



SOA-EERP Business Quality of Service Version 1.0

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Related work:

This specification is related to:

- SOA-EERP Business Rating of Service specification, Version 1.0,
<http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Specification.pdf>
- SOA-EERP Business Service Level Agreement specification, Version 1.0,
<http://docs.oasis-open.org/soa-eerp/sla/v1.0/SOA-EERP-BSLA-Specification.pdf>

This document is one of three closely related specifications, SOA-EERP Business Quality of Service (bQoS), SOA-EERP Business Rating (bRating) and SOA-EERP Business Service Level Agreement (bSLA) which need to be understood in combination.

Declared XML Namespace(s):

<http://docs.oasis-open.org/ns/soa-eerp/bqos/200903>

41 **Abstract:**

42 This document specifies the XML vocabulary for business quality of service (bQoS), one of three
43 Specifications for end-to-end resource planning (EERP). Business quality of service describes the
44 business-related characteristics or attributes of a service.

45 **Status:**

46
47 This document was last revised by the SOA-EERP TC on the above date. The level of approval is
48 also listed above. Check the “Latest Version” or “Latest Approved Version” location noted above
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51 Committee’s email list. Others should send comments to the Technical Committee by using the
52 “Send A Comment” button on the Technical Committee’s web page at [http://www.oasis-](http://www.oasis-open.org/committees/soa-eerp/)
53 [open.org/committees/soa-eerp/](http://www.oasis-open.org/committees/soa-eerp/).

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55 implementing this specification, and any offers of patent licensing terms, please refer to the
56 Intellectual Property Rights section of the Technical Committee web page ([http://www.oasis-](http://www.oasis-open.org/committees/soa-eerp/ipr.php)
57 [open.org/committees/soa-eerp/ipr.php](http://www.oasis-open.org/committees/soa-eerp/ipr.php)).

58 The non-normative errata page for this specification is located at [http://www.oasis-](http://www.oasis-open.org/committees/soa-eerp/)
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127 1 Introduction

128 This document is the specification for Business Quality of Service (bQoS) for End-to-End Resource
129 Planning (EERP), an XML vocabulary by which a business application may communicate selected
130 characteristics of the service it provides.

131 According to OASIS Reference Model for Service Oriented Architecture [SOA-RM], the Service Oriented
132 Architecture (SOA) is a paradigm for organizing and utilizing distributed capabilities that may be under the
133 control of different ownership domains. The service within SOA is a mechanism to enable access to one
134 or more capabilities, where the access is provided using a prescribed interface and is exercised
135 consistent with constraints and policies as specified by the service description. This specification further
136 defines the Business Quality of Service for the services that is defined in SOA-RM, within the EERP
137 technology. The applications of this specification are any kind of business services, and they are not
138 limited to only Web Services.

139 EERP applies the well-known technique for service discovery and optimization in a novel way to improve
140 business results. It models the business process and the range of potential services, and then guides the
141 selection and deployment of services based on the end-to-end business value.

142 Modeling the business characteristics of a service is a prerequisite for estimating the business value of
143 the process that uses those services. The business characteristics of the service defined in this bQoS
144 specification will enable EERP to determine the varieties of optimization to be supported, and to select
145 optimal end-to-end solution.

146 In contrast to the QoS in the software/IT world, where the message is network/system oriented
147 measurement indicates that deals with network performance and system availability, the contents of
148 bQoS in this specification is business oriented measurement indicators that deals with business
149 characteristics of a service, such as price, performance, and quality.

150 1.1 Terminology

151 The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD
152 NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described
153 in [RFC2119].

154 1.1.1 Notational Conventions

155 This specification uses the following syntax to define outlines for detailed elements:

- 156 • The syntax appears as an XML instance, but values in italics indicate data types instead of literal
157 values.
- 158 • Characters are appended to elements and attributes to indicate cardinality:
 - 159 ○ "?" (0 or 1)
 - 160 ○ "*" (0 or more)
 - 161 ○ "+" (1 or more)
- 162 • The character "|" is used to indicate a choice between alternatives.
- 163 • The characters "(" and ")" are used to indicate that contained items are to be treated as a group
164 with respect to cardinality or choice.
- 165 • The characters "[" and "]" are used to call out references and property names.
- 166 • Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be
167 added at the indicated extension points but MUST NOT contradict the semantics of the parent
168 and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver

- 169 SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated
170 below.
- 171 • XML namespace prefixes (see Table 1) are used to indicate the namespace of the element being
172 defined.
- 173 Elements and Attributes defined by this specification are referred to in the text of this document using
174 XPath 1.0 expressions. Extensibility points are referred to using an extended version of this syntax:
- 175 • An element extensibility point is referred to using {any} in place of the element name. This
176 indicates that any element name can be used, from any namespace other than the namespace of
177 this specification.
 - 178 • An attribute extensibility point is referred to using @{any} in place of the attribute name. This
179 indicates that any attribute name can be used, from any namespace other than the namespace of
180 this specification.
- 181 Extensibility points in the exemplar may not be described in the corresponding text.

182 1.2 Normative References

- 183 **[RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*,
184 <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- 185 **[SOAP]** W3C Note, "SOAP: Simple Object Access Protocol 1.1", 08 May 2000.
186 <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>
- 187 **[SOAP12]** W3C Recommendation, "SOAP 1.2 Part 1: Messaging Framework", 24 June
188 2003.
189 <http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>
- 190 **[URI]** T. Berners-Lee, R. Fielding, L. Masinter, "Uniform Resource Identifiers (URI):
191 Generic Syntax", RFC 3986, MIT/LCS, Day Software, Adobe Systems, January
192 2005.
193 <http://www.ietf.org/rfc/rfc3986.txt>
- 194 **[UBL-20]** OASIS Standard, "Universal Business Language (UBL) v2.0", 12 December 2006
195 <http://docs.oasis-open.org/ubl/os-UBL-2.0/UBL-2.0.pdf>
- 196 **[UBL-20-cbc]** Universal Business Language (UBL) v2.0, Common Basic Components, October
197 2006
198 <http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd>
- 200 **[UBL-20-udt]** Universal Business Language (UBL) v2.0. Unqualified Data Type, February 2005
201 <http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd>
- 203 **[XML-Schema1]** W3C Recommendation, "XML Schema Part 1: Structures Second Edition", 28
204 October 2004.
205 <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>
- 206 **[XML-Schema2]** W3C Recommendation, "XML Schema Part 2: Datatypes Second Edition", 28
207 October 2004.
208 <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>
- 209 **[ISO8601]** ISO Standard 8601:2004(E), "Data elements and interchange formats –
210 Information interchange - Representation of dates and times", Third edition,
211 December 2004
212 http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=40874
- 214 **[CEFACT]** CEFACT – Core components specifications, Recommendation 9 January
215 1996.
216 http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd203.pdf

217 **[SOA-RM]** OASIS Standard, “[OASIS Reference Model for Service Oriented Architecture](#)
218 [1.0](#)”, 12 October 2006
219 <http://docs.oasis-open.org/soa-rm/v1.0/soa-rm.pdf>

220 **1.2.1 Reference**

221 In this document reference is made to some basic elements and data types in [UBL 2.0](#), in the following
222 schema:

- 223 • UBL 2.0 Common Basic Components [[UBL-20-cbc](#)], UBL-CommonBasicComponents-2.0.xsd
- 224 • UBL 2.0 Unqualified Data Type [[UBL-20-udt](#)], UnqualifiedDataTypeSchemaModule-2.0.xsd

225
226 This specification is designed to work with the general Web Services framework including WSDL service
227 descriptions, and [SOAP](#) message structure and message processing model. The XML vocabulary
228 defined in bQoS should be applicable to any version of [SOAP](#).

229 **1.3 Non-Normative References**

230 None.

231 2 Quality Measurement Indicators

232 The Business Quality of Service (bQoS) of the XML vocabulary is defined in XML Schema format that
233 defines many quality measurement indicators.

234 2.1 Namespaces

235 The XML namespace URI that MUST be used by implementations of this specification is:

236 `http://docs.oasis-open.org/ns/soa-eerp/bqos/200903`

237 Table 1 lists XML namespaces that are used in this specification. The choice of any namespace prefix is
238 arbitrary and not semantically significant.

239 *Table 1: Prefixes and XML Namespaces used in this specification.*

Prefix	Namespace	Specification(s)
S	http://schemas.xmlsoap.org/soap/envelope/	[SOAP]
S12	http://www.w3.org/2003/05/soap-envelope	[SOAP12]
xsd	http://www.w3.org/2001/XMLSchema	[XML-Schema1], [XML-Schema2]
cbc	urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2	[UBL-20-cbc]
udt	urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2	[UBL-20-udt]
ccts	urn:un:unece:uncefact:documentation:2	[UBL-20]
bqos	http://docs.oasis-open.org/ns/soa-eerp/bqos/200903	This specification

240 2.2 Schema Files

241 A normative copy of the XML Schema [XML-Schema1, XML-Schema2] description for this specification
242 can be retrieved from the following address:

243 `http://docs.oasis-open.org/soa-eerp/bqos/v1.0/EERP-bQoS-cd04.xsd`

244 2.3 BQoS Element

245 The BQoS is the root element for the Business Quality of Service schema. It can have one or more of the
246 following elements:

- 247 • BQoSPrice indicates price or cost for the service
- 248 • BQoSPerformance indicates time to complete the service, or in the alternative, throughput and
249 latency.
- 250 • BQoSQualities indicates additional properties and attributes.
- 251 • Any additional elements for quality of service can be either:
 - 252 ○ Technical aspect such as service availability, accessibility, integrity, reliability, and
253 security; or
 - 254 ○ Business aspects such as regulatory, geo location, operation hours, and payment
255 methods.

256 **Syntax**

```
257 <bqos:BQoS xmlns:bqos="..." ...>  
258 <bqos:BQoSPrice ...>bqos:BQoSPriceType</bqos:BQoSPrice>  
259 <bqos:BQoSPerformance ...>bqos:BQoSPerformanceType</bqos:BQoSPerformance> ?  
260 <bqos:BQoSQualities...>bqos:BQoSQualitiesType</bqos:BQoSQualities> ?  
261 ...  
262 </bqos:BQoS>
```

263 The following describes the attributes and elements listed in the schema outlined above:

264 /bqos:BQoS

265 The root element for bQoS

266 /bqos:BQoS/bqos:BQoSPrice

267 Price aspect of the service, including the price and other optional elements, see Section 3 for
268 more details.

269 /bqos:BQoS/bqos:BQoSPrice/@{any}

270 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
271 to the BQoSPrice element in the future. Unrecognized attributes MAY cause a fault or be silently
272 ignored.

273 /bqos:BQoS/bqos:BQoSPerformance

274 Performance aspect of the service that has time period for the time to complete the whole
275 service, the throughput for duration to complete number of jobs, or optional elements, see Section
276 4 for more details.

277 /bqos:BQoS/bqos:BQoSPerformance/@{any}

278 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
279 to the BQoSPerformance element in the future. Unrecognized attributes MAY cause a fault or be
280 silently ignored.

281 /bqos:BQoS/bqos:BQoSQualities

282 Quality aspect of the service that has additional properties and attributes to describe the quality of
283 the service, see Section 5 for more details.

284 /bqos:BQoS/bqos:BQoSQualities/@{any}

285 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
286 to the BQoSQualities element in the future. Unrecognized attributes MAY cause a fault or be
287 silently ignored.

288 /bqos:BQoS/@{any}

289 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
290 to the BQoS element in the future. Unrecognized attributes MAY cause a fault or be silently
291 ignored.

292 /bqos:BQoS/bqos:BQoSExtension

293 BQoSExtension element is an optional element that keeps different (extensible) elements to be
294 specified in the future.

295 /bqos:BQoS/bqos:BQoSExtension/{any}

296 This is an extensibility mechanism to allow different (extensible) elements to be specified in the
297 future. Unrecognized elements MAY cause a fault or be silently ignored.

298 3 BQoSPrice

299 BQoSPrice, the Price element for bQoS, describes the price for the service. Price can be expressed in
300 various ways.

301 There SHOULD be one BQoSPrice element present in the business quality of service.

302 Syntax

```
303 <bqos:BQoSPrice xmlns:bqos="..." ...>  
304   <bqos:Price>bqos:PriceType  
305     <bqos:Unit unitCode="clm66411:UnitCodeContentType"  
306   >cbc:BaseUnitMeasureType</bqos:Unit> ?  
307     <bqos:Amount currencyID="  
308   clm54217:CurrencyCodeContentType">cbc:AmountType</bqos:Amount>  
309   </bqos:Price>  
310   ...  
311 </bqos:BQoSPrice>
```

312 The following describes the attributes and elements listed in the schema outlined above:

313 /bqos:BQoS/bqos:BQoSPrice

314 Price aspects of the service, including the price and other optional elements

315 /bqos:BQoS/bqos:BQoSPrice/bqos:Price

316 Price element that represent the single price for BQoSPrice

317 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Unit

318 Number of units is a optional element that includes the unit of measurement using
319 cbc:BaseUnitMeasureType

320 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Unit/@unitCode

321 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute using
322 clm66411:unitCodeContentType,
323 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001"

324 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount

325 Amount is a required element in the Price element. It uses cbc:AmountType from UBL that has a
326 required currencyID attribute for currency code.

327 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount/@currencyID

328 Currency ID in cbc:AmountType. It is a required attribute using
329 clm54217:CurrencyCodeContentType,
330 xmlns:clm54217="urn:un:unece:uncefact:codelist:specification:54217:2001"

331 /bqos:BQoS/bqos:BQoSPrice/{any}

332 This is an extensibility mechanism to allow different (extensible) price elements to be specified in
333 the future. Unrecognized elements MAY cause a fault or be silently ignored.

334 Example

335 The following non-normative example illustrates the use of bQoS price element. It describes 10 units for
336 price of \$171.50 US dollar:

```
337 (001) <?xml version="1.0" encoding="utf-8"?>  
338 (002) <BQoSPrice xmlns="..." ...>  
339 (003)   <Price>  
340 (004)     <Unit unitCode="EA">10</Unit>  
341 (005)     <Amount currencyID="USD">171.50</Amount>  
342 (006)   </Price>
```


344

4 BQoSPerformance

345 BQoSPerformance element for bQoS is the quality of service measured in the time to complete, or
346 alternatively as throughput and latency.

347 There MAY be zero or one BQoSPerformance element present in the business quality of service.

348 Syntax

```
349 <bqos:BQoSPerformance xmlns:bqos="..." ...>  
350   <bqos:TimePeriod ... >bqos:TimePeriodType  
351     <bqos:Duration  
352       unitCode="clm66411:UnitCodeContentType">cbc:DurationMeasureType</bqos:Duration  
353     >  
354       <bqos:Latency  
355         unitCode=="clm66411:UnitCodeContentType">cbc:DurationMeasureType</bqos:Latency  
356       > ?  
357         <bqos:StartTime>udt:DateTimeType</bqos:StartTime> ?  
358       </bqos:TimePeriod> |  
359       <bqos:Throughput ...>  
360         <bqos:Quantity unitCode="clm66411:UnitCodeContentType"> ...  
361       </bqos:Quantity>  
362         <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
363         cbc:DurationMeasureType</bqos:Duration>  
364         <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
365         cbc:DurationMeasureType</bqos:Latency> ?  
366       </bqos:Throughput> |  
367       ...  
368 </bqos:BQoSPerformance>
```

369 The following describes the attributes and elements listed in the schema outlined above:

370 /bqos:BQoS/bqos:BQoSPerformance

371 Performance aspect of the service that has time period for the time to complete the whole service
372 job, the throughput for duration to complete number of jobs, or an optional elements.

373 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod

374 TimePeriod is the time period to complete the service, including the duration to complete the
375 service, and optional elements for start time and latency.

376 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Duration

377 Duration element is a required element in the TimePeriod element which is the duration to
378 complete the service. It uses cbc:DurationMeasureType from UBL that has a required unitCode
379 attribute for unit of measurement on the time.

380 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Duration/@unitCode

381 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
382 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
383 xmlns:clm66411="urn:un:unece:unefact:codelist:specification:66411:2001".

384 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:StartTime

385 StartTime is an optional element for the date and time to start the service. It uses
386 udt:DateTimeType which is in UTC time format [ISO8601].

387 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Latency

388 Latency is an optional element that describes the time delay before a service is expected to
389 begin. It uses cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit
390 of measurement on the time.

391 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Latency/@unitCode
 392 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 393 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 394 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001".

395 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput
 396 Throughput of the performance which is measured by is the amount of work that a service can
 397 provide in a given time period. It includes the quantity of the item and the duration to complete the
 398 work.

399 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration
 400 Duration element is a required element in the Throughput element. This is the duration to
 401 complete the service. It uses cbc:DurationMeasureType from UBL that has a required unitCode
 402 attribute for unit of measurement on the time.

403 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration/@unitCode
 404 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 405 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 406 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001"

407 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Quantity
 408 Quantity is a required element in the Throughput element. It is the numbers for the throughput,
 409 with an attribute of unit of measurement, such as EA, pounds, cubic-feet, etc.

410 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency
 411 Latency is an optional element for the time delay for starting the service. It uses
 412 cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of
 413 measurement on the time.

414 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency/@unitCode
 415 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 416 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 417 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001".

418 /bqos:BQoS/bqos:BQoSPerformance/{any}
 419 This is an extensibility mechanism to allow different (extensible) performance or time elements to
 420 be specified in the future. Unrecognized elements MAY cause a fault or be silently ignored.

421 **Examples**

422 The following non-normative example illustrates the use of bQoS Performance element using the
 423 Throughput element instead of TimePeriod element. It describes the throughput of 10 units per day:

424

```

425 (001) <?xml version="1.0" encoding="utf-8"?>
426 (002) <BQoSPerformance xmlns="..." ...>
427 (003)   <Throughput>
428 (004)     <Duration unitCode="DAY">1</Duration>
429 (005)     <Quantity unitCode="EA">10.0</Quantity>
430 (006)   </Throughput>
431 (007) </BQoSPerformance>

```

432

433 The following non-normative example illustrates the use of bQoS Performance element using the
 434 TimePeriod element. It describes the 8 hours of the duration, and can be started on October 17, 2009,
 435 9:30:47.02 Zulu time:

436

```

437 (001) <?xml version="1.0" encoding="utf-8"?>

```

```
438 (002) <BQoSPerformance xmlns="..." ...>
439 (003)   <TimePeriod>
440 (004)     <Duration unitCode="HUR">8</Duration>
441 (005)     <StartTime>2009-10-17T09:30:47.0Z</StartTime>
442 (006)   </TimePeriod>
443 (007) </BQoSPerformance>
```


444

5 BQoSQualities

445 The BQoSQualities, the Quality elements for bQoS, describes additional properties and attributes for the
446 service. While any quality name/value can be asserted by a Service Provider to represent the quality of
447 the service, this specification is not addressing issues of namespace management for qualities beyond
448 the three pre-defined EERP namespaces.

449 There SHOULD be zero or one BQoSQualities element present in the business quality of service.

450 Syntax

```
451 <bqos:BQoSQualities xmlns:bqos="..." ...>  
452   <bqos:Property>bqos:PropertyType  
453     <bqos:PropertyName ...>bqos:PropertyNameType</bqos:PropertyName>  
454     <bqos:PropertyValue ...>bqos:PropertyValue</bqos:PropertyValue> ?  
455   </bqos:Property> +  
456   ...  
457 </bqos:BQoSQualities>
```

458 The following describes the attributes and elements listed in the schema outlined above:

459 /bqos:BQoS/bqos:BQoSQualities

460 Quality aspect of the service is measured in terms of additional properties and attributes. It has a
461 list of property for BQoSQualities and other optional elements.

462 /bqos:BQoS/bqos:BQoSQualities/bqos:Property

463 Property element is for additional property or attribute for quality measurement of the service in
464 bQoS that has name and value pair to describe the quality of the service.

465 /bqos:BQoS/bqos:BQoSQualities/bqos:PropertyName

466 Property name is a required element for the name in the name and value pair in the Property
467 element. It uses bqos:PropertyNameType which is a cbc:NamType from UBL that has a optional
468 languageID attribute for language code.

469 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyName/@languageID

470 Language ID is an optional attribute in the PropertyName element, using xsd:language type. The
471 value can be those defined in urn:un:unece:unefact:odelist:specification:5639:1988.

472 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyName/@{any}

473 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
474 to the PropertyName element in the future. This can be the namespace and the format for the
475 Property. Unrecognized attributes MAY cause a fault or be silently ignored.

476 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyValue

477 The property value is an optional element for the value in the name and value pair in the Property
478 element. It uses bqos:PropertyValue type which is a cbc:NamType from UBL that has a optional
479 languageID attribute for language code.

480 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyValue/@languageID

481 Language ID is an optional attribute in the PriceValue element, using xsd:language type. The
482 value can be those defined in urn:un:unece:unefact:odelist:specification:5639:1988.

483 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/@{any}

484 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
485 to the Property element in the future. Unrecognized attributes MAY cause a fault or be silently
486 ignored.

487 /bqos:BQoS/bqos:BQoSQualities/{any}

488 This is an extensibility mechanism to allow different (extensible) properties or attribute elements
489 to be specified in the future. Unrecognized elements MAY cause a fault or be silently ignored.
490 For example, one or more /bqos:BQoS/bqos:BQoSQualities/Performance:QualityAssertion
491 elements can be placed in here for the Service Provider to assert the specific Qualities of its
492 services.

493 **Example**

494 The following non-normative example illustrates the use of bQoS price element. It describes the Class is
495 Golden and it has "Network Connection" as additional property for this service:

```
496 (001) <?xml version="1.0" encoding="utf-8"?>  
497 (002) <BQoSQualities xmlns="..." ...>  
498 (003)   <Property>  
499 (004)     <PropertyName languageID="EN">Class</PropertyName>  
500 (005)     <PropertyValue>Golden</PropertyValue>  
501 (006)   </Property>  
502 (003)   <Property>  
503 (004)     <PropertyName languageID="EN">Network Connection</PropertyName>  
504 (006)   </Property>  
505 (007) </BQoSQualities>
```

506 6 BQoS Examples

507 The examples in this section are non-normative.

508 6.1 Service Price with a Batch of Products Examples

509 This bQoS example will show the following quality indicators:

- 510 1. The service price is CNY 120000 per service, including 1000 gas-meters for one batch.
- 511 2. The throughput is usually 1 week or 7 days for the service. In another words, it will cost 1 week or
512 7 days to provide and delivery 1000 gas-meters as one batch of product.
- 513 3. The service has additional attributes to provide the IC card gas-meters integrated with iron IC-
514 card box for the quality indicators.

515 Example

516 The following example illustrates the whole bQoS document for quality indicators:

```
517 (1) <?xml version="1.0" encoding="UTF-8"?>
518 (2) <bqos:BQoS xmlns:bqos="..." ... >
519 (3)   <bqos:BQoSPrice
520 (4)     <bqos:Price>
521 (5)       <bqos:Unit unitCode="EA">1000</bqos:Unit>
522 (6)       <!-- CNY: Chinese Yuan -->
523 (7)       <bqos:Amount currencyID="CNY">120000</bqos:Amount>
524 (8)     </bqos:Price>
525 (9)   </bqos:BQoSPrice>
526 (10)  <bqos:BQoSPerformance>
527 (11)   <bqos:Throughput>
528 (12)     <!-- delivery: 1 week -->
529 (13)     <bqos:Duration unitCode="DAY">7</bqos:Duration>
530 (14)     <!-- batch production, generally 1000 sets a batch -->
531 (15)     <bqos:Quantity>1000</bqos:Quantity>
532 (16)     <bqos:Latency unitCode="DAY">0</bqos:Latency>
533 (17)   </bqos:Throughput>
534 (18) </bqos:BQoSPerformance>
535 (19) <bqos:BQoSQualities>
536 (20)   <bqos:Property>
537 (21)     <bqos:PropertyName languageID="zh-cn">□□</bqos:PropertyName>
538 (22)     <bqos:PropertyValue languageID="zh-cn">□□</bqos:PropertyValue>
539 (23)   </bqos:Property>
540 (24)   <bqos:Property>
541 (25)     <bqos:PropertyName languageID="en">MeterType</bqos:PropertyName>
542 (26)     <bqos:PropertyValue languageID="en">IC card gas-
543 (27)     meter</bqos:PropertyValue>
544 (27)   </bqos:Property>
545 (28)   <bqos:Property>
546 (29)     <bqos:PropertyName languageID="en">IC-Card-Box</bqos:PropertyName>
547 (30)     <bqos:PropertyValue
548 (31)     languageID="en">integrated</bqos:PropertyValue>
549 (31)   </bqos:Property>
550 (32) </bqos:BQoSQualities>
551 (33) </bqos:BQoS>
```

552 6.2 Storage Service Examples

553 This bQoS example will show a storage service with the following quality indicators:

- 554 1. The storage service price is 600 Euro in total.
- 555 2. The time period for the storage service is 4 day, starting from July 15, 2009, 16:30, UTC time.

556 3. The service has additional attributes of internet tracking and temperature from 70 to 85 degree
557 Fahrenheit the quality indicators.

558 **Example**

559 The following example illustrates the storage service bQoS for quality indicators:

```
560 (1) <?xml version="1.0" encoding="UTF-8"?>  
561 (2) <bqos:BQoS xmlns:bqos="..." ... >  
562 (3)   <BQoSPrice>  
563 (4)     <Price>  
564 (5)       <Amount currencyID="EUR">600</Amount>  
565 (6)     </Price>  
566 (7)   </BQoSPrice>  
567 (8)   <BQoSPerformance>  
568 (9)     <TimePeriod>  
569 (10)       <Duration unitCode="DAY">4</Duration>  
570 (11)       <StartTime>2009-07-15T16:30:00.0Z</StartTime>  
571 (12)     </TimePeriod>  
572 (13)   </BQoSPerformance>  
573 (14)   <BQoSQualities>  
574 (15)     <Property>  
575 (16)       <PropertyName>Internet Tracking</PropertyName>  
576 (17)     </Property>  
577 (18)     <Property>  
578 (19)       <PropertyName>Temperature</PropertyName>  
579 (20)       <PropertyValue>70F-78F</PropertyValue>  
580 (21)     </Property>  
581 (22)   </BQoSQualities>  
582 (23) </bqos:BQoS>
```

583

7 Conformance

584 An implementation conforms to this specification if it satisfies all of the MUST or REQUIRED level
585 requirements defined within this specification. A SOAP Node MUST NOT use the XML namespace
586 identifier for this specification (listed in Section 1.1) within SOAP Envelopes unless it is compliant with this
587 specification.

588 This specification references a number of other specifications (listed in Section 1.4.2). In order to comply
589 with this specification, an implementation MUST implement the portions of referenced specifications
590 necessary to comply with the required provisions of this specification. Additionally, the implementation of
591 the portions of the referenced specifications that are specifically cited in this specification MUST comply
592 with the rules for those portions as established in the referenced specification.

593 Normative text within this specification takes precedence over normative outlines (as described in section
594 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL
595 [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas
596 and/or WSDL that are part of this specification; and this specification contains further constraints on the
597 elements defined in referenced schemas.

598 The minimum set of information exchange for bQoS that would allow conforming applications to
599 exchange information and satisfy the conformance should at least to have
600 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount element, like this:

```
601 (001) <?xml version="1.0" encoding="utf-8"?>  
602 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
603 (003)   <BQoSPrice>  
604 (004)     <Price>  
605 (005)       <Amount currencyID="USD">0.0</Amount>  
606 (006)     </Price>  
607 (007)   </BQoSPrice>  
608 (008) </BQoS>
```

609 A nearly empty artifact does not conform to this specification. The following are three non-conform
610 examples.

611 Non-conform example 1:

```
612 (001) <?xml version="1.0" encoding="utf-8"?>  
613 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
614 (003)   <BQoSPrice />  
615 (004) </BQoS>
```

616 Non-conform example 2:

```
617 (001) <?xml version="1.0" encoding="utf-8"?>  
618 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
619 (003)   < BQoSPerformance />  
620 (004) </BQoS>
```

621 Non-conform example 3:

```
622 (001) <?xml version="1.0" encoding="utf-8"?>  
623 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
624 (003)   <BQoSPrice>  
625 (004)     <Price />
```

```
626 (005) </BQoSPrice>
627 (006) </BQoS>
```

628 This specification defines a number of extensions; compliant services are NOT REQUIRED to implement
629 those extensions defined in this specification. However, if a service implements an aspect of the
630 specification, it MUST comply with the requirements specified (e.g. related "MUST" statements). If an
631 implementation silently ignores unrecognized attributes where any attribute is allowed, or silently ignores
632 unrecognized elements where any element is allowed, it should be considered as an interoperable
633 implementation.

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637 **Participants:**

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641	Andy Lee	Changfeng Open Standards Platform Software Alliance
642	Carl Mattocks	Individual
643	Yulin Xu	Changfeng Open Standards Platform Software Alliance
644	Paul Yang	Changfeng Open Standards Platform Software Alliance
645	James Zhili Zhang	TIBCO Software Inc.
646	Hong Zhou	Changfeng Open Standards Platform Software Alliance

647

B. XML Schema

648 **Note:** The separate machine readable schema document, listed on Section 2.2, is normative. The text
649 included here is non-normative.

```
650 <?xml version="1.0" encoding="UTF-8"?>
651 <!--
652 Document Type:      EERP-bQoS CD04
653 Create On:          09/12/2010
654
655 -->
656 <!-- ===== xsd:schema Element With Namespaces Declarations ===== -->
657 <!-- ===== Copyright Notice ===== -->
658 <!--
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660 intellectual property or other rights that might be claimed to pertain
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700 EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY
701 WARRANTY THAT THE USE OF THE INFORMATION HEREIN
702 WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED
703 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A
704 PARTICULAR PURPOSE.
705 -->
706 <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.oasis-
707 open.org/ns/soa-eerp/bqos/200903" xmlns:bqos="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
708 xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
709 xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
710 xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://docs.oasis-open.org/ns/soa-
711 erp/bqos/200903" elementFormDefault="qualified" attributeFormDefault="unqualified"
712 version="1.0">
713 <!-- ===== Imports ===== -->
```



```

714     <xsd:import namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
715     schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-
716     2.0.xsd"/>
717     <xsd:import
718     namespace="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
719     schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-
720     2.0/xsd/common/UnqualifiedDataTypesSchemaModule-2.0.xsd"/>
721     <!-- ===== Root Element ===== -->
722     <xsd:element name="BQoS" type="BQoSType">
723         <xsd:annotation>
724             <xsd:documentation>Root element of Business Quality of Service (bQoS)</xsd:documentation>
725         </xsd:annotation>
726     </xsd:element>
727     <!-- ===== Element Declarations ===== -->
728     <xsd:element name="Amount" type="cbc:AmountType">
729         <xsd:annotation>
730             <xsd:documentation>Amount element</xsd:documentation>
731         </xsd:annotation>
732     </xsd:element>
733     <xsd:element name="BQoSPerformance" type="BQoSPerformanceType">
734         <xsd:annotation>
735             <xsd:documentation>Performance aspect of the service that has time period for the time to
736             complete the whole service job, the throughput for duration to complete number of jobs, or an
737             optional elements. </xsd:documentation>
738         </xsd:annotation>
739     </xsd:element>
740     <xsd:element name="BQoSPrice" type="BQoSPriceType">
741         <xsd:annotation>
742             <xsd:documentation>The Price element for bQoS, price aspects of the service, describes the
743             price for the service, including the price and other optional elements. </xsd:documentation>
744         </xsd:annotation>
745     </xsd:element>
746     <xsd:element name="BQoSQualities" type="BQoSQualitiesType">
747         <xsd:annotation>
748             <xsd:documentation>Quality aspect of the service is measured in terms of additional
749             properties and attributes. It has a list of property for BQoSQualities and other optional
750             elements. </xsd:documentation>
751         </xsd:annotation>
752     </xsd:element>
753     <xsd:element name="Duration" type="cbc:DurationMeasureType">
754         <xsd:annotation>
755             <xsd:documentation>Duration element is the duration to complete the service. It uses
756             cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of measurement
757             on the time. </xsd:documentation>
758         </xsd:annotation>
759     </xsd:element>
760     <xsd:element name="Latency" type="cbc:DurationMeasureType">
761         <xsd:annotation>
762             <xsd:documentation>Latency describes the time delay before a service is expected to begin.
763             It uses cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of
764             measurement on the time. </xsd:documentation>
765         </xsd:annotation>
766     </xsd:element>
767     <xsd:element name="Price" type="PriceType">
768         <xsd:annotation>
769             <xsd:documentation>Price element for bQoS that is the single price </xsd:documentation>
770         </xsd:annotation>
771     </xsd:element>
772     <xsd:element name="Property" type="PropertyType">
773         <xsd:annotation>
774             <xsd:documentation>Property element is for additional property or attribute for quality
775             measurement of the service in bQoS that has name and value pair to describe the quality of the
776             service.</xsd:documentation>
777         </xsd:annotation>
778     </xsd:element>
779     <xsd:element name="PropertyName" type="PropertyNameType">
780         <xsd:annotation>
781             <xsd:documentation>Property name is a required element for the name in the name and value
782             pair in the Property element. It uses bqos:PropertyNameType which is a cbc:NamType from UBL that
783             has a optional languageID attribute for language code. </xsd:documentation>
784         </xsd:annotation>
785     </xsd:element>
786     <xsd:element name="PropertyValue" type="PropertyValueType">

```

```

787     <xsd:annotation>
788       <xsd:documentation>Value of the Property or Attribute</xsd:documentation>
789     </xsd:annotation>
790   </xsd:element>
791   <xsd:element name="Quantity" type="cbc:BaseQuantityType">
792     <xsd:annotation>
793       <xsd:documentation>Quantity is the numbers for the throughput, with an attribute of unit of
794 measurement, such as EA, pounds, cubic-feet, etc. </xsd:documentation>
795     </xsd:annotation>
796   </xsd:element>
797   <xsd:element name="StartTime" type="udt:DateTimeType">
798     <xsd:annotation>
799       <xsd:documentation>StartTime is the date and time to start the
800 service.</xsd:documentation>
801     </xsd:annotation>
802   </xsd:element>
803   <xsd:element name="TimePeriod" type="TimePeriodType">
804     <xsd:annotation>
805       <xsd:documentation>TimePeriod is the time period to complete the service, including the
806 duration to complete the service, and optional elements for start time and latency
807 </xsd:documentation>
808     </xsd:annotation>
809   </xsd:element>
810   <xsd:element name="Throughput" type="ThroughputType">
811     <xsd:annotation>
812       <xsd:documentation>The performance is measured by is the amount of work that a service can
813 provide in a given time period. </xsd:documentation>
814     </xsd:annotation>
815   </xsd:element>
816   <xsd:element name="Unit" type="cbc:BaseUnitMeasureType">
817     <xsd:annotation>
818       <xsd:documentation>Number of units with unit of measurement</xsd:documentation>
819     </xsd:annotation>
820   </xsd:element>
821   <!-- Extension -->
822   <xsd:element name="BQoSExtension">
823     <xsd:annotation>
824       <xsd:documentation>Additional bQoS elements </xsd:documentation>
825     </xsd:annotation>
826     <xsd:complexType mixed="true">
827       <xsd:choice minOccurs="0" maxOccurs="unbounded">
828         <xsd:any processContents="skip" minOccurs="0" maxOccurs="unbounded"/>
829       </xsd:choice>
830       <xsd:attribute name="optional" type="xsd:boolean" use="optional" default="true"/>
831     </xsd:complexType>
832   </xsd:element>
833   <!-- ===== Type Definitions ===== -->
834   <xsd:complexType name="BQoSPerformanceType">
835     <xsd:annotation>
836       <xsd:documentation>Complex type for the performance aspect of the service
837 bQoS</xsd:documentation>
838     </xsd:annotation>
839     <xsd:choice>
840       <xsd:element ref="TimePeriod">
841         <xsd:annotation>
842           <xsd:documentation>TimePeriod is the time period to complete the service, including the
843 duration to complete the service, and optional elements for start time and
844 latency.</xsd:documentation>
845         </xsd:annotation>
846       </xsd:element>
847       <xsd:element ref="Throughput"/>
848       <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
849     </xsd:choice>
850     <xsd:anyAttribute namespace="##any" processContents="lax"/>
851   </xsd:complexType>
852   <xsd:complexType name="BQoSPriceType">
853     <xsd:annotation>
854       <xsd:documentation>Complex type for the price/cost aspect of the service
855 bQoS</xsd:documentation>
856     </xsd:annotation>
857     <xsd:sequence>
858       <xsd:element ref="Price">
859         <xsd:annotation>

```

```

860         <xsd:documentation>Price element that represent the single price for
861 BQoSPrice.</xsd:documentation>
862     </xsd:annotation>
863 </xsd:element>
864     <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
865 </xsd:sequence>
866     <xsd:anyAttribute namespace="##any" processContents="lax"/>
867 </xsd:complexType>
868 <xsd:complexType name="BQoSQualitiesType">
869     <xsd:annotation>
870         <xsd:documentation>Complex type for the Quality related aspects of the service BQoS
871 </xsd:documentation>
872     </xsd:annotation>
873 </xsd:sequence>
874     <xsd:element ref="Property" maxOccurs="unbounded">
875         <xsd:annotation>
876             <xsd:documentation>Property element is for additional property or attribute for quality
877 measurement of the service in bQoS that has name and value pair to describe the quality of the
878 service.</xsd:documentation>
879         </xsd:annotation>
880     </xsd:element>
881     <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
882 </xsd:sequence>
883     <xsd:anyAttribute namespace="##any" processContents="lax"/>
884 </xsd:complexType>
885 <xsd:complexType name="BQoSType">
886     <xsd:annotation>
887         <xsd:documentation>Complex type for the Business QoS</xsd:documentation>
888     </xsd:annotation>
889 </xsd:sequence>
890     <xsd:element ref="BQoSPrice">
891         <xsd:annotation>
892             <xsd:documentation>The Price element for bQoS that describes the price for the service.
893 Price can be expressed in various ways.</xsd:documentation>
894         </xsd:annotation>
895     </xsd:element>
896     <xsd:element ref="BQoSPerformance" minOccurs="0">
897         <xsd:annotation>
898             <xsd:documentation>BQoSPerformance element for bQoS is the quality of service measured
899 in the time to complete, or alternatively as throughput and latency.</xsd:documentation>
900         </xsd:annotation>
901     </xsd:element>
902     <xsd:element ref="BQoSQualities" minOccurs="0">
903         <xsd:annotation>
904             <xsd:documentation>The Quality elements for bQoS that describes additional properties
905 and attributes for the service. It has a list of property for BQoSQualities and other optional
906 elements. </xsd:documentation>
907         </xsd:annotation>
908     </xsd:element>
909     <xsd:element ref="BQoSExtension" minOccurs="0" maxOccurs="unbounded">
910         <xsd:annotation>
911             <xsd:documentation>Other aspects of "quality of business"</xsd:documentation>
912         </xsd:annotation>
913     </xsd:element>
914 </xsd:sequence>
915     <xsd:anyAttribute namespace="##any" processContents="lax"/>
916 </xsd:complexType>
917 <xsd:complexType name="PriceType">
918     <xsd:annotation>
919         <xsd:documentation>Complex type for Pricing or Billing for the service</xsd:documentation>
920     </xsd:annotation>
921 </xsd:sequence>
922     <xsd:element ref="Unit" minOccurs="0">
923         <xsd:annotation>
924             <xsd:documentation>Number of units is a optional element that includes the unit of
925 measurement. </xsd:documentation>
926         </xsd:annotation>
927     </xsd:element>
928     <xsd:element ref="Amount">
929         <xsd:annotation>
930             <xsd:documentation>Amount is a required element in the Price element. It uses
931 cbc:AmountType from UBL that has a required currencyID attribute for currency
932 code.</xsd:documentation>

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933         </xsd:annotation>
934     </xsd:element>
935 </xsd:sequence>
936 </xsd:complexType>
937 <xsd:complexType name="PropertyType">
938     <xsd:annotation>
939         <xsd:documentation>Complex type for additional property or attribute for
940 quality</xsd:documentation>
941     </xsd:annotation>
942     <xsd:sequence>
943         <xsd:element ref="PropertyName"/>
944         <xsd:element ref="PropertyValue" minOccurs="0">
945             <xsd:annotation>
946                 <xsd:documentation>Value of the Property or Attribute. It uses bqos:PropertyValue
947 which is a cbc:NamType from UBL that has a optional languageID attribute for language code.
948 </xsd:documentation>
949             </xsd:annotation>
950         </xsd:element>
951     </xsd:sequence>
952     <xsd:anyAttribute namespace="##any" processContents="lax"/>
953 </xsd:complexType>
954 <xsd:complexType name="PropertyNameType">
955     <xsd:annotation>
956         <xsd:documentation>Complex type for property or attribute name </xsd:documentation>
957     </xsd:annotation>
958     <xsd:simpleContent>
959         <xsd:extension base="cbc:NameType">
960             <xsd:anyAttribute namespace="##any" processContents="lax"/>
961         </xsd:extension>
962     </xsd:simpleContent>
963 </xsd:complexType>
964 <xsd:complexType name="PropertyValueType">
965     <xsd:annotation>
966         <xsd:documentation>Complex type for property or attribute value. </xsd:documentation>
967     </xsd:annotation>
968     <xsd:simpleContent>
969         <xsd:extension base="cbc:ValueType"/>
970     </xsd:simpleContent>
971 </xsd:complexType>
972 <xsd:complexType name="QualitiesType">
973     <xsd:annotation>
974         <xsd:documentation>Complex type for Quality elements </xsd:documentation>
975     </xsd:annotation>
976     <xsd:sequence>
977         <xsd:element ref="Property" maxOccurs="unbounded"/>
978         <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
979     </xsd:sequence>
980     <xsd:anyAttribute namespace="##any" processContents="lax"/>
981 </xsd:complexType>
982 <xsd:complexType name="TimePeriodType">
983     <xsd:annotation>
984         <xsd:documentation>Complex type for Time period </xsd:documentation>
985     </xsd:annotation>
986     <xsd:sequence>
987         <xsd:element ref="Duration">
988             <xsd:annotation>
989                 <xsd:documentation>Duration to complete the service. It uses cbc:DurationMeasure
990 from UBL that has a required unitCode attribute for unit of measurement on the time.
991 </xsd:documentation>
992             </xsd:annotation>
993         </xsd:element>
994         <xsd:element ref="Latency" minOccurs="0">
995             <xsd:annotation>
996                 <xsd:documentation>Latency is an optional element that describes the time delay before a
997 service is expected to begin. It uses cbc:DurationMeasure from UBL that has a required
998 unitCode attribute for unit of measurement on the time. </xsd:documentation>
999             </xsd:annotation>
1000         </xsd:element>
1001         <xsd:element ref="StartTime" minOccurs="0">
1002             <xsd:annotation>
1003                 <xsd:documentation>StartTime is an optional element for the date and time to start the
1004 service. It uses udt:DateTimeType which is in UTC time format .</xsd:documentation>
1005             </xsd:annotation>

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1006     </xsd:element>
1007 </xsd:sequence>
1008 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1009 </xsd:complexType>
1010 <xsd:complexType name="ThroughputType">
1011   <xsd:annotation>
1012     <xsd:documentation>Complex type for the throughput </xsd:documentation>
1013   </xsd:annotation>
1014   <xsd:sequence>
1015     <xsd:element ref="Duration">
1016       <xsd:annotation>
1017         <xsd:documentation>Duration element is a required element in the Throughput element.
1018 This is the duration to complete the service. It uses cbc:DurationMeasureType from UBL that has a
1019 required unitCode attribute for unit of measurement on the time. </xsd:documentation>
1020       </xsd:annotation>
1021     </xsd:element>
1022     <xsd:element ref="Quantity">
1023       <xsd:annotation>
1024         <xsd:documentation>Quantity is the numbers for the throughput, with an attribute of unit
1025 of measurement, such as EA, pounds, cubic-feet, etc. The numbers for the throughput, with
1026 attribute of Unit of measurement, such as EA, lb, cubic-feet, etc.</xsd:documentation>
1027       </xsd:annotation>
1028     </xsd:element>
1029     <xsd:element ref="Latency" minOccurs="0"/>
1030   </xsd:sequence>
1031   <xsd:anyAttribute namespace="##any" processContents="lax"/>
1032 </xsd:complexType>
1033 </xsd:schema>

```

1034 **C. Non-Normative Text**

1035 None

1036

D. Revision History

1037

Revision	Date	Editor	Changes Made
0.8	03/02/2009	Szu Chang	Initial draft
0.9	03/09/2009	Szu Chang	Change the syntax to include the data type
WD01	04/15/2009	Szu Chang	Rename draft 0.9 to working draft 0.1
WD02	04/29/2009	Szu Chang	Added whole example and some minor edits
WD03	05/07/2009	Szu Chang	Added issue list and some minor edits. This is to get ready for CD01
WD04	05/17/2009	Szu Chang	Added conformance section
WD05	06/24/2009	Szu Chang	Fixed issues I022, I026, I029, I032, I036, I039, and I045.
WD06	07/03/2009	Szu Chang	Fixed issues I026, I029, I033, I042, I044, I049 and I053.
CD02	07/11/2009	Szu Chang	Changed WD06 to CD02 after approved by TC
CD03	01/06/2010	Szu Chang	Changed NS and fixed URIs from CD02 to CD03
WD08	05/10/2010	Szu Chang	Changed after the public review comments
WD09	06/23/2010	Szu Chang	Changed after the first round of review PR comments
CD04	09/12/2010	Szu Chang	TC approved, changed from WS09 to CD04

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