a UUID for the mRID. It is strongly recommended to do this. For
552 CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that
553 identify CIM object elements.”

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

557 **Table 2 – mRID description contextualisation in IEC 62325-351**

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

ACC Class	mRID description - examples
MarketAgreement	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.
...	...

558

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

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

ABIE Class	Description
MarketDocument	The unique identification of the document being exchanged within a business process flow.
MarketParticipant	The identification of a party in the energy market.
MarketAgreement	The unique identification of the agreement.
...	...

563

564 6.4.4 Description of contextual association

565 Each association shall have a description of the end role.

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

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

ACC Class	Association end role name	End role name Description
MarketDocument	MarketParticipant	The MarketParticipant associated with an electronic document header.
...

571

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

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

ABIE Class	Association end role name	End role name Description
MarketDocument	Sender_MarketParticipant	Document owner.
MarketDocument	Receiver_MarketParticipant	Document recipient.

576

577 Thus, associations in an IEC 62325-451-n contextual model shall have a full description of the
578 role. This end role name description will be used for attributes description that are the result
579 of assembly model property grouping results.

580 6.4.5 Description of assembly model class and association

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

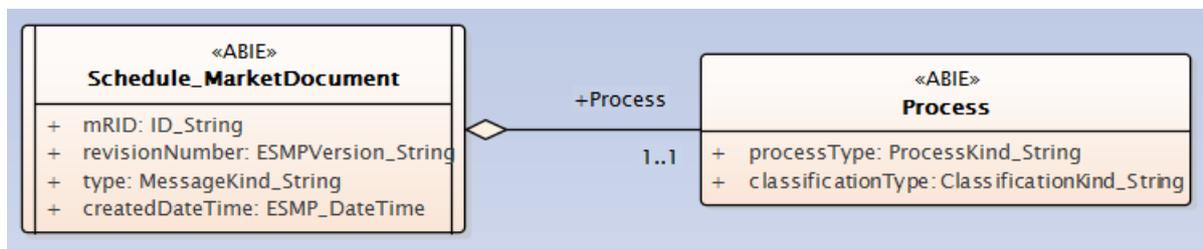
583 6.4.6 Description of assembly model attribute

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

- 585 • native attributes, that are part of the class and keep their original contextual description,
- 586 • attributes that are the result of the assembly process (property Grouping see section
587 7.2.6), whose description has been adapted as described below.

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

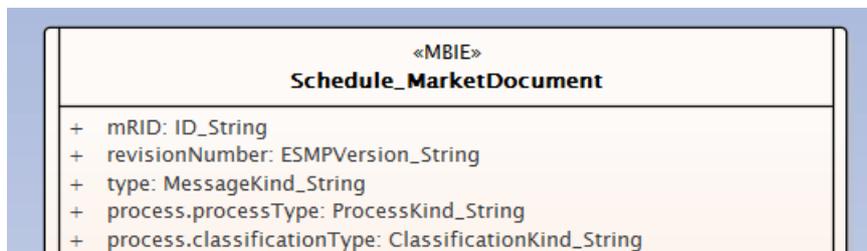
590 Consider the following classes association in a contextual document model (see Figure 18)



591

592 **Figure 18 – Contextual model example**

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



594

595 **Figure 19 – Assembly model example**

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

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

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

- 604 • Class Process, attribute processType description "The identification of the nature of
605 process that the document addresses."
- 606 • Class Process, attribute classificationType description "The classification mechanism used
607 to group a set of objects together within a business process. The grouping may be of a
608 detailed or a summary nature."

- 609 • Association “Schedule_MarketDocument - Process”, Process end role name description
610 “The process dealt with in the document.”
- 611 b) In the generated assembly model, the definition of the regrouped attributes will be the
612 concatenation of the contextual attribute description and the association end role name
613 description, see Table 6.

614 **Table 6 – Generated description in assembly model**

Regrouped Attribute	Description
process.processType	The identification of the nature of process that the document addresses. --- The process dealt with in the document.
process.classificationType	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. --- The process dealt with in the document.

615

616 **6.4.7 Guide lines for description**

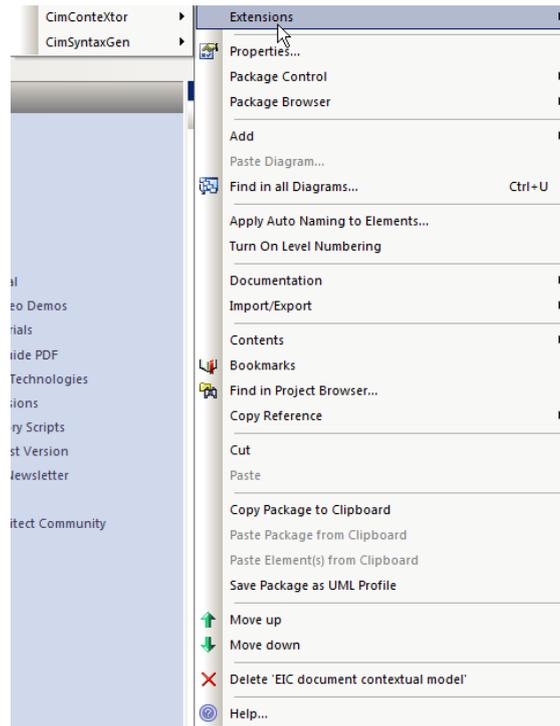
617 Thus, in order to have an appropriate documentation, iterations are to be carried out, i.e.

- 618 a) In the contextual model, initiate the process of documenting the classes, attributes and
619 associations descriptions;
- 620 b) Generate the assembly model using CIMContextor and the associated documentation with
621 CIMSyntaxgen;
- 622 c) Check the attributes description;
- 623 d) Apply correction as in step a).

624 **7 Use of CIMContextor**

625 **7.1 General overview**

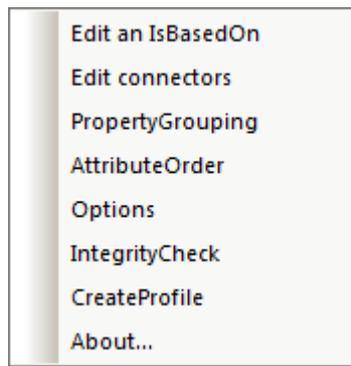
626 To call the CIMContextor menu, an object (class or package) is to be selected and then a
627 right click is to be made to open the dialog box (see Figure 20) and “CimContextor” is to be
628 selected to display the menu (see Figure 21 and Figure 22).



629

630

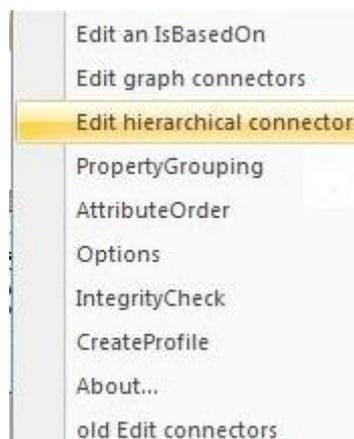
Figure 20 – Call CIMConteXtor menu



631

632

Figure 21 – CIMConteXtor main menu up to version 2.2.16



633

634

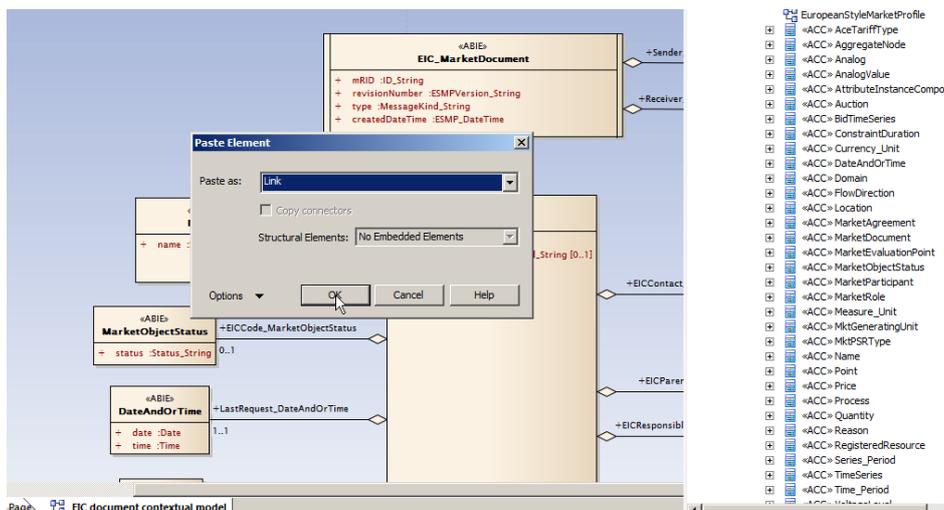
Figure 22 – CIMConteXtor main menu version 2.2.18

635 **7.2 CIMContextor main menu**

636 **7.2.1 Adding a class in a diagram**

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

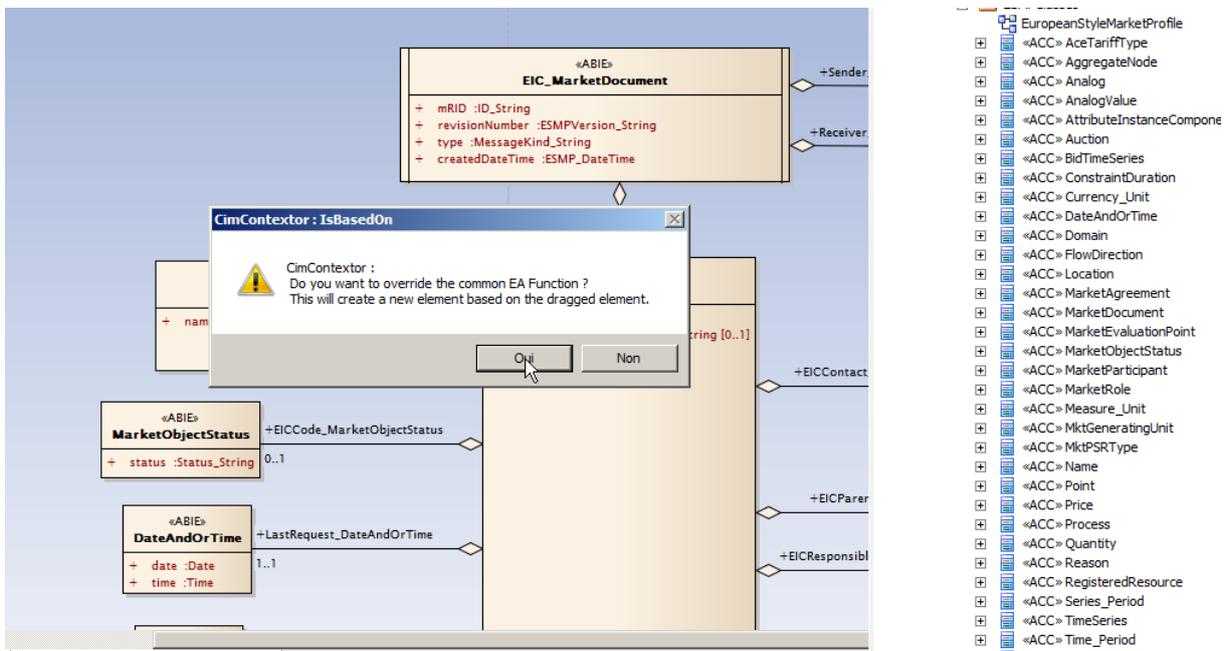
- 638 a) Select, in the appropriate “upper” package of classes, the class to be added:
- 639 • To create a class in the IEC 62325-351 class package, a CIM class (IEC 61968-11, IEC
 - 640 61970-301 or IEC 62325-301) is to be selected and dragged in the UML class diagram
 - 641 • To create a class in the IEC 62325-451-x contextual document package, a IEC 62325-351
 - 642 class is to be dragged in the UML class diagram
- 643 b) Drag the class from the “upper” package in the UML class diagram.
- 644 c) The dialog boxes (see Figure 23 and Figure 24) are displayed and click “OK” for both.



645

646

Figure 23 – Enterprise Architect menu

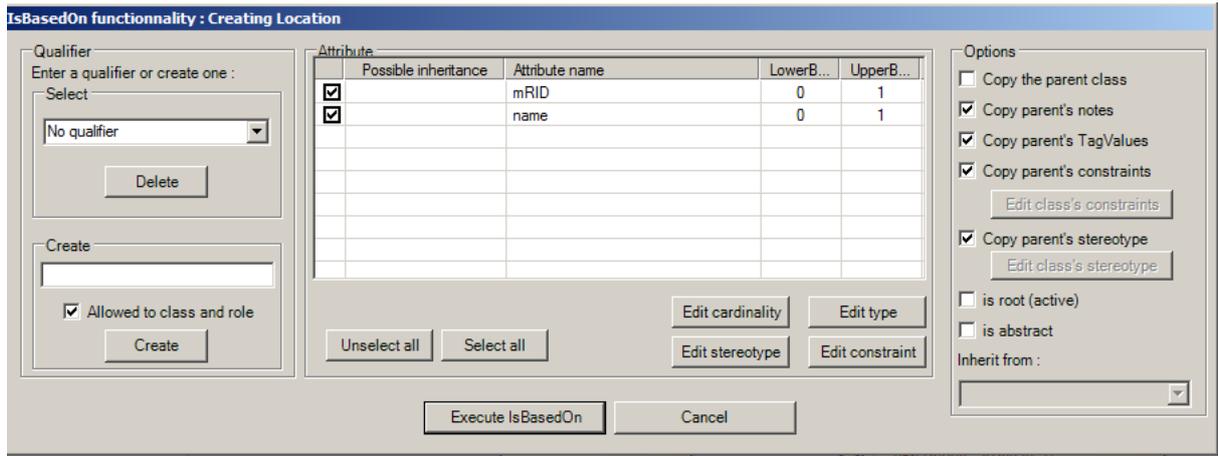


647

648

Figure 24 – Call CIMContextor

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



650

651

Figure 25 – « IsBasedOn » dialog window

652

e) For the root class of the document, click on the button “is root (active)”.

653

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:

654

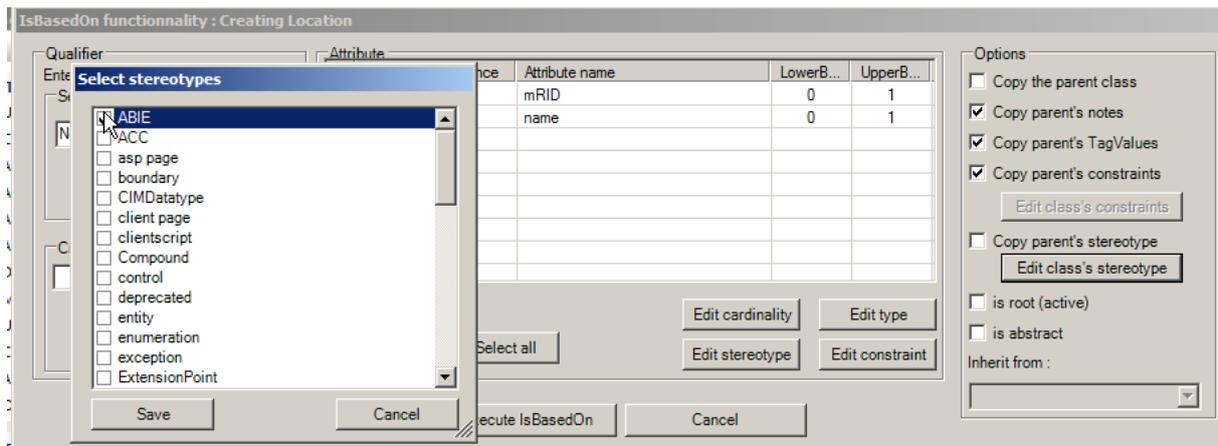
655

- 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”.

656

657

658



659

660

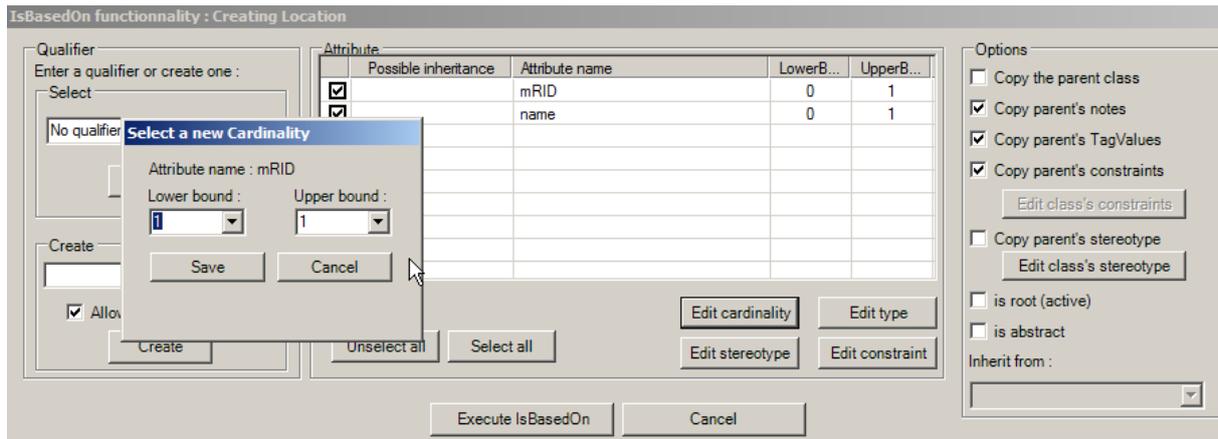
Figure 26 – Class stereotype

661

- 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).

662

663



664

665

Figure 27 – Attribute cardinality

666 • If the “upper” class has already been used in the UML class diagram, then for the second
667 (or next one) class a “qualifier” is to be defined. The name of the new class will be
668 “Qualifier_ClassName”.

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

671 **7.2.2 Change to the attributes of an existing class**

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

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

675 **7.2.3 Create an association (up to version 2.2.16)**

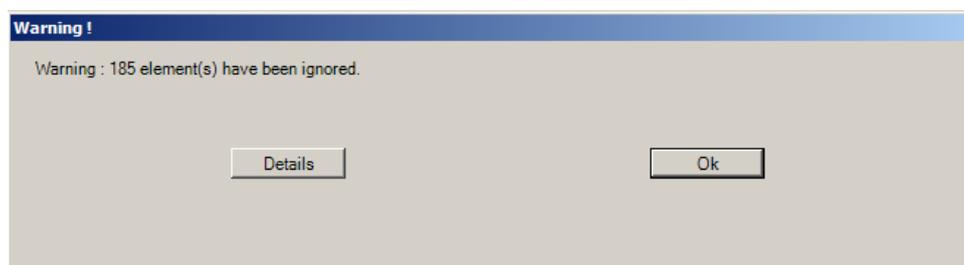
676 To create an association between two classes in the UML contextual class diagram, the
677 following steps are to be made:

678 a) Select one of the class to be associated.

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

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

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

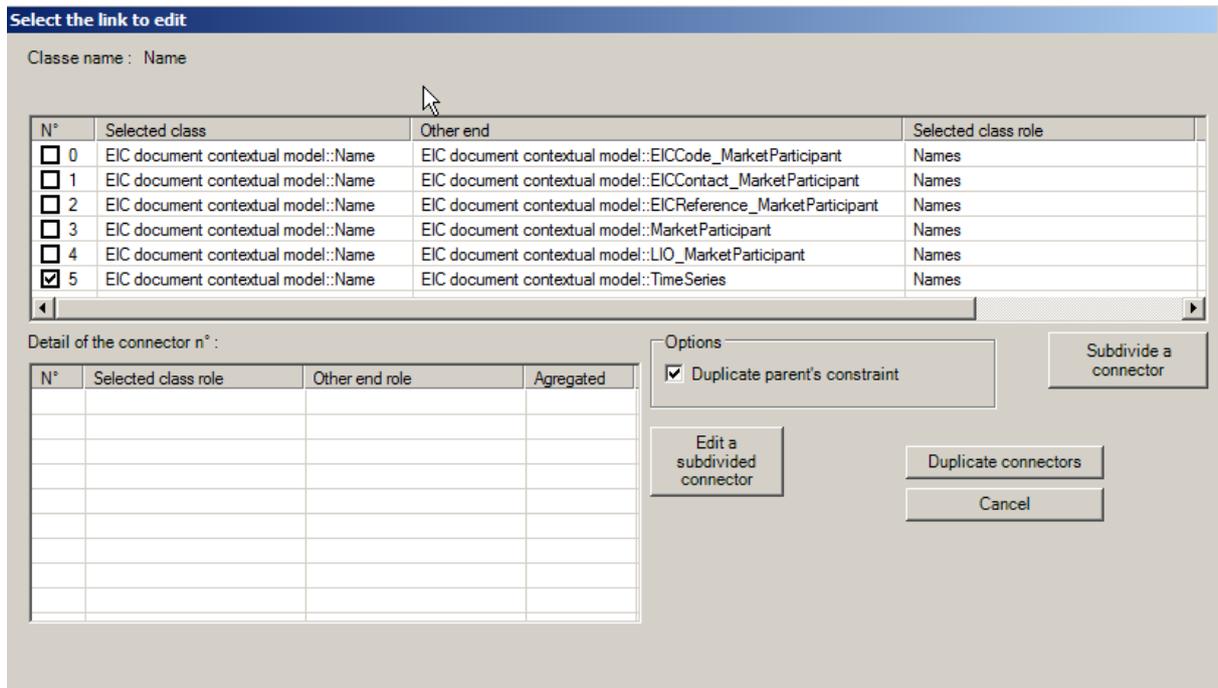


682

683

Figure 28 – « Edit connectors » warning box

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

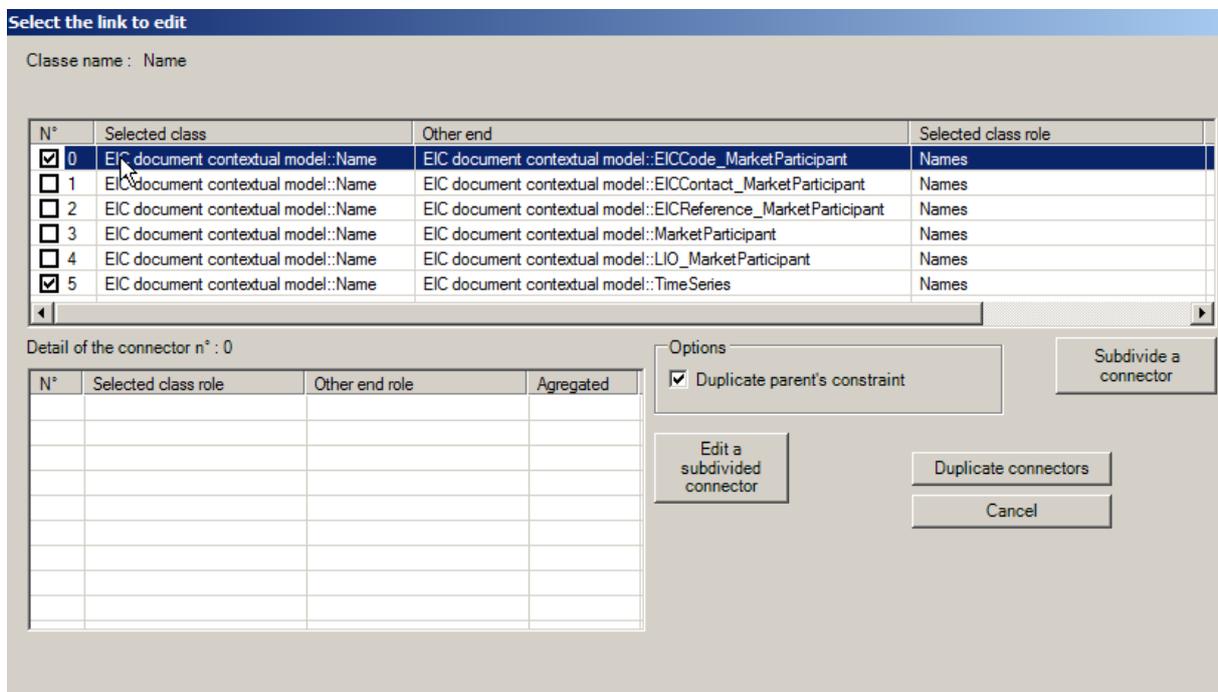


687

688

Figure 29 – « Edit connectors » dialog box

- 689 e) Click on the association to be created, as an example the association between the class
690 “Name” and the class “EICCode_MarketParticipant” has been ticked up, then select the
691 entire line and click on “Subdivide a connector” (see Figure 30).

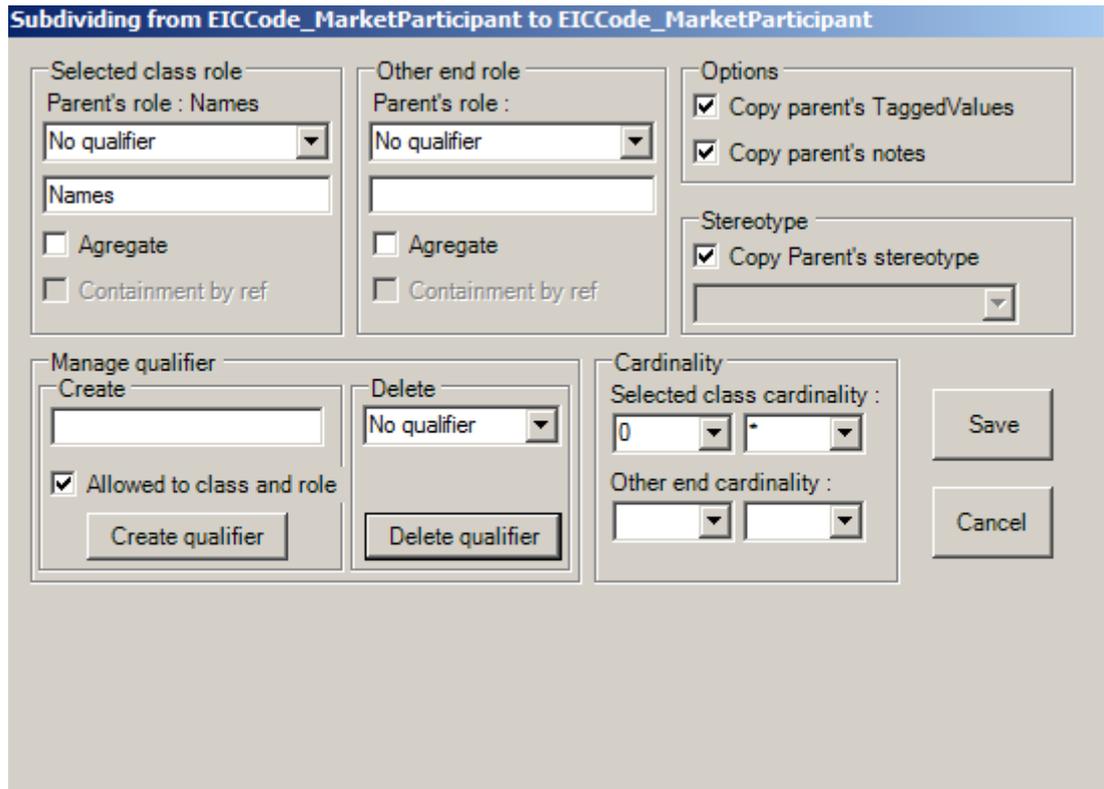


692

693

Figure 30 – Selection of « Subdivide a connector »

- 694 f) A new dialog box will appear (see Figure 31).



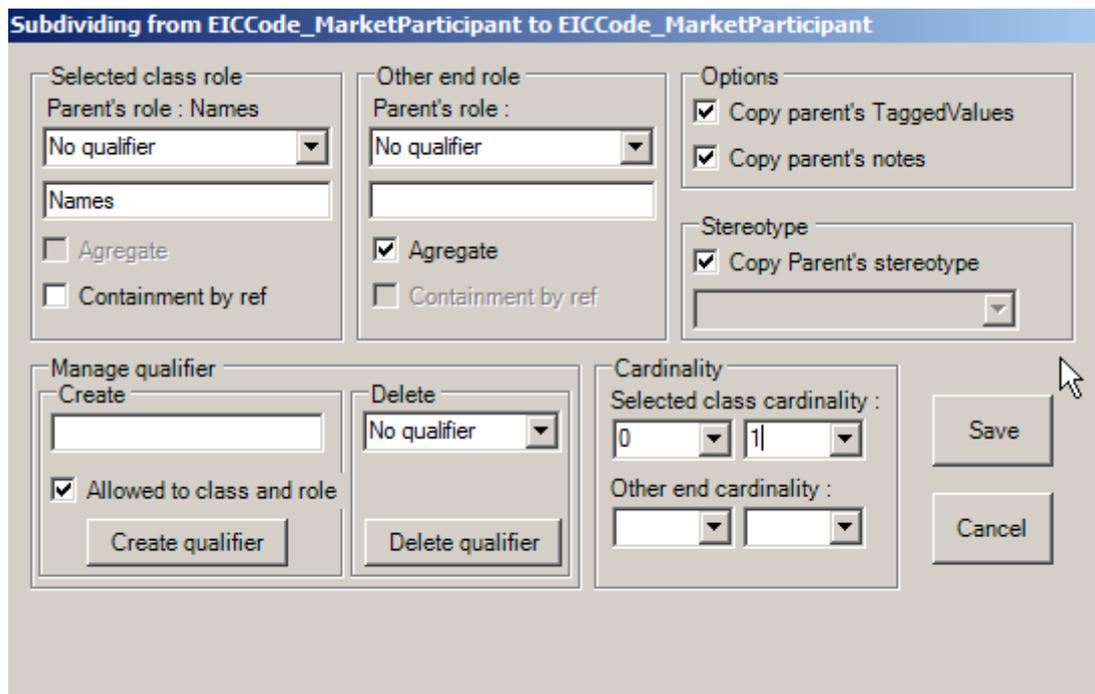
695

696

Figure 31 – « Subdivide a connector » dialog box

697 g) The following actions are to be done:

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



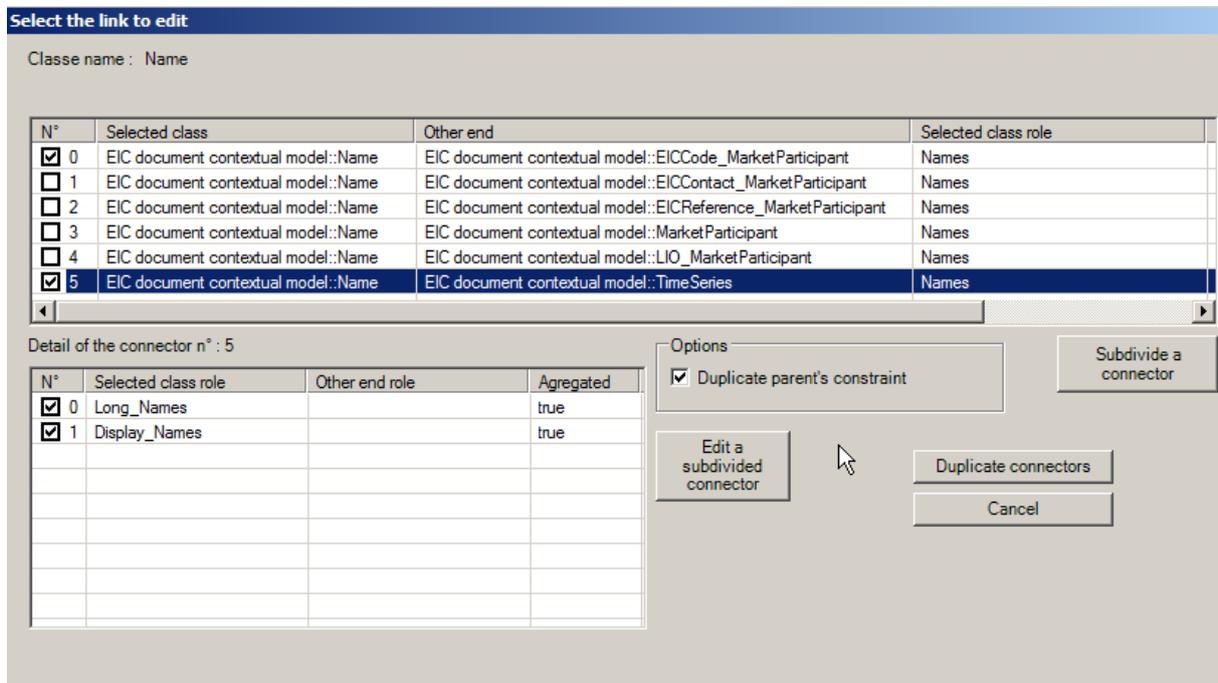
701

702

Figure 32 – « Subdivide a connector » dialog box example

- 703 • Click on “Save”;

- 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).



707

708

Figure 33 – « Edit connectors » dialog box example

- 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).

713 7.2.4 Create an association (from version 2.2.18)

714 7.2.4.1 New facility from CIMContextor 2.2.18

715 From version 2.2.18 of CIMContextor, the management of associations within the European
716 style market is improved.

717 Currently, in the CIM packages (IEC 61968-11, IEC 61970-301 and IEC 62325-301), all the
718 associations between classes are not oriented. In the package IEC 62325-351, it is necessary
719 to define an orientation of the association (restriction to the CIM), and then this orientation is
720 to be strictly respected within an IEC 62325-451-n package.

721 The following improvements have been made:

- 722 • Simplify the dialog box to select the association to be created;
723 • Enable the creation of oriented association within the IEC 62325-351 through a specific
724 dialog and then to have another dialog for the IEC 62325-451-n package where only the
725 cardinality could be updated.

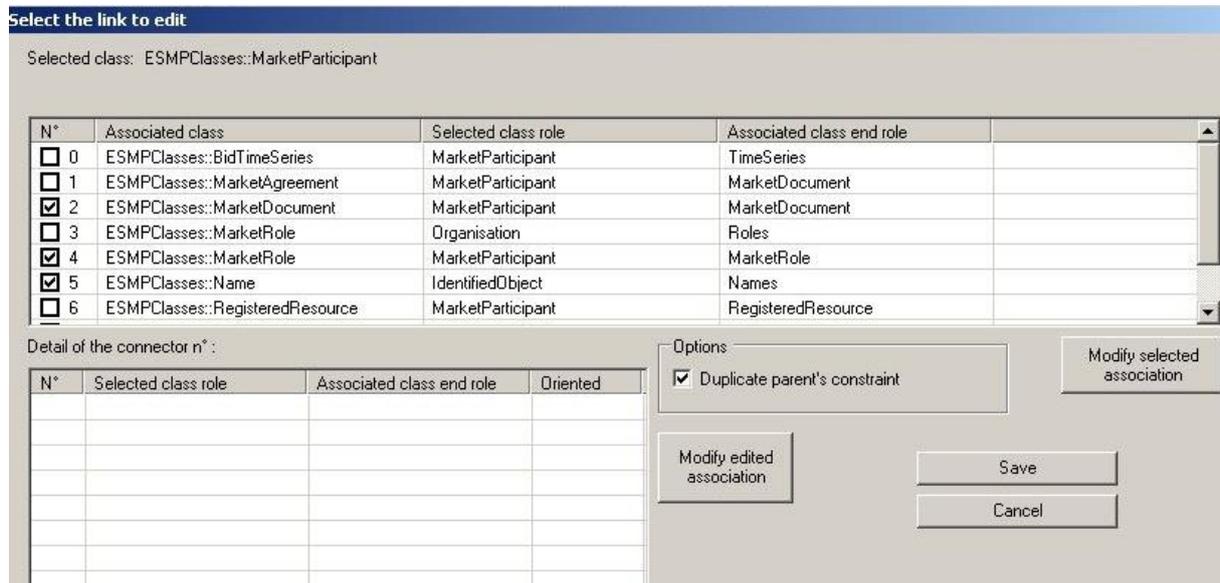
726 It is important that the CIMContextor parameter “NavigationEnabled” is unchecked (see
727 Figure 22) otherwise the aggregation will not work in appropriate way.

728 7.2.4.2 Creating an association in IEC 62325-351 package

729 To create a new association in the IEC 62325-351 package based on an existing “not
730 oriented” association in the CIM packages, the following steps are to be made:

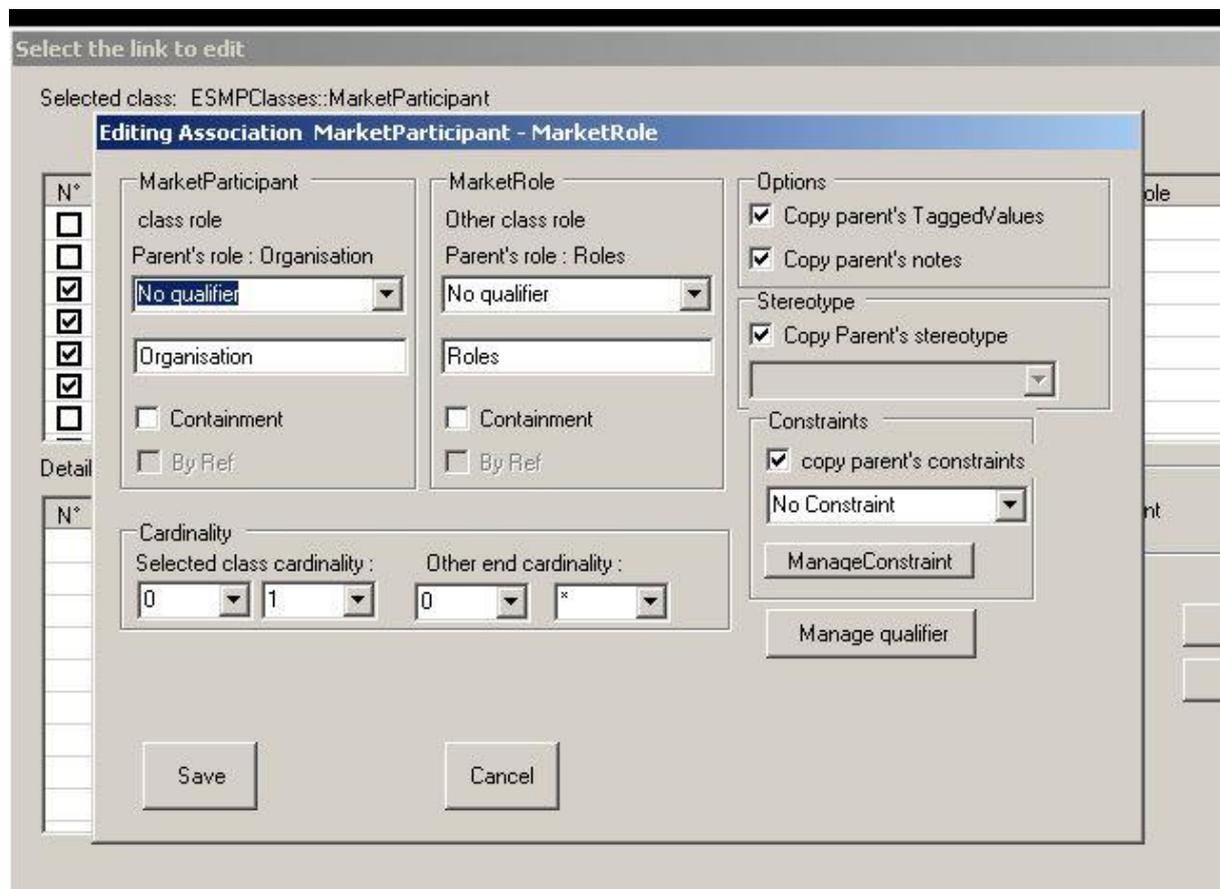
- 731 a) Select one of the class to be associated.
732 b) Right click, select “Extension”, then “CimContextor” and “Edit hierarchical connectors”.

- 733 c) The “Edit hierarchical connectors” dialog will open (see Figure 34). The possible
734 associations are listed in alphabetic order and the roles are provided.



735
736 **Figure 34 – « Edit connectors » dialog box**

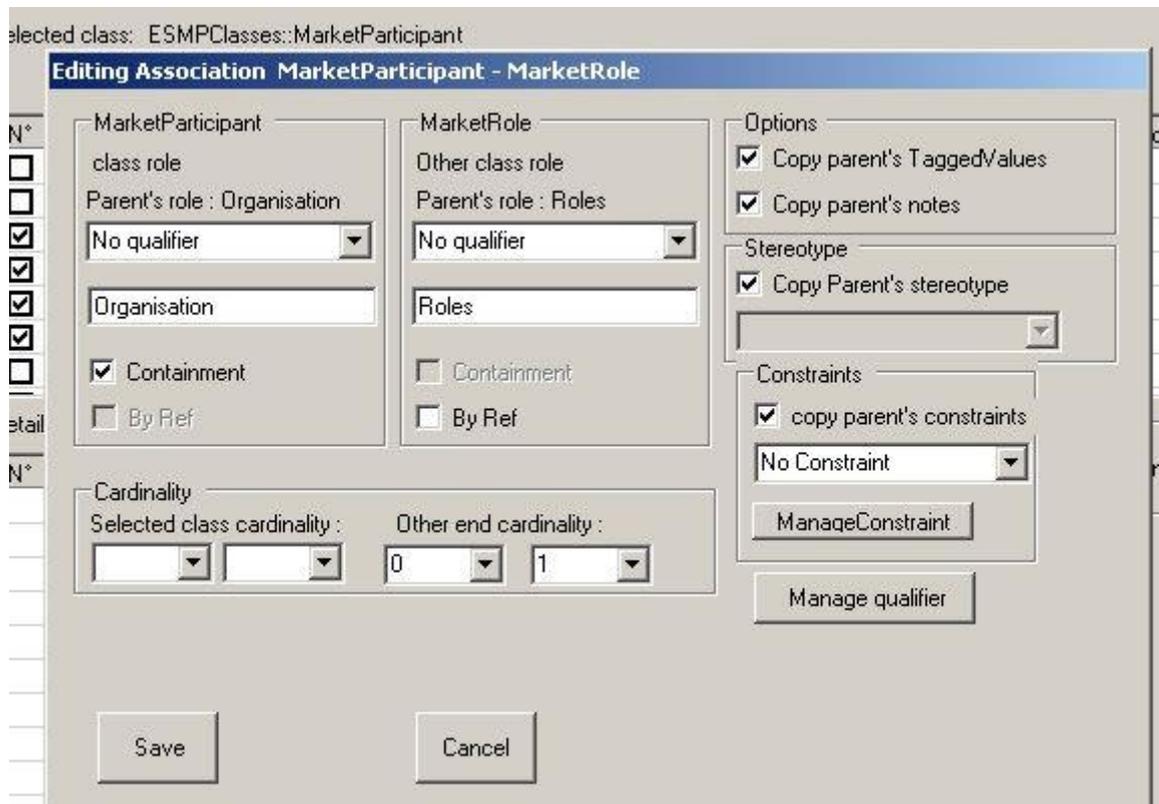
- 737 d) Click on the association to be created to tick it up, then select the entire line and click on
738 “Modify selected association”.
739 e) A new dialog box will appear (see Figure 31).



740
741 **Figure 35 – « Modify selected association » dialog box for IEC 62325-351 package**

- 742 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):



746

747 **Figure 36 – Setting the cardinality**

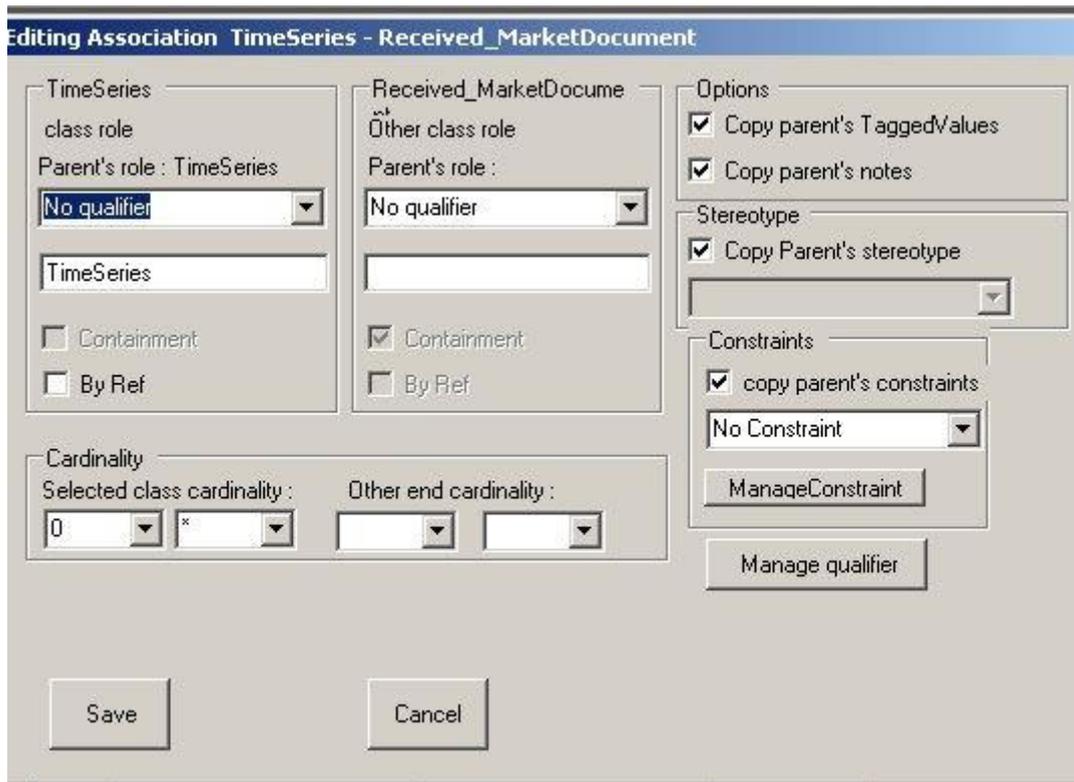
- 748 • Click on “Save”;
- 749 • The “Modify selected association” dialog box is displayed.
- 750 g) Additional associations could be defined in the same process, by selecting a new line and
- 751 “Modify selected association”.
- 752 h) When all associations have been created, click on “Save” to generate the associations in
- 753 the UML contextual class diagram.

754 **7.2.4.3 Creating an association in IEC 62325-451-n package**

755 To create an association within an IEC 62325-451-n package, the dialog has been simplified
756 as all associations in the IEC 62325-351 package are oriented. Thus the only changes are on
757 the cardinality of the association and the qualifier of the roles.

758 The following steps are to be made:

- 759 a) Select one of the class to be associated.
- 760 b) Right click, select “Extension”, then “CimContextor” and “Edit hierarchical connectors”.
- 761 c) The “Edit hierarchical connectors” dialog will open (see Figure 34). The possible
- 762 associations are listed in alphabetic order and the roles are provided.
- 763 d) Click on the association to be created to tick it up, then select the entire line and click on
- 764 “Modify selected association”.
- 765 e) A new dialog box will appear (see Figure 37). There is no way to change the association
- 766 orientation.



767

768 **Figure 37 – « Modify selected association » dialog box for IEC 62325-451-n package**

769 f) The following actions are to be done:

- 770 • If necessary provide a qualifiers to the role;
- 771 • Define the cardinality of the relation;
- 772 • Click on “Save”;
- 773 • The “Modify selected association” dialog box is displayed.

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

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

778 7.2.5 AttributeOrder

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

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

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

787 a) Select one of the class to be associated.

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

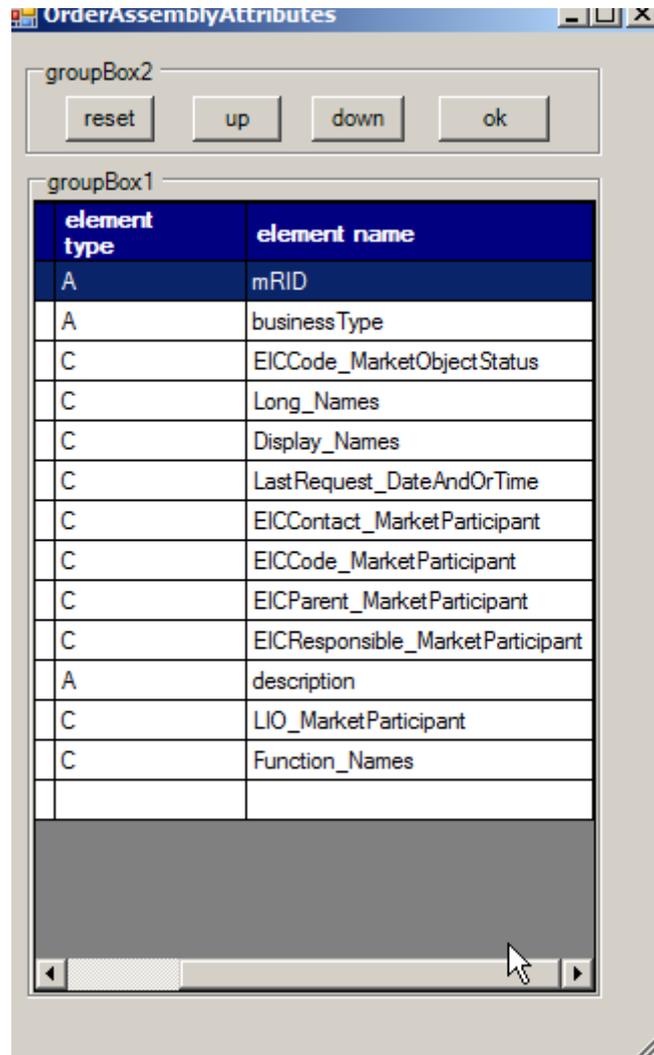
789 b) Right click, select “Extension”, then “CimContextor” and “AttributeOrder”.

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

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

793 e) When the order is fine, click on “ok” to end the dialog and save the configuration.

794 It is recommended that the association of multiplicity 0..* be put at the end of the list of
795 attributes.



796

797 **Figure 38 – « AttributeOrder » dialog box example**

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

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

802 **7.2.6 PropertyGrouping**

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

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

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

808 a) In the package browser, select the assembly package to be generated.

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

810 Note: if the name of the assembly package does not follow the rule (§ 6.2), an error message is displayed.

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

812 The generation process starts, and some confirmation will be asked during the process; click
813 “Ok” when requested.

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

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

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

821 7.2.7 IntegrityCheck

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

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

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

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

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

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

830 8 Use of CIMSyntaxgen

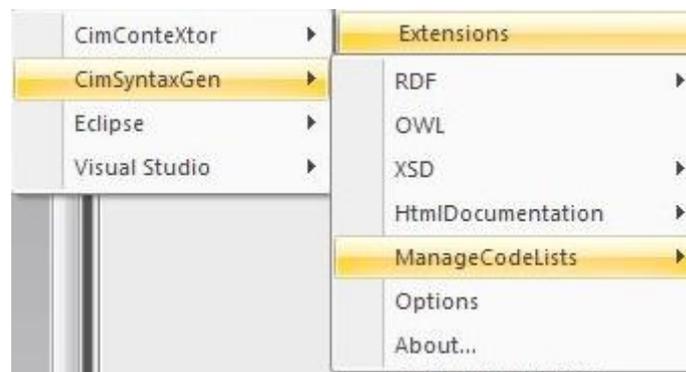
831 8.1 General overview

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

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

837 Note: see on <http://www.iec.ch/> and search for “IEC_template” for the iecsdtdot. The IEC site will enable to
838 download the IEC user guide for generating the documentation.

839 Figure 39 shows the options of the CIMSyntaxgen menu.



840

841 **Figure 39 – CIMSyntaxgen menu**

842 The options of interest are the following ones:

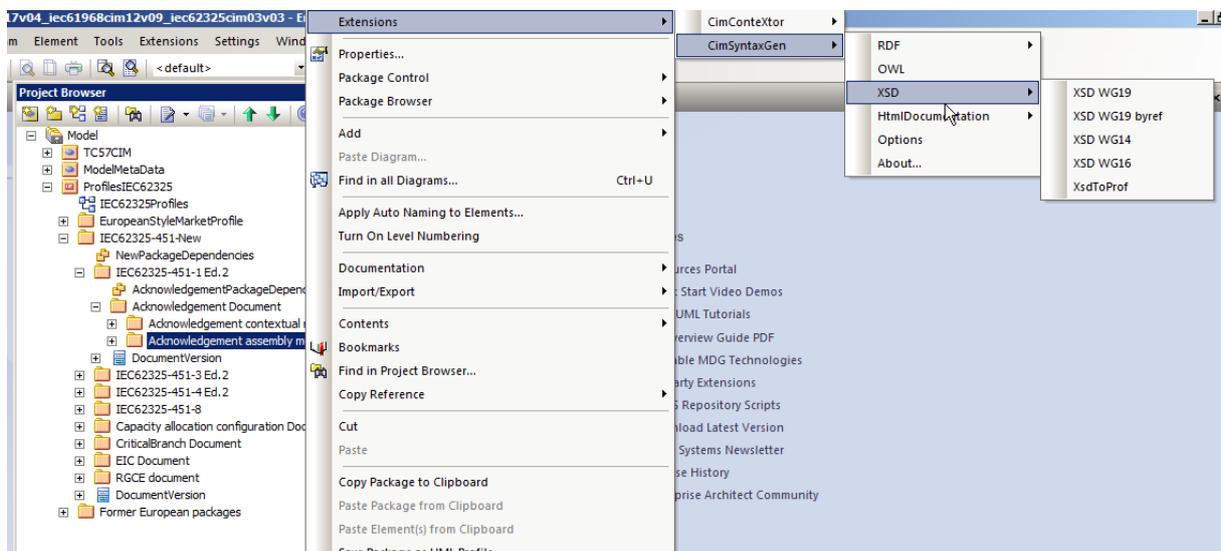
- 843 • XSD: to generate the schema from the UML assembly model (see § 8.2).
- 844 • HtmlDocumentation: to generate the HTML file of the documentation (see § 8.3).
- 845 • ManageCodeLists: to import a XSD codelist or to generate the XSD codelists and the
846 associated documentation (see § 8.4).

847 **8.2 Generating a XML schema from an assembly model**

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

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

- 852 • In the UML project browser, click right on the assembly package of the document (in the
853 example, the acknowledgement assembly package);
- 854 • Select “Extension”;
- 855 • Select “CimSyntaxgen”;
- 856 • Select “XSD”;
- 857 • Select “XSD WG16”

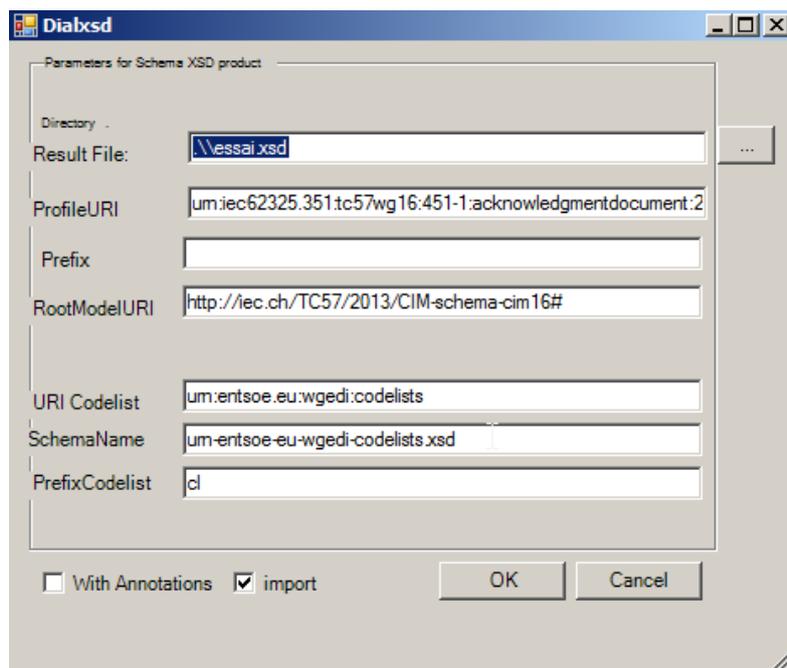


858

859 **Figure 40 – Running CIMSyntaxgen to generate a XSD**

859

860 The following dialog box opens, see Figure 41.



861

862 **Figure 41 – CIMSyntaxgen dialog box to generate a XSD (import option)**

863 The user shall then provide the following information:

864 • Result File: the name of the XSD file to be generated (there is a new dialog box to state in
865 which folder the file is to be registered);

866 • ProfileURI: this is the standard namespace and it is composed as follow:

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

868 where:

869 a) iec62325.351 shall be the stem of all European style market profile XML schema
870 namespaces.

871 b) tc57wg16 identifies the organisation or group of organisations within IEC that own the
872 object being referenced. In the case of TC57 this shall be the WG16.

873 c) <process> identifies the specific process where the object is situated, e.g. the part of the
874 IEC 62325 standards in which the XML schema is defined, e.g. 451-1, 451-2, 451-3, etc.

875 d) <document> identifies the electronic document schema.

876 e) <version> identifies the version of the document schema.

877 f) <release> identifies the release of the document schema.

878 • Prefix: blank value.

879 • RootModelURI: <http://iec.ch/TC57/2013/CIM-schema-cim16#>.

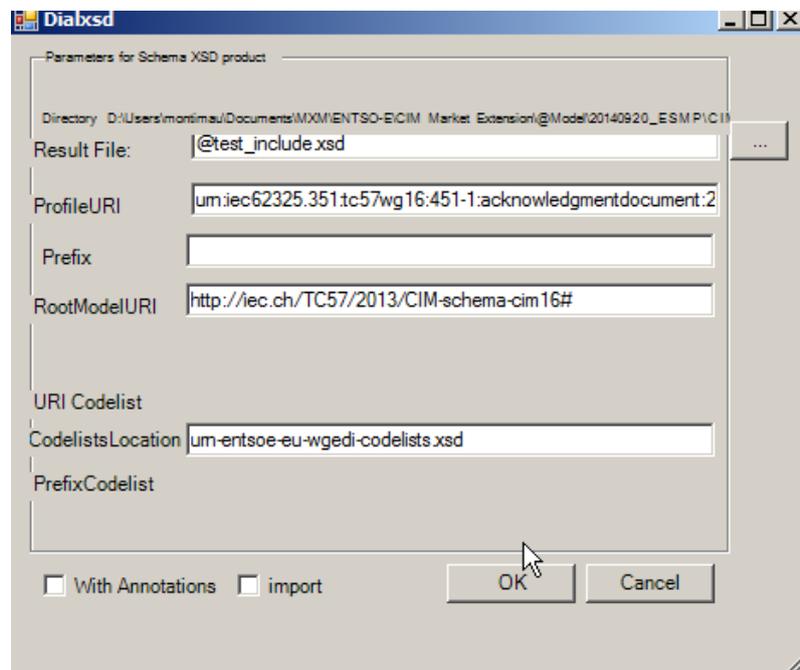
880 • URI Codelist: the URI of the codelist to be used, i.e. urn:entsoe.eu:wgedi:codelists .

881 • SchemaName: the filename of the codelist, i.e. urn-entsoe-eu-wgedi-codelists.xsd.

882 • PrefixCodelist: the prefix used in the schema for the codelist, i.e. cl.

883 • The case “import” enables to generate a schema with the “import” option of the codelist, if
884 the case is not selected, see Figure 42, an xsd with the “include” option of the codelist is
885 generated.

886 • Then click “OK” to generate the xsd; at the end a dialog box “End” will be displayed.



887

888 **Figure 42 – CIMSyntaxgen dialog box to generate a XSD (no import option)**

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

890 The main differences between the two generated schema are as follows:

891 In the “import option”, the xsd first lines are as follows:

```
892 <?xml version="1.0" encoding="utf-8"?>
893 <xs:schema xmlns:cl="urn:entsoe.eu:wgedi:codelists"
894 xmlns:sawSDL="http://www.w3.org/ns/sawSDL" xmlns="urn:iec62325.351:tc57wg16:451-
895 1:acknowledgmentdocument:2:0" xmlns:cimp="http://www.iec.ch/cimprofile"
896 attributeFormDefault="unqualified" elementFormDefault="qualified"
897 targetNamespace="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0"
898 xmlns:xs="http://www.w3.org/2001/XMLSchema">
899 <xs:import schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd"
900 namespace="urn:entsoe.eu:wgedi:codelists" />
```

901 And the reference to the codelist is done as follows:

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

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

```
907 <?xml version="1.0" encoding="utf-8"?>
908 <xs:schema xmlns:sawSDL="http://www.w3.org/ns/sawSDL"
909 xmlns="urn:iec62325.351:tc57wg16:451-1:acknowledgmentdocument:2:0"
910 xmlns:cimp="http://www.iec.ch/cimprofile" attributeFormDefault="unqualified"
911 elementFormDefault="qualified" targetNamespace="urn:iec62325.351:tc57wg16:451-
912 1:acknowledgmentdocument:2:0" xmlns:xs="http://www.w3.org/2001/XMLSchema">
913 <xs:include schemaLocation="urn-entsoe-eu-wgedi-codelists.xsd" />
```

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

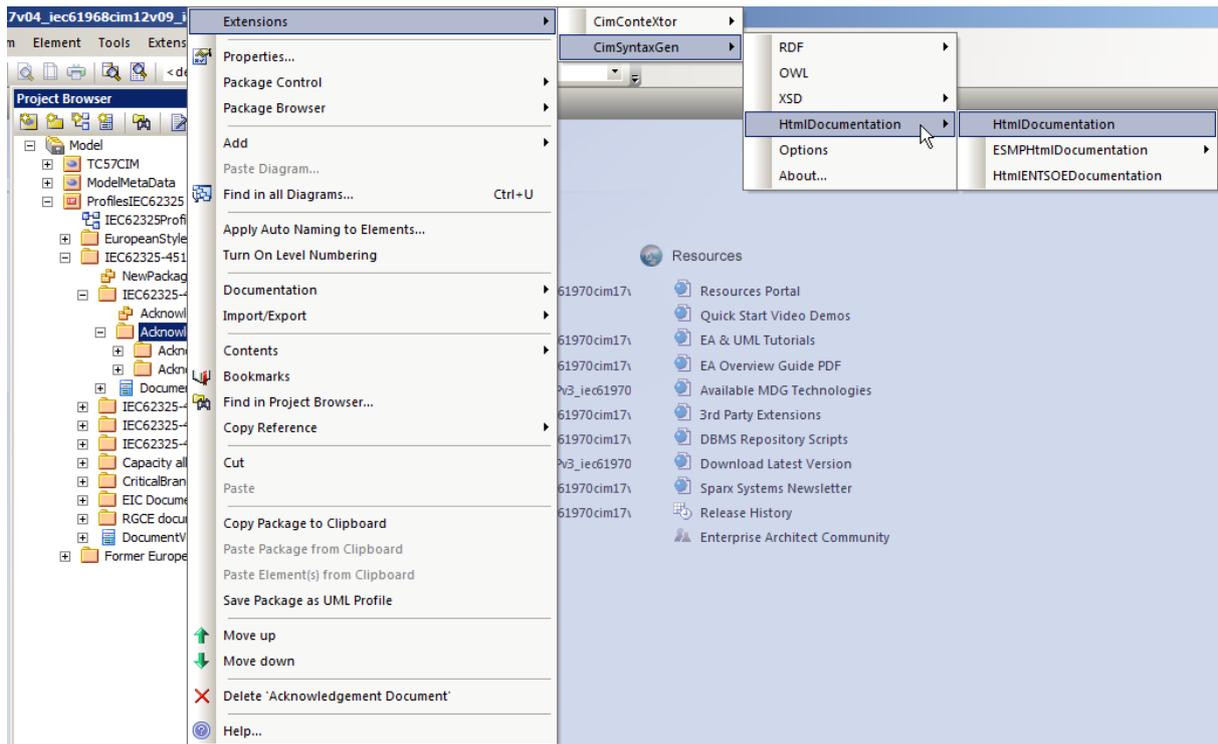
```
915 <xs:simpleType name="MarketRoleKind_String"
916 sawSDL:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
917 <xs:restriction base="RoleTypeList" />
918 </xs:simpleType>
```

919 8.3 Generating the documentation of UML models

920 8.3.1 Overview

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

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



928

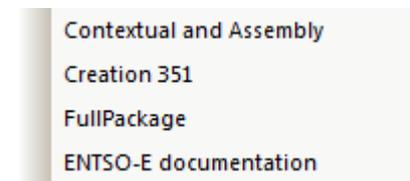
929

Figure 43 – Running CIMSyntaxgen to generate documentation

930

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

931



932

933

Figure 44 – Options of CIMSyntaxgen to generate documentation

934

8.3.2 Generating the ENTSO-E documentation

935

The ENTSO-E documentation is generated from the UML package that contains the contextual model and the assembly model.

936

937

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.

938

939

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

940

941

The generated html file outlines are as follows:

942

- Contextual model

943

- a) Diagram of the contextual model

944

- b) IsBasedOn dependency

945

- Assembly model

946

- a) Diagram of the assembly model

947

- b) IsBasedOn dependency

948

- c) 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

949

950 listed in the XML schema. The associations between classes are also described and the
951 order ranking is also provided.

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

955 **8.3.3 Generating the IEC standard documentation**

956 **8.3.3.1 Part 351**

957 The “part 351” documentation, i.e. IEC 62325-351 Chapter 6.1, “European style market
958 classes”, is generated from the UML package “ESMPClasses” in the package “IEC62325-
959 351”.

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

962 **8.3.3.2 A conceptual and assembly models**

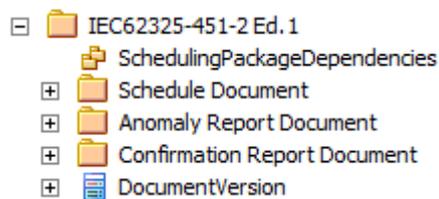
963 The conceptual and assembly models documentation for a document is generated from the
964 document package, e.g. for the acknowledgement document by selection the UML package
965 “Acknowledgement Document”. The generated part is the one corresponding to Chapter 6,
966 “Contextual and assembly models”.

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

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

971 **8.3.3.3 A set of conceptual and assembly models**

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



978

979 **Figure 45 – “FullPackage” option**

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

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

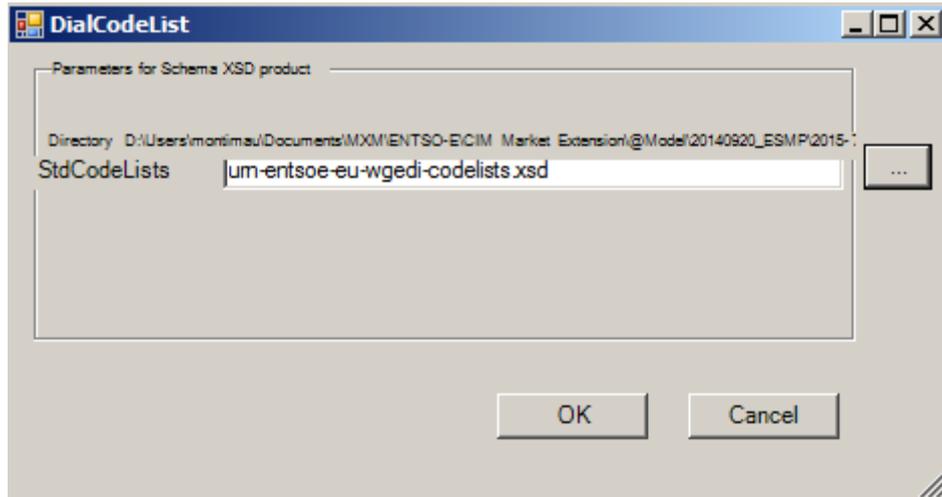
984 **8.3.4 Generating the MS Word file.**

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

988 The following procedure is to be applied:

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

- 993 • With the file browser, select the html file generated and click right to select “Open with”
994 and select MS Word.
- 995 • Attach the dotm file to the opened html file. Depending upon the MS Word version, you
996 have to select:
- 997 • MS Word 2010: “File“ then “Options” then “Add-Ins”; at the bottom, next to “Manage”,
998 select “Word Add-ins”, then click “Go”.
- 999 • MS Word 2007: “MS Office button”, in the upper left hand corner, then select “Word
1000 options” and do as per MS Word 2010.
- 1001 • Click on “Attach” and select the “iec_esmpvnn.dotm” file.
- 1002 • Click on “Automatically update document style”.
- 1003 • Click on “OK”.
- 1004 • Then click on “Display” and select the “Macro” and run “apourIEC”.
- 1005 • At the end a dialog box is displayed.
- 1006 • Save the file as a MS Word file and attach the iecstd.dot document to be compatible with
1007 IEC standards.
- 1008 **8.4 Management of codelist**
- 1009 **8.4.1 Description**
- 1010 The ESMPEnumerations package contains all the enumerations used within ENTSO-E.
- 1011 All the schema developed in the framework of the European style market profile are using
1012 external XML documents to provide the list of codes to be used in the various enumerations.
- 1013 The following XSD documents are to be used:
- 1014 • urn-entsoe-eu-wgedi-codelists.xsd – the XSD to be used with all the CIM XSD.
- 1015 • urn-entsoe-eu-local-extension-types.xsd – the XSD to be used with all the CIM XSD.
- 1016 • etso-code-lists– the XSD to be used with all the ENTSO-E nonnamespace XSD.
- 1017 This module of CIMSyntaxgen enables:
- 1018 • to import an existing urn-entsoe-eu-wgedi-codelists.xsd in a package;
- 1019 • to generate from the ESMPEnumerations package the three codelists (previously
1020 described) and the associated documentation.
- 1021 **8.4.2 Import**
- 1022 In order to carry out the import, the following steps are to be carried out:
- 1023 • Create a new package in the UML model with an associated class diagram.
- 1024 • Select this new package and right click in the menu to select Extension, CimSyntaxGen,
1025 ManageCodeLists and ImportCodeLists.
- 1026 • A dialog box will open (see Figure 46) and enter the StdCodeLists, i.e. the path of the
1027 codelist to be imported
- 1028 • Click “OK” and the codes defined in the file “StdCodeLists” are imported.



1029

1030

Figure 46 – CodeLists dialog

1031 The import function is to be carried out on an empty package, however an empty “class”
1032 diagram is to be included in the package before running the import function.

1033 The enumerations generated shall not be copied into the ESMPEnumerations package, as
1034 each enumeration has a unique GUID and enumeration is referred to, based on this GUID, in
1035 the EMSPClasses (and thus in all the IEC 62325-451-n classes).

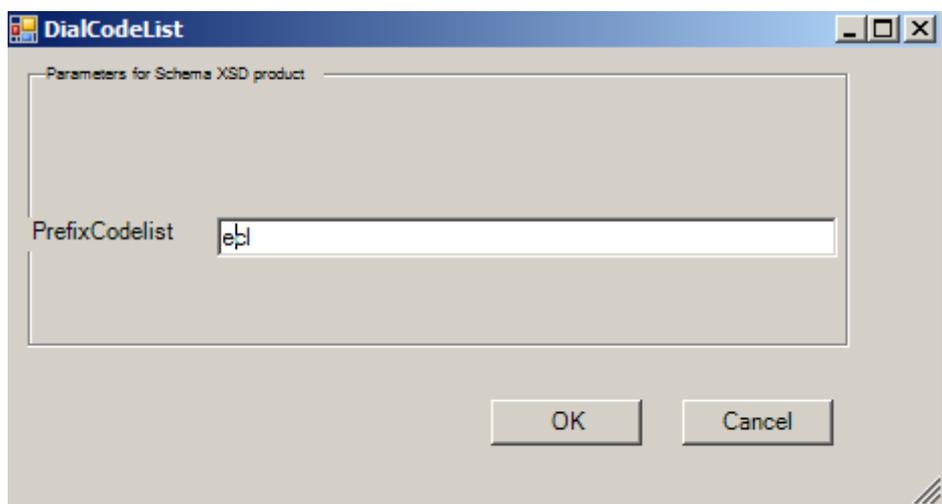
1036 Only the attributes of an enumeration could be copied from the import codelist in the
1037 ESMPEnumerations package.

1038 **8.4.3 Generation of the codelists and documentation.**

1039 In order to carry out the export, the following steps are to be carried out:

1040 • Select the ESMPEnumerations package and right click in the menu to select Extension,
1041 CimSyntaxGen, ManageCodeLists and ExportCodeLists.

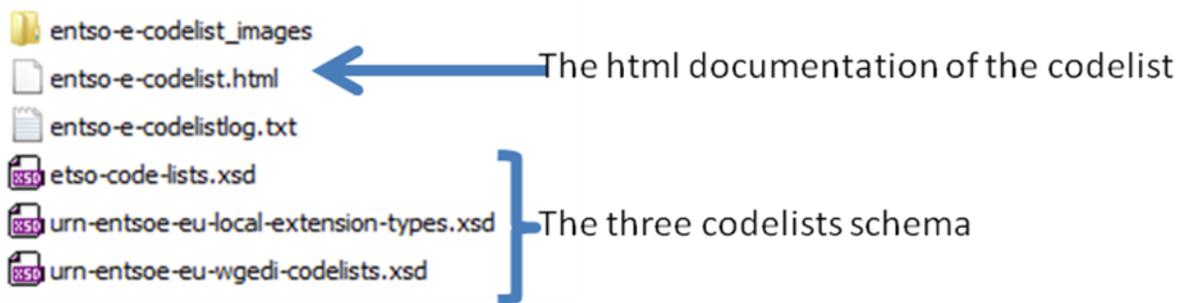
1042 • A dialog bow will open (see Figure 47). Check that the prefix to be used in the codelist is
1043 set to “ecl”, then click “OK” and the files will be generated in a folder “YYYY-MM-DD-HH-
1044 mm” (where YYYY is the year, MM the month, DD the day, HH the hour and mm the
1045 minute when the export function is executed). The content of the folder is described in
1046 Figure 48.



1047

1048

Figure 47 – Codelist export dialog



1049

1050

Figure 48 – Codelist export folder

1051 The names of the codelists schema are provided in the CimSyntaxgen-Config.xml file as
1052 parameters, i.e.:

1053 `<profdata name="ExtensionCodeListsFile" value="urn-entsoe-eu-local-extension-types.xsd" />`

1054 `<profdata name="StandardCodeListsFile" value="urn-entsoe-eu-wgedi-codelists.xsd" />`

1055 To generate the ENTSO-E document about the codelist, the process described in § 8.3.4 is to
1056 be applied.

1057 Then, the folder should be published on the ENTSO-E web site.

1058 Note: in order to ensure backward compatibility, a "DocumentTypeList" enumeration has been introduced in the
1059 ESMPEnumerations package although it is not used in IEC 62325.

1060 Note: in order to ensure backward compatibility, the following XML code is added in the urn-entsoe-eu-wgedi-
1061 codelists.xsd:

1062 `<xsd:simpleType name="CodingSchemeType">`

1063 `<xsd:union memberTypes="ecl:StandardCodingSchemeTypeList ecl:LocalCodingSchemeType"/>`

1064 `</xsd:simpleType>`

1065 **9 Updates of IEC 62325-301 MarketManagement package**

1066 As per rule a) in § 6, new classes or associations necessary for the development of the
1067 European style market profile should be added in the IEC 62325-301 MarketManagement
1068 package.

1069 It is important to remind that such creation is to be first discussed within the IEC TC 57 WG
1070 16 and in particular to assess that there is no existing class or association in the CIM
1071 corresponding to the need.

1072 However, if the need is confirmed, an evolution of the IEC 62325-301 MarketManagement
1073 package is to be initiated.

1074 The work is to be carried out locally in the copy of the IEC 62325-301 as well as within the
1075 new packages in the ESMP profiles.

1076 When the developments no longer require new classes or associations, then an XMI version
1077 2.1 file of the IEC 62325-301 MarketManagement profile is to be provided to the IEC TC 57
1078 WG 16 model manager in order to merge all the changes in the future IEC 62325-301 version
1079 and in particular to keep the appropriate GUID.

1080 **10 Practical rules for the management of the reference package**

1081 The purpose of this section is to provide some guidelines in order to ease the management of
1082 the reference package when specific business packages are developed by different parties.

1083 These rules are to be strictly applied otherwise the structure of the packages, based on GUID,
1084 will not be preserved, and in particular the GUID. It is to be reminded that any object in the EA
1085 data base is identified through a unique identifier, i.e. a GUID. This GUID is used for all the
1086 relations between the objects and in particular for the IsBasedOn associations.

- 1087 The rules to create a package in the ESMP or ENTSO-E packages have been presented.
1088 They have to be strictly applied.
- 1089 The hereafter rules are specific when someone wants to initiate a specific projects in another
1090 package:
- 1091 a) It is highly recommended to apply the same structure as in ESMP package or ENTSO-
1092 E package to the new package, i.e. to create a package for the “Use Case Library”,
1093 and one package for the new document.
 - 1094 b) Use as much as possible the roles, the classes and associations already existing in
1095 the ESMP package; as concerns role, you may also used the ones in the ENTSO-E
1096 package.
 - 1097 c) If a new role is to be created, create it inside your “Use Case Library/Role” package
1098 and inform WG EDI of the role (in case the role will be created for an ENTSO-E
1099 requirement in parallel).
 - 1100 d) If a new class or association is needed, contact the WG EDI person in charge of the
1101 reference model for the actions. If you create your own class, this will not be
1102 IsBasedOn and thus it could not be incorporated in the reference package.
- 1103