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Ordering Services for Earth Observation Products

Warning

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i. Preface

This best practices document describes a profile to order Earth Observation data products. This document expands on the work presented in "Best Practices for Earth Observation Products" OGC-05-057r4, separating the order services from the catalogue services which are now presented in 06-079. The final goal being to agree to a coherent set of interfaces for ordering of EO products to support access to data from heterogeneous systems dealing with derived data products from satellite based measurements of the earth's surface and environment.

ii. Submitting organisations

The following organisations will submit the original document or its revisions to the OGC® Ordering WG:

- **ESA – European Space Agency**
- **Spacebel s.a.**
- **EUSC**
- **Spot Image**

The editors would like to acknowledge that this work is the result of collaboration and review of many organizations and would like to thank for the comments and contributions from:

- **ASI**
- **CNES**
- **DLR**
- **Eumetsat**
- **MDA**

Note: this does not imply a complete endorsement from these organizations..

iii. Document contributor contact points

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iv. Revision history

Date	Internal version	Editor	Primary clauses modified	Description
21/06/2006	1.0.0 Draft	D. Marchionni		

Date	Internal version	Editor	Primary clauses modified	Description
26/06/2006	1.0.1 Draft	D. Marchionni		Updated title and XSD
11/08/2006	1.0.2 Draft	D. Marchionni		Updated all sections.
23/08/2006	1.0.3 Draft	D. Marchionni		Updated all sections.
25/08/2006	1.0.4 Draft	D. Marchionni		Updated all sections.
21/11/2006	1.1.0 Draft	D. Marchionni	§7.1.3.1: updated definition adding scenePolygon and albumExtract fields	HMA CDR RID: CDR#02
21/11/2006	1.1.0 Draft	D. Marchionni	Added Subscription scenario in §6.1, §6.2.1; §7.1.1: Added optionType element to: ProductServiceOptionType\productOrderOptions\option §7.1.1: optionValueDefinition has been updated to optional §7.1.2: priority made optional §7.1.3: updated optionSelectedValues element adding time and polygon values; ProductOrderItemType\productId\identifier has been made optional §8.1.3, §8.1.3.1: updated description. §8.1.5: updated description §8.1.6.2: added optional priority element; §8.1.6.2.1: removed OrderStatusItemType\sceneCentre because not needed; OrderStatusItemType\productId\identifier has been made optional; OrderStatusItemType\options updated with the new definition §8.1.7: updated description of the operation.	HMA CDR RID: CDR#10
21/11/2006	1.1.0 Draft	D. Marchionni	§8.1.6.2.1: clarified that the status can be left empty when no information are available.	HMA CDR RID: CDR#14
21/11/2006	1.1.0 Draft	D. Marchionni	Added time stamp to each request messages apart GetCapabilities. Updated §8.1.3.1, §8.1.4.1, §8.1.5.1, §8.1.6.1, §8.1.7.1, §8.1.8.1	HMA CDR RID: CDR#33

Date	Internal version	Editor	Primary clauses modified	Description
21/11/2006	1.1.0 Draft	D. Marchionni	§7.1.1: added identifier element in ProductServiceOptionType\productOrderOptions\option §8.1.3.1: added identifier element in the GetOptions request message. §8.1.3.2: added status and errorMessage element to the response message	HMA CDR RID: CDR#53
21/11/2006	1.1.0 Draft	D. Marchionni	§7.1.1: updated definition removing the productServiceOptions level §81.3.2: same as previous one	HMA CDR RID: CDR#54
21/11/2006	1.1.0 Draft	D. Marchionni	Annex A: removed some unused types.	HMA CDR RID: CDR#55
21/11/2006	1.1.0 Draft	D. Marchionni	Added §5.3	HMA CDR RID: CDR#70
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §7.1.1, §7.1.3, §8.1.3.2	HMA CDR RID: CDR#71
21/11/2006	1.1.0 Draft	D. Marchionni	§7.1.3: updated description of **identifier** element.	HMA CDR RID: CDR#72
21/11/2006	1.1.0 Draft	D. Marchionni	See CDR#02	HMA CDR RID: CDR#73
21/11/2006	1.1.0 Draft	D. Marchionni	§81.6: updated description of the operation.	HMA CDR RID: CDR#75
21/11/2006	1.1.0 Draft	D. Marchionni	§8.1.6.2, §8.1.6.2: added missionSpecificStatusInfo element in OrderStatusItemType.	HMA CDR RID: CDR#78
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §7.1.2.1: added e-mail field	HMA CDR RID: CDR#80
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §8.1.5.2	HMA CDR Comment: the orderId has to be made mandatory and set to a special value in case of failure.
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §8.1.5, §8.1.5.1	HMA CDR Comment: quotationId (s) can be optionally provided in Submit
21/11/2006	1.1.0 Draft	D. Marchionni	§8.1.6	Clarified the purpose of GetStatus operation.
21/11/2006	1.1.0 Draft	D. Marchionni	§8.1.6.2: status element references the global element	The status element of GetStatusResponse to refer the already defined global element.

Date	Internal version	Editor	Primary clauses modified	Description
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §7.1.3.1, Appendix A	Defined type (xs:dateTime) for: orderItem\sceneSelection\ TemporalSelection\startDateTime & endDateTime
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §7.1.3, Appendix A	Defined type (xs:string) for: orderItem\qualityOfService
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §7.1.2.1, Appendix A	Defined type (xs:string) for: orderSpecification\deliveryInformation\ftp-pull & ftp-push
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §8.1.6.2.1, Appendix A	Defined type (xs:string) for OrderMonitorResponse \ orderSpecification \ orderItem \ deliveryMethod & qualityOfService
21/11/2006	1.1.0 Draft	D. Marchionni	Updated §8.1.6.2, §8.1.6.2.1, Annex A	Unified statuses of whole order and order items. Removed order item status type Removed EOLI specific status values.
21/11/2006	1.1.0 Draft	D. Marchionni	Appendix A	Removed unused types
21/11/2006	1.1.0 Draft	D. Marchionni	Appendix A	Updated schema
21/11/2006	1.1.0 Draft	D. Marchionni	Appendix B	Updated WSDL Updated also SOAP Action
21/11/2006	1.1.0 Draft	D. Marchionni	Appendix C	Updated examples
19/02/2007	1.2.0 Draft	D. Marchionni	Updated request message of all operations.	To add version in requests.

Date	Internal version	Editor	Primary clauses modified	Description
19/02/2007	1.2.0 Draft	D. Marchionni	Option element within GetOptionResponse has been redefined using sps & swe types. Options element within orderItem has been redefined using the sps & swe types. Quality of service element is now managed with this dynamic list of options (both in GetOptions and in OrderSpecification).	HMA AR RID: AR#11
19/02/2007	1.2.0 Draft	D. Marchionni	Updated definition of OrderOptionsResponseType, SubmitProductOrderRequestType, GetStatusResponseType, GetQuotationRequestType, UpdateStatusRequestType	HMA AR RID: AR#12
19/02/2007	1.2.0 Draft	D. Marchionni	Added new operation for sending quotation. Removed delivery of quotation by e-mail. Added payments information, in order options and order submit Moved orderAccount from order specification to order item.	HMA AR RID: AR#14
19/02/2007	1.2.0 Draft	D. Marchionni	Updated table 8-1	HMA AR RID: AR#15
19/02/2007	1.2.0 Draft	D. Marchionni	Added table 7-2	HMA AR RID: AR#20
19/02/2007	1.2.0 Draft	D. Marchionni	Updated qualityOfService element within the GetOptionsResponse. qualityOfService moved to the list of dynamic options.	HMA AR RID: AR#21
19/02/2007	1.2.0 Draft	D. Marchionni	All strings have been bounded.	HMA AR RID: AR#22
19/02/2007	1.2.0 Draft	D. Marchionni	Added fax number (18 chars)	HMA AR RID: AR#23
19/02/2007	1.2.0 Draft	D. Marchionni	Added parameter in table 7-2.	HMA AR RID: AR#24
19/02/2007	1.2.0 Draft	D. Marchionni	Added parameter in table 7-2	HMA AR RID: AR#25
19/02/2007	1.2.0 Draft	D. Marchionni	Options definition performed via sps & swe types. Updated example files including the band selection option for colour composition	HMA AR RID: AR#26

Date	Internal version	Editor	Primary clauses modified	Description
19/02/2007	1.2.0 Draft	D. Marchionni	Options definition performed via sps & swe types. Updated example files including sub-band selection option.	HMA AR RID: AR#27
19/02/2007	1.2.0 Draft	D. Marchionni	Added Rectangle for scene selection options, but used GML type.	HMA AR RID: AR#28
19/02/2007	1.2.0 Draft	D. Marchionni	None	HMA AR RID: AR#49
19/02/2007	1.2.0 Draft	D. Marchionni	None	HMA AR RID: AR#50
19/02/2007	1.2.0 Draft	D. Marchionni	Updated Order Id definition.	HMA AR RID: AR#52
19/02/2007	1.2.0 Draft	D. Marchionni	None	HMA AR RID: AR#53
19/02/2007	1.2.0 Draft	D. Marchionni	Added “grouping” element to GenericOption type.	HMA AR RID: AR#72
19/02/2007	1.2.0 Draft	D. Marchionni	None	HMA AR RID: AR#91
19/02/2007	1.2.0 Draft	D. Marchionni	Order quotation improved.	HMA AR RID: AR#92
19/02/2007	1.2.0 Draft	D. Marchionni	Used gml:PolygonType, gml:RectangleType, gml:PointType to specify geographic elements	HMA AR RID: AR#95
19/02/2007	1.2.0 Draft	D. Marchionni	Removed duplicated element definitions; added new delivery methods	HMA AR RID: AR#96
19/02/2007	1.2.0 Draft	D. Marchionni	Added number of copies in the orderItem element.	HMA AR RID: AR#97
19/02/2007	1.2.0 Draft	D. Marchionni	ftp-pull removed from DeliveryInformationType; ftp-pull put in DeliveryInformationTypeExt which inherits from the previous one.	HMA AR RID: AR#98
19/02/2007	1.2.0 Draft	D. Marchionni	None	HMA AR RID: AR#99
19/02/2007	1.2.0 Draft	D. Marchionni	Updated definition of orderId	HMA AR RID: AR#100
09/02/2007	1.2.0 Draft	D. Marchionni	Added itemId and packaging to the Submit operation.	Inputs from E-OA project
09/02/2007	1.2.0 Draft	D. Marchionni	Added DescribeResultAccess operation	Inputs from E-OA project

Date	Internal version	Editor	Primary clauses modified	Description
09/02/2007	1.2.0 Draft	D. Marchionni	Updated delivery options: • deliveryMethod includes FTP, WCS; • packageMedium has been made an enumeration. • Removed FTP push / pull from DeliveryInformation because the on-line delivery is performed via DescribeResultAccess operation.	Inputs from E-OA project
09/02/2007	1.2.0 Draft	D. Marchionni	Call-back operation for asynchronous requests (UpdateStatus) has been replaced by SubmitResponse and CancelResponse.	Alignment to SPS EO Profile
04/05/2007	1.2.1 Draft	D. Marchionni	Updated OR7 to the latest available SWE Architecture document	HMA FP RID: FP#9
04/05/2007	1.2.1 Draft	D. Marchionni	Updated figure reference at §7.1.2	HMA FP RID: FP#11
04/05/2007	1.2.1 Draft	D. Marchionni	Added sftp and ftps as delivery methods (table 7-1)	HMA FP RID: FP#12
04/05/2007	1.2.1 Draft	D. Marchionni	Corrected definition of "use" attribute in §7.1.2	HMA FP RID: FP#13
04/05/2007	1.2.1 Draft	D. Marchionni	Updated §7.1.2 and table 7-2 specifying the difference between the [OR6] and [NR11] definitions.	HMA FP RID: FP#14
04/05/2007	1.2.1 Draft	D. Marchionni	Corrected table 7-4.	HMA FP RID: FP#16
04/05/2007	1.2.1 Draft	D. Marchionni	Clarified albumExtract definition in Table 7-15	HMA FP RID: FP#17
04/05/2007	1.2.1 Draft	D. Marchionni	Updated §7.1.6, Figure 7-16, table 7-20, Figure 7-17, Figure- 7-18, Figure 7-19, Table 7-23, Figure 7-20, Figure 7-21 OrderStatusType renamed to StatusType OrderStatusType/orderState renamed to StatusType/status	HMA FP RID: FP#18

Date	Internal version	Editor	Primary clauses modified	Description
04/05/2007	1.2.1 Draft	D. Marchionni	Updated table 8-1 explaining the sync / async usage of GetQuotation operation.	HMA FP RID: FP#19
04/05/2007	1.2.1 Draft	D. Marchionni	Table 8-7: clarified the meaning of "monitoring" attribute.	HMA FP RID: FP#20
04/05/2007	1.2.1 Draft	D. Marchionni	Updated Table 8-17, §6.1, §8.1.4	HMA FP RID: FP#21
04/05/2007	1.2.1 Draft	D. Marchionni	Added expirationDate in Figure 8-18 and Table 8-21	HMA FP RID: FP#22
04/05/2007	1.2.1 Draft	D. Marchionni	Removed third bullet of §8.2.4	HMA FP RID: FP#24
04/05/2007	1.2.1 Draft	D. Marchionni	Table 7-10	HMA FP RID: FP#26
04/05/2007	1.2.1 Draft	D. Marchionni	Figure 7-2, Table 7-2, Figure 7-3, Table 7-3, Figure 7-11, Table 7-12,	Alignment with SWE Common 0.0.0 (going to be approved as 1.0.0) and with SPS EO 0.9.4
04/05/2007	1.2.1 Draft	D. Marchionni	Figure 7-12, Table 7-13, Figure 7-14, Table 7-15, Figure 7-16, Table 7-19, Figure 7-21, Table 7-25, Figure 8-4, Table 8-7, Figure 8-5, Table 8-8, Figure 8-7	Integration with SPS EO for future product ordering.
04/05/2007	1.2.1 Draft	D. Marchionni	Figure 8-4, Table 8-7	To return list of supported collections within the Capabilities document.
04/05/2007	1.2.1 Draft	D. Marchionni	§8.1.1.1, Figure 8-2, Table 8-2	Removed password from userInformation element
04/05/2007	1.2.1 Draft	D. Marchionni	Figure 7-17, Table 7-21, Figure 7-18, Table 7-22, Figure 7-19, Table 7-23, Figure 8-15, Table 8-18, Figure 8-16, Figure 8-21	Enhanced get order list functionality of GetStatus operation.
8/14/07	BP final	Carl Reed	Various to ready document for posting.	

v. Changes to the OGC® Abstract Specification

To be confirmed as result of ongoing work.

vi. Future work

The handling of user information within this specification will be updated according the work performed on User Management architecture in the frame of HMA project.

vii. Foreword

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium Inc. shall not be held responsible for identifying any or all such patent rights.

Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the specification set forth in this document, and to provide supporting documentation.

Introduction

The service proposed in this implementation specification is intended to support the ordering of Earth Observation (EO) data products either from previously identified data set collections via a typical catalogue interaction or from future acquisitions specified via a Programming service [OR6]. The intent of this specification is to describe an interface that can be supported by many data providers (satellite operators, data distributors, etc.), most of whom have existing (and relatively complex) facilities for the management of these data.

1 Scope

This proposed implementation specification describes the interfaces, bindings and encodings required to order Earth Observation (EO) products.

2 Conformance

Conformance will be tested by the HMA-T project.

3 References

This document references several external standards and specifications as dependencies:

1. Unified Modeling Language (UML) Version 1.3, The Object Management Group (OMG): http://www.omg.org/cgi-bin/doc?formal/00-03-01
2. The Extensible Markup Language (XML), World Wide Web Consortium, http://www.w3.org/TR/1998/REC-xml-19980210
3. W3C Recommendation (24 June 2003): SOAP Version 1.2 Part 1, Messaging Framework, http://www.w3.org/TR/2003/REC-soap12-part1-20030624/
4. WSDL, Web Services Description Language (WSDL) 1.1, http://www.w3.org/TR/2001/NOTE-wsdl-20010315
5. W3C Recommendation (9 May 2006): Web Services Addressing 1.0 – Core, http://www.w3.org/TR/2006/REC-ws-addr-core-20060509

3.1 Normative References

[NR1] W3C Recommendation January 1999, Namespaces In XML, http://www.w3.org/TR/2000/REC-xml-names.

[NR2] W3C Recommendation 6 October 2000, Extensible Markup Language (XML) 1.0 (Second Edition), http://www.w3.org/TR/REC-xml

[NR3] W3C Recommendation 2 May 2001: XML Schema Part 0: Primer, http://www.w3.org/TR/2001/REC-xmlschema-0-20010502/

[NR4] W3C Recommendation 2 May 2001: XML Schema Part 1: Structures, http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/

[NR5] W3C Recommendation 2 May 2001: XML Schema Part 2: Datatypes, http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/

[NR6] W3C Recommendation (24 June 2003): SOAP Version 1.2 Part 1: Messaging Framework, http://www.w3.org/TR/SOAP/

[NR7] WSDL, Web Services Description Language (WSDL) 1.1. Available [online]: http://www.w3.org/TR/wsdl

[NR9] OWS Common Implementation Specification, May 2005 OGC 05-008c1

[NR10] W3C Recommendation (9 May 2006): Web Services Addressing 1.0 – Core, http://www.w3.org/TR/2006/REC-ws-addr-core-20060509

[NR11] OpenGIS® Sensor Planning Service Implementation Specification OGC-05-089r3

3.2 Other References

[OR1] HMA Prototype Acceptance Test Plan HMA-PL-SPB-AV-001

[OR2] OpenGIS Catalogue Services – Best Practices for EO Products OGC-05-057r4

[OR3] OpenGIS Catalogue Services Specification 2.0.1 (with Corrigendum) – EO Application Profile for CSW 2.0 OGC-06-079

[OR4] OpenGIS® Catalogue Services Specification 2.0.1 (with Corrigendum) - ISO Metadata Application Profile OGC 04-038r4

[OR5] Enhanced Online Archive Interface Control Document - EOA-ID-ACS-MMFI-0100_[ICD] 1.1 - 08 Jan 2007

[OR6] OpenGIS® Sensor Planning Service - Application Profile for EO Sensors OGC 07-018 V0.9.3

[OR7] OpenGIS® Sensor Web Enablement Architecture Document OGC 06-021r1

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

4.1.
Application profile
set of one or more base standards and - where applicable - the identification of chosen clauses, classes, subsets, options and parameters of those base standards that are necessary for accomplishing a particular function [ISO 19101, ISO 19106]

4.2.
client
software component that can invoke an **operation** from a **server**

4.3.
data clearinghouse
collection of institutions providing digital data, which can be searched through a single interface using a common metadata standard [ISO 19115]

4.4.
data level
stratum within a set of layered levels in which data is recorded that conforms to definitions of types found at the application model level [ISO 19101]

4.5.
dataset series (dataset collection[1])
collection of datasets sharing the same product specification [ISO 19113, ISO 19114, ISO 19115]. In this context, a collection metadata record in the catalogue describes a collection of EO Products, typically a dataset collection corresponds to datasets (i.e. products) generated by a single sensor in a specific mode on a particular EO satellite.

4.6.
geographic dataset
dataset with a spatial aspect [ISO 19115]

4.7.
geographic information
information concerning phenomena implicitly or explicitly associated with a location relative to the Earth [ISO 19128 draft]

[1] Due to historical reasons we´ll mainly use the term ‘dataset collection’ in this document although the term ‘dataset series’ is used in the ISO/TC211 Terminology Maintenance Group.

4.8.
georesource
geographic information of a specific type (e.g. geographic dataset, geographic application, geographic service)

4.9.
identifier
a character string that may be composed of numbers and characters that is exchanged between the client and the server with respect to a specific identity of a resource

4.10.
interface
named set of operations that characterise the behaviour of an entity [ISO 19119]

4.11.
metadata dataset (metadataset)
metadata describing a specific dataset [ISO 19101]

4.12.
metadata entity
group of metadata elements and other metadata entities describing the same aspect of data

NOTE 1 A metadata entity may contain one or more metadata entities.

NOTE 2 A metadata entity is equivalent to a class in UML terminology [ISO 19115].

4.13.
metadata schema
conceptual schema describing metadata

NOTE ISO 19115 describes a standard for a metadata schema. [ISO 19101]

4.14.
metadata section
subset of metadata that defines a collection of related metadata entities and elements [ISO 19115]

4.15.
operation
specification of a transformation or query that an object may be called to execute [ISO 19119]

4.16.
parameter
variable whose name and value are included in an operation **request** or **response**

4.17.
profile
set of one or more base standards and - where applicable - the identification of chosen clauses, classes, subsets, options and parameters of those base standards that are necessary for accomplishing a particular function [ISO 19101, ISO 19106]

4.18.
qualified name
name that is prefixed with its naming context

EXAMPLE The qualified name for the road no attribute in class Road defined in the Roadmap schema is RoadMap.Road.road_no. [ISO 19118].

4.19.
request
invocation of an **operation** by a **client**

4.20.
response
result of an **operation,** returned from a **server** to a **client**

4.21.
schema
formal description of a model [ISO 19101, ISO 19103, ISO 19109, ISO 19118]

4.22.
server
service instance
a particular instance of a **service** [ISO 19119]

4.23.
service
distinct part of the functionality that is provided by an entity through interfaces [ISO 19119]

capability which a service provider entity makes available to a service user entity at the interface between those entities [ISO 19104 terms repository]

4.24.
service interface
shared boundary between an automated system or human being and another automated system or human being [ISO 19101]

4.25.
service metadata
metadata describing the **operations** and **geographic information** available at a **server** [ISO 19128 draft]

4.26.
state
condition that persists for a period

NOTE The value of a particular feature attribute describes a condition of the feature [ISO 19108].

4.27.
transfer protocol
common set of rules for defining interactions between distributed systems [ISO 19118]

4.28.
version
version of an Implementation Specification (document) and XML Schemas to which the requested operation conforms

NOTE An OWS Implementation Specification version may specify XML Schemas against which an XML encoded operation request or response must conform and should be validated.

5 Symbols and abbreviations

5.1 Symbols (and abbreviated terms)

Some frequently used abbreviated terms:

API Application Program Interface

COTS Commercial Off The Shelf

CQL Common Query Language

CRS Coordinate Reference System

CSW Catalogue Service-Web

DCE Distributed Computing Environment

DC Dublin Core

DCMI Dublin Core Metadata Initiative

DCP Distributed Computing Platform

DDS Data Dissemination Service

EO Earth Observation

HMA Heterogeneous Missions Accessibility

HTTP Hyper Text Transport Protocol

ISO International Organisation for Standardisation

OGC Open GIS Consortium

SOAP Simple Object Access Protocol

SQL Structured Query Language

UML Unified Modeling Language

URI Uniform Resource Identifier

URL Uniform Resource Locator

URN Uniform Resource Name

UTF-8 Unicode Transformation Format-8

WSDL Web Service Definition Language

W3C World Wide Web Consortium

XML eXtensible Markup Language

5.2 UML notation

5.2.1 UML Class Diagrams

Some of the diagrams in this document are presented using the Unified Modeling Language (UML) static structure diagram. The UML notations used in this document are described in Figure 5-1, below.

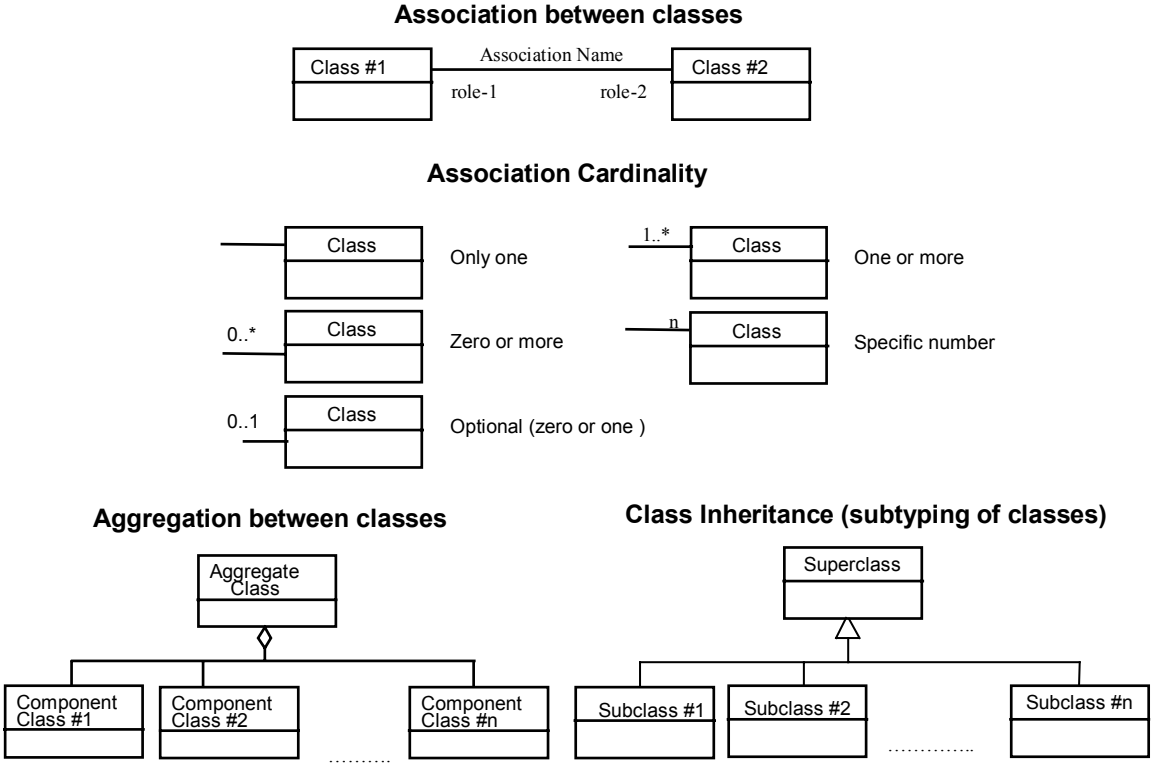


Figure 5-1: UML Class Diagram notations.

In these UML class diagrams, the class boxes with a light background are the primary classes being shown in this diagram, often the classes from one UML package. The class boxes with a gray background are other classes used by these primary classes, usually classes from other packages.

In this diagram, the following stereotypes of UML classes are used:

<<Interface>> A definition of a set of operations that is supported by objects having this interface. An Interface class cannot contain any attributes.

<<Type>> A stereotyped class used for specification of a domain of instances (objects), together with the operations applicable to the objects. A Type class may have attributes and associations.

<<DataType>> A descriptor of a set of values that lack identity (independent existence and the possibility of side effects). A DataType is a class with no operations whose primary purpose is to hold the information.

<<CodeList>> A flexible enumeration that uses string values for expressing a list of potential values. If the list alternatives are completely known, an enumeration shall be used; if the only likely alternatives are known, a code list shall be used.

<<Enumeration>> A data type whose instances form a list of alternative literal values. Enumeration means a short list of well-understood potential values within a class.

In this document, the following standard data types are used:

CharacterString – A sequence of characters

Boolean – A value specifying TRUE or FALSE

Integer – An integer number

Identifier – Unique identifier of an object

URI – An identifier of a resource that provides more information

URL – An identifier of an on-line resource that can be electronically accessed

5.2.2 UML Sequence Diagrams

Sequence diagrams are a representation of an interaction between objects. A sequence diagram traces the execution of an interaction in time.

The picture below illustrates a sequence diagram.

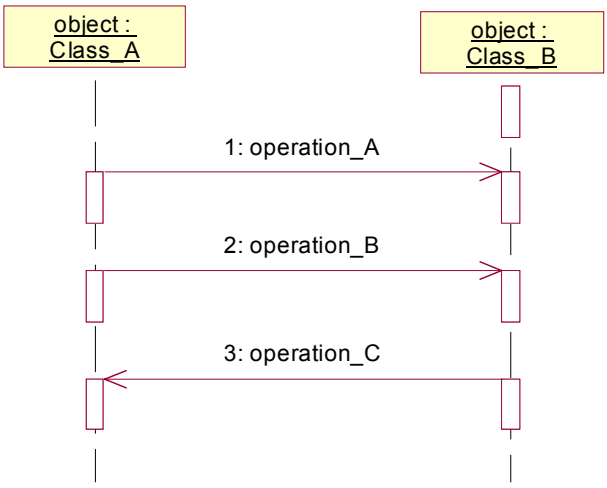


Figure 5-2: UML Sequence Diagrams Notations.

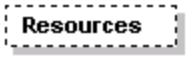
Each interaction between objects is the activation of an operation of an object, which includes input and output parameters.

5.3 XML notation

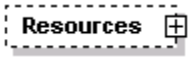
Most diagrams that appear in this specification are presented using an XML schema notation defined by the XMLSpy tool and described in this subclause.

Hereafter the symbols defined in the XML schema notation are described:

- Optional single element without child elements



- Optional single element with child elements



- Mandatory single element.

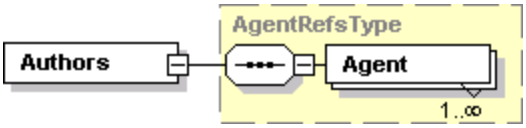
- Mandatory multiple element containing child elements. This element must occur at least once (Minimum Occurrence = 1) and may occur as often as desired (Maximum Occurrence = unbounded).

- Mandatory single element with containing simple content (e.g. text) or mixed complex content (e.g. text with xhtml markup).

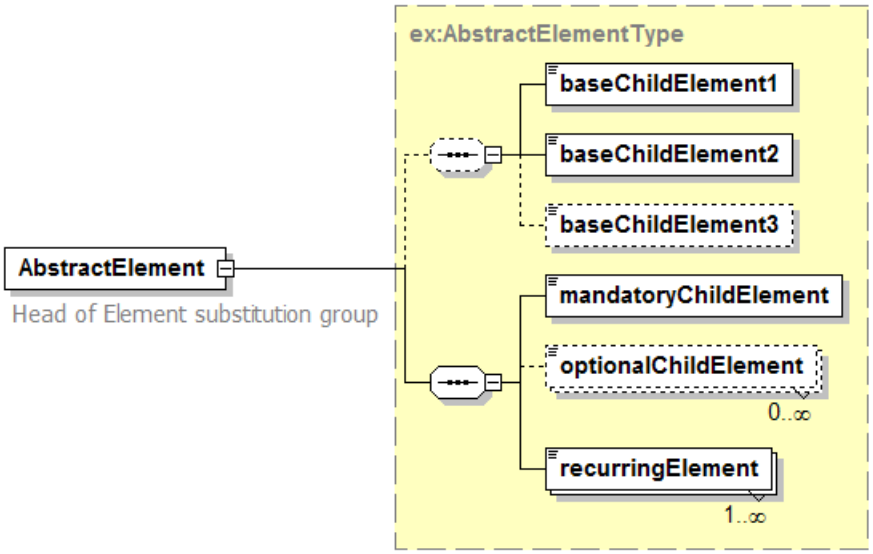
- A sequence of elements. The elements must appear exactly in the sequence in which they appear in the schema diagram.

- A choice of elements. Only a single element from those in the choice may appear at this position.

- Types. If an element refers to a complex global type, the type is shown with a border and yellow background.



- Complex Type. The following figure illustrates the use of a complex type for defining an XML element



5.4 Document terms and definitions

This document uses the specification terms defined in Subclause 5.3 of [NR9].

6 System context

This section focuses on the purpose, scope and policies of ordering services that comply with this specification. It documents special requirements and describes the context of use.

6.1 Application domain

The ordering service described in this specification has the objective of supporting the following types of orders of Earth Observation products:

- Order from catalogues of EO products.

  This service allows the preparation and the submission of an order including products identified via a search in a catalogue of EO products ([OR-3]).

- Order of products derived from a programming request.

  This service allows the submission of an order including products which can be derived from a set of future acquisition segments specified via an external Programming Service ([OR-6]).

- Subscription to EO products.

  This service allows users the periodical reception of products of interest on the areas of interest.

For these purposes, the Ordering Service for Earth Observation Products specifies the following operations:

- **GetCapabilities**, allows a client to request and receive service metadata (or Capabilities) documents that describe the abilities of the specific server implementation.
- **GetOptions,** allows clients to retrieve the options for issuing an order: in case of product ordering it returns the options for ordering a specific type of product; in case of subscriptions it returns the possible parameters to set for specifying the scope of the subscription (e.g.: area of interest, expiration date, etc.).
- **GetQuotation**, which allows the client to get a quotation either of the order that is going to be submitted or of the subscription going to be subscribed. This operation, in order to support the wider set of clients and service providers, supports several interaction models:
  - Synchronous quotation;
  - Asynchronous via Notification: the client has to implement a call-back operation (**GetQuotationResponse**) which is called by the server when the quotation is available.
  - Asynchronous via Monitoring: after the first activation, in which the client specifies all order parameters, the client has to call it again (referencing the first call) until the server is able to return the quotation.
  - Off-line: the quotation is not provided by on-line interaction but via mail / e-mail.
- **Submit**, which allows either submitting an order of products (from EO catalogue or from a programming request) or for subscribing to a subscription. This operation is asynchronous and then the client has to implement a call-back operation (**SubmitResponse**) for receiving the result of the operation.

- **DescribeResultAccess**, which allows accessing the products ordered with on-line delivery.
- **GetStatus**, which allows to retrieve either the status of submitted orders or the status of subscribed subscriptions.
- **Cancel**, which allows either to ask the cancellation of an already submitted order or to unsubscribe a subscription. This operation is asynchronous and then the client has to implement a call-back operation (**CancelResponse**) for receiving the result of the operation.

6.2 Essential Use-cases

6.2.1 Ordering from catalogue of EO Products

The following figure shows the nominal usage of the Order Service operations for ordering products from EO Catalogues:

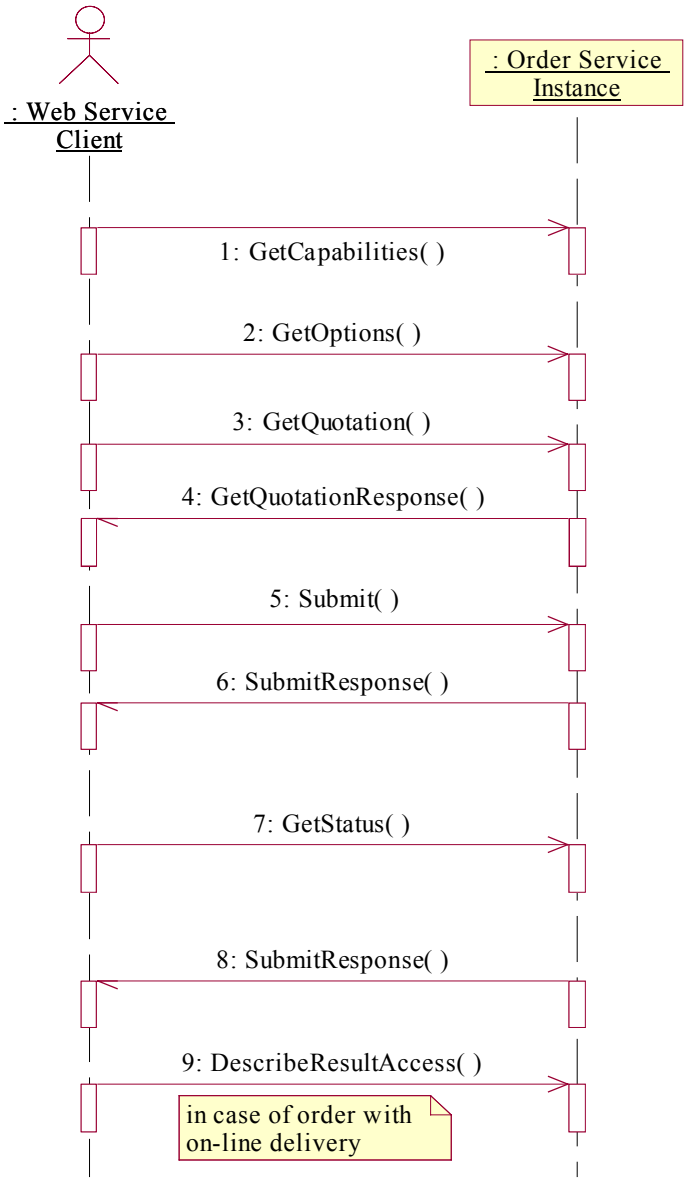


Figure 6-1: Sequence of steps generally performed for ordering products from EO Catalogue.

In the scenario the following entities are specified:

- Web Service Client, which represents the user submitting requests to the Order Service;
- Order Service Instance: it is the server providing the order service;

The typical scenario is:

- The list of products to be ordered has been prepared on client side by querying EO Catalogues.
- The client gets the list of supported operations from the Ordering Service instance (**GetCapabilities**).
- The list of ordering options is retrieved for each product to be ordered (**GetOptions**).
- Then the order is prepared on the client side choosing the requested options for each of the products to order.
- The quotation of the just prepared order can be asked by calling the **GetQuotation** operation. The quotation can be received either synchronously or via asynchronous notification depending on client and server capabilities.
- In case the quotation is accepted, the order can be submitted to the Order Service (**Submit**). The Order Service returns back an acknowledgement and start the execution of the order.
- After the order has been submitted the following events are possible:
    - The client asks the status of the order to verify the progress of the order (**GetStatus**);
    - The client is notified of possible status updates (**SubmitResponse**).
    - The client can ask the cancellation of the order (**Cancel**)
- When the order processing is completed, the ordered products are either delivered to the user or can be retrieved on-line by calling DescribeResultAccess operation depending on the selected delivery method.

6.2.2 Order of Future Products derived from tasking requests

For future products the scenario is very similar to the previous one: instead of getting the catalogue identifier of the products to order, the client has to identify the future acquisition segments needed for generate the products to order. This step is performed accessing an external programming service ([OR-6] – Sensor Planning Service Earth Observation Application Profile). These future acquisition segments are identified within the products order via the identifier of the corresponding tasking request returned by the Programming service.

Then the submission of this type of order can be summarized with the following steps:

- Identification of the necessary future acquisition segments and require them to the external Programming Service ([OR-6] - SPS EO). As a result the programming request identifiers of all needed acquisitions are available on client side.
- Get order options for the products that can be ordered from the identified acquisitions: call GetOptions specifying as input parameters the programming identifiers.
- The order is prepared on client side choosing the options necessary for getting the needed products from the identified acquisitions.
- The quotation of the just prepared order can be asked by calling the **GetQuotation** operation. The quotation can be received either synchronously or via asynchronous notification depending on client and server capabilities.

- In case the quotation is accepted, the order can be submitted to the Order Service (**Submit**). The Order Service returns back an acknowledgement and start the execution of the order.
- After the order has been submitted the following events are possible:
    - The client asks the status of the order to verify the progress of the order (**GetStatus**);
    - The client is notified of possible status updates (**SubmitResponse**).
- The client can ask the cancellation of the order (**Cancel**)
- When the order processing is completed, the ordered products are either delivered to the user or can be retrieved on-line by calling DescribeResultAccess operation depending on the selected delivery method.

6.2.3 Subscribe to EO Products

This section explains the steps to follow for subscribing to published EO products subscriptions.

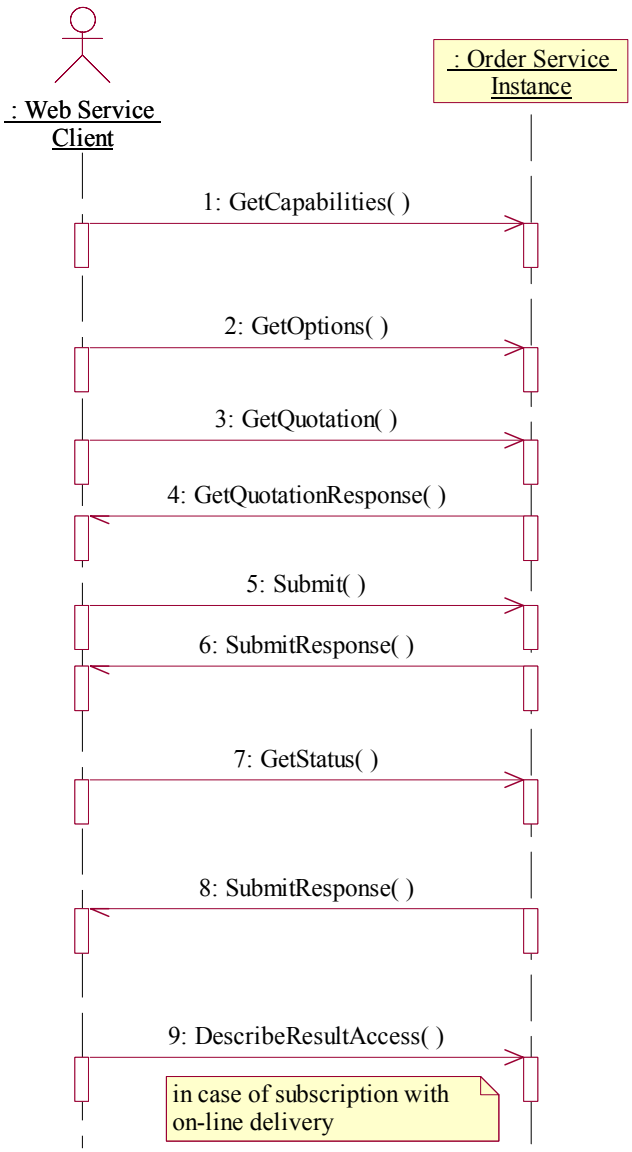


Figure 6-2: Sequence of steps generally performed for subscribing to EO products.

In the scenario the following entities are specified:

- Web Service Client, which represents the user submitting requests to the Order Service;
- Order Service Instance: it is the server providing the order service;

The typical scenario is:

- The client gets the list of supported operations from the server (**GetCapabilities**).
- The list of subscriptions to subscribe has been prepared on client side querying a catalogue storing the advertised subscriptions, and then the next step is to retrieve the list of possible subscription options (**GetOptions**). Possible examples options are:
    - region of interest, which allows to receive of the whole available products only the one overlapping this area;
    - type of area coverage, specifying how the products to be returned are spatially related to the specified area (e.g. overlap, inclusion, etc.)
    - expiration date, which specifies the limit date & time of validity of the subscription;
    - repetition, which specify the number of time the base observation period is repeated.
    - the number of products per observation.
- The subscription order is prepared on the client side setting the available subscription options.
- The quotation of the just prepared order can be asked by calling the **GetQuotation** operation. The quotation can be received either synchronously or via asynchronous notification depending on client and server capabilities.
- In case the quotation is accepted, the subscriptions are subscribed to the Order Service by calling Submit operation. The Order Service returns back an acknowledge confirming the activation of the subscription.
- After the order has been submitted the following events are possible:
    - The client asks the status of his / her subscriptions (**GetStatus**).
    - The progress of the subscriptions are directly notified to the client (**SubmitResponse**)
    - The client is allowed to unsubscribe the subscriptions (**Cancel**).
- When some products are ready, they can be retrieved by DescribeResultAccess operation if ordered with on-line delivery.

7 Information models

As previously anticipated, this specification supports different type of orders:

- Product Orders
    - Order from EO Catalogue ([OR-3]): the products to be ordered are identified from catalogue performing a catalogue search. The retrieved identifiers are used for building the items within the order.
    - Future product orders via programming service ([OR-6] SPS EO)

      For building a future product order 2 steps are necessary:

        - A programming request has to be defined in order to specify the needed acquisition segments. This step is performed via the SPS EO instance linked to the Ordering service which support future products ordering.

          The tasking request deals only with the parameters needed for the acquisition e.g.: start & stop time / orbit or area to cover, polarization, incidence angles, sensor mode, etc. At this stage the level of product, the format, the delivery options are not specified.
        - A product order has to be specified, referencing the tasking request, for setting all parameters needed to deliver products to the user e.g.: required product type, product format, media, delivery address, accounting and billing information.
- Subscription

  For subscribing a subscription it is sufficient specifying the appropriate collection identifier, the area and the temporal extension of the subscription.

In the following sub-sections the data structures for modelling these three type of orders are described.

7.1 Information model for EO product ordering

The information models section deals with the information item managed through the Order Service operations, which are:

- Order options (§7.1.2)
- Order Specification (§7.1.3)
- Order Item (§7.1.4)
- Order Quotation (§7.1.5)
- Order Monitoring (§7.1.6)
- Order Item Monitoring (§7.1.7)

7.1.1 XML schema approach

This specification deals mainly with 2 different types of requests: product orders and subscription orders. These requests share several common parameters and have some differences, and then to model them in a XML schema we envisaged the following options:

- Put all parameters together making optional the specific ones;
- Put all parameters together putting choice elements for the specific ones;
- Define a hierarchy with an abstract type grouping the common parameters and use type substitution.

The first approach does not allow strict schema checks, because all the specific parameters are optional and cannot be verified whether the parameters needed to a specific type of order are provided or not.

The second approach implies the usage of lot of choices in the schema and if a new request has to be managed, all these choices have to be updated.

The third approach allows schema checks for the different type of requests and is more extensible than the previous one because it is sufficient to add the new request to the substitution group and all places where the substitution group was used don't have to be updated.

Then for the definition of order options (see next paragraphs) we have the following complex types:

- **CommonOrderOptionsType** root
- **ProductOrderOptionsType** inherited from CommonOrderOptionsType;
- **SubscriptionOrderOptionsType** inherited from CommonOrderOptionsType;

And the following elements:

- **commonOrderOptions** (type CommonOrderOptionsType) abstract element;
- **productOrderOptions** (type ProductOrderOptionsType) having commonOrderOptions as substitution group;
- **subscriptionOrderOptions** (type SubscriptionOrderOptionsType) having commonOrderOptions as substitution group;

Similarly for order specification (see next paragraphs) the following complex types and elements have been defined:

- **CommonOrderSpecification**, which is the root of the hierarchy
- **SubscriptionOrderSpecification**, inherited from CommonOrderSpecification;
- **ProductOrderSpecification**, inherited from CommonOrderSpecification;

And three corresponding elements:

- **orderSpecification** (CommonOrderSpecification), abstract root element;
- **subscriptionOrderSpecification** (SubscriptionOrderSpecification), having orderSpecification as substitution group;

- **productOrderSpecification** (ProductOrderSpecification), having orderSpecification as substitution group;

and so on for order monitoring.

7.1.2 Order Options

Order options specify all possible valid combinations of options for ordering products of a specified dataset collection or for subscribing to a subscription.

7.1.2.1 CommonOrderOptionsType

The following figure represents the common order options.

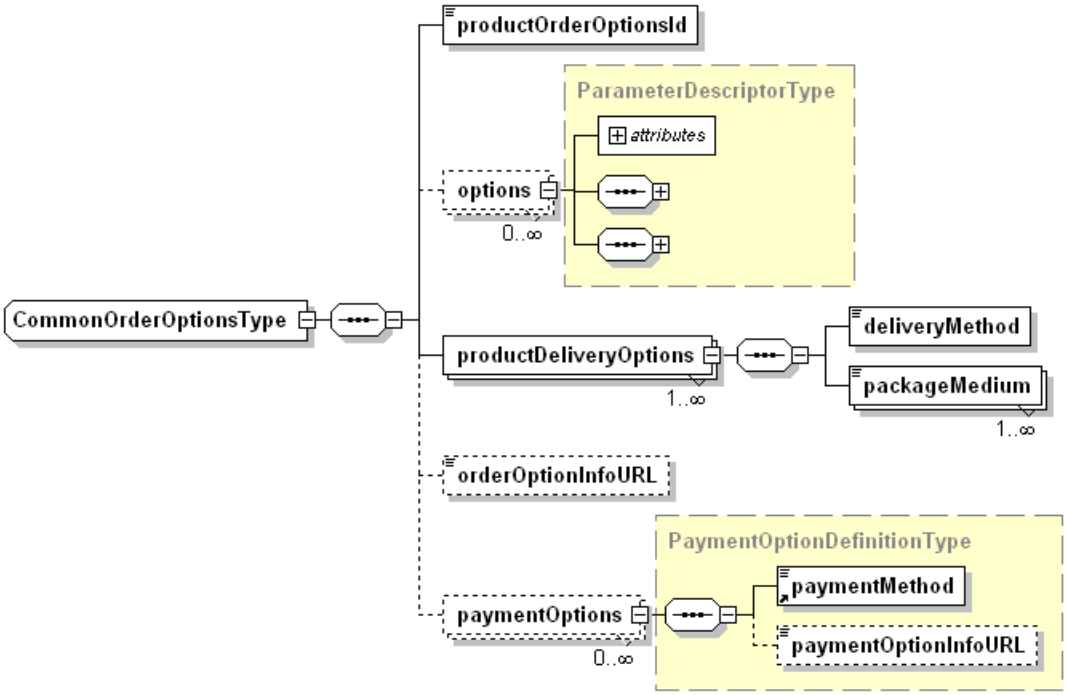


Figure 7-1: CommonOrderOptionsType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
CommonOrderOptionsType	It contains the common information about the different order options available for the order.	X	X
productOrderOptionsId	Identifier of the specific order option group. **Type:** Not empty string (max 40 char) **Example:** "on-line retrieval"		
option	Extensible list of ordering options (see Table 7-2)		
productDeliveryOptions	Delivery Options for the order item.		

Tag Name	Tag Description	Product	Subscription
deliveryMethod	Delivery methods valid for the delivery medium. **Type:** String **Permitted Values**: mail, ftp, sftp (SSH File Transfer Protocol), ftps (FTP over SSL), P2P, wcs, e-mail, dds		
packageMedium	Identification of a delivery Medium and a Medium Formatting Option. **Type:** Not empty string (max 40 chars) **Permitted Values:** NTP, DAT, Exabyte, CD-ROM, DLT, D1, DVD, file (for ftp, sftp, ftps, wcs, P2P, DDS delivery), HDDVD, BD (Blu-ray)		
orderOptionInfoURL	Pointer to external information about the current order option. **Type:** xs:anyURI		
paymentOptions	Payment options		
paymentMethod	Payment methods. **Type**: string (max 40 char) **Example**: quota, invoice, prepay (to be indicated for free products), deposit account, credit card, credit card previously supplied		
paymentOptionInfoURL	Pointer to external information about the current payment option. **Type:** xs:anyURI		

Table 7-1: CommonOrderOptionsType description.

7.1.2.2 ParameterDescriptorType

The ParameterDescriptorType ([NR11] §11.2.1, [OR-6] §8.1) defines the input a client has to provide for setting ordering options. One instance of this type represents one order option to be set for the specified order item.

The ParameterDescriptorType contains the mandatory attributes:

- "parameterID" which will be used to reference a specific parameter in other requests, e.g. Submit / GetQuotation.
- The "use" attribute defines if the parameter can or shall be provided by the client. It enumerates the strings "optional" and "required". If required, a Submit or GetQuotation request will not be validated as true if this parameter is missing.
- The third attribute "updateable" is defined in the SPS specification, but in this context has to be set always true because update operation is not supported in ordering service.

The sps:ParameterDescriptorType defines four elements: three optional elements and one mandatory. The three optional elements can be used to provide further description about the order option (gml:description), to allow the presetting of possible values (restriction) (e.g. “yes, no” or “day, night” or “1, 2, 3”), and for defining the cardinality of possible input elements (cardinality). Cardinality is restricted to positive integers (excluding zero) and the string value “unbounded”.

The data structure of the input elements that shall be provided by the client is defined in the mandatory and unbounded “sps:definition” element. This element serves as an entry point to parsers to find the data block definition that has to be matched by the input data. It is followed by either a sps:commonData element (see SWECommon for further information), a “sps:taskMessageDefinition” element which is a link to an external definition of the data block or a “sps:GeometryDefinition” or multiple sps:ParameterDescriptor.

The “sps:definition” element has been made unbounded in [OR6] with respect the [NR11] base specification in order to allow the definition of the same parameters more times e.g.: a regionOfInterest may be a gml:Polygon OR a Circle.

“sps:GeometryDefinition” is of type QName and is restricted to the GML elements gml:Point, gml:Line, gml:Polygon. It is assumed that clients “know” how to encode those basic elements.

The sps:ParameterDescriptorType has been enhanced in [OR6] w.r.t [NR11] adding recursion in order to allow the definition of complex parameters as list, aggregates, list of aggregates, etc.

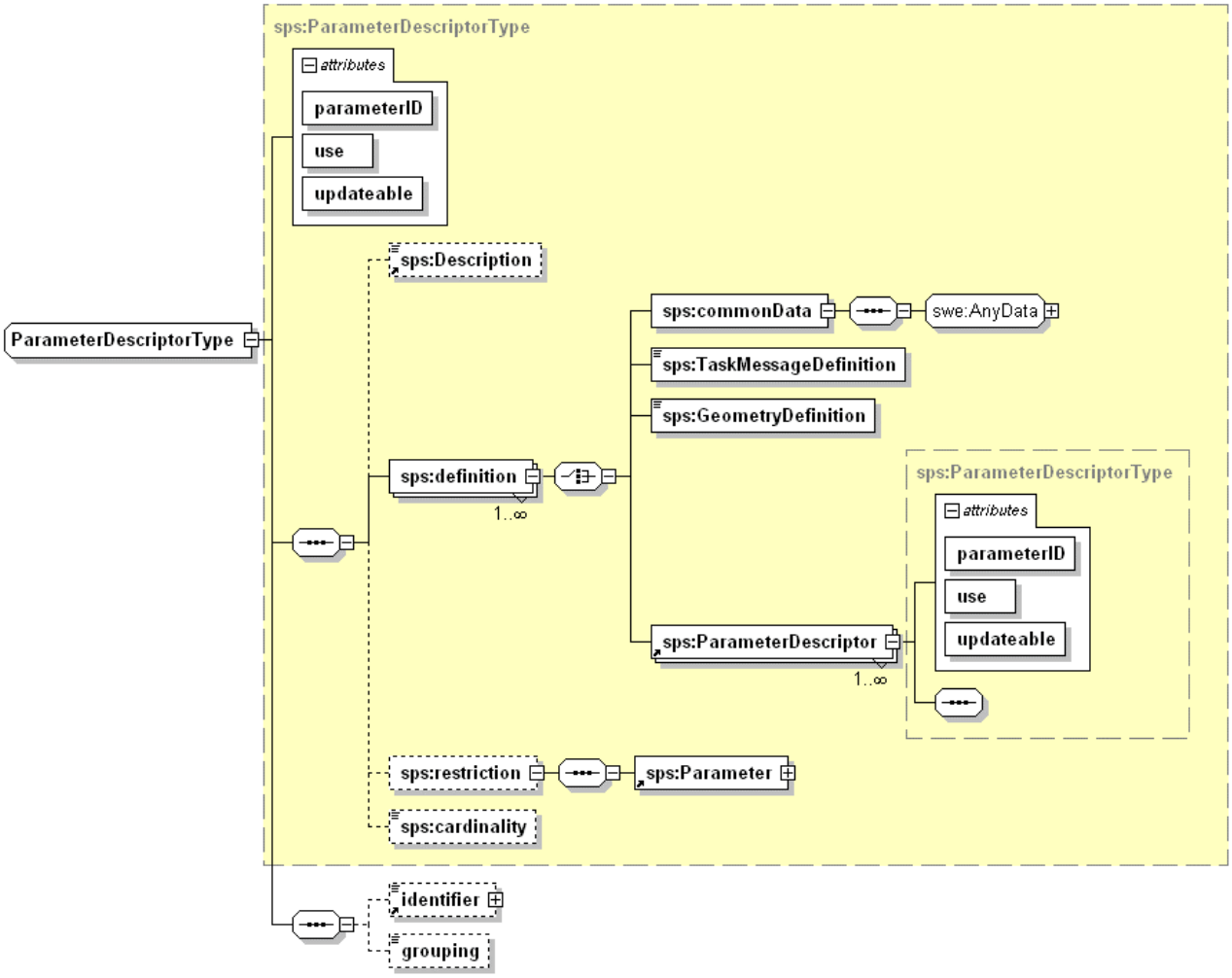


Figure 7-2: ParameterDescriptorType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
ParameterDescriptorType	See [NR11] §11.2.1, [OR-6]§8.1		
parameterID	It is the identifier of the order option to use when the order is submitted. Type: xs:ID	X	X
use	Defines if the parameter shall be provided by the client or not. It enumerates the strings “optional” and “required”. If required, a Submit or GetQuotation request will not be validated as true if this parameter is missing Type: String Allowed values: required, optional	X	X

Tag Name	Tag Description	Product	Subscription
updateable	It is optional and defines if a parameter can be updated (defined in SPS, but not supported in Ordering Service). Type: Boolean		
sps:Description	Additional textual description of the order option. Type: String	X	X
sps:definition	This element describes the structure of the order option.		
swe:commonData	see SWECommon [OR7]	X	X
sps:TaskMessageDefinition	It is a link to an external definition of the data block	X	X
sps:GeometryDefinition	Enumerative value: gml:Point, gml:Line, gml:Polygon	X	X
sps:ParameterDescriptor	Recursive parameter description definition in charge of representing parameters having complex nested structure. Type: ParameterDescriptorType	X	X
sps:restriction	It specifies a set of predefined values the client has to specify for the ordering parameter. Type: sps:Parameter	X	X
sps:cardinality	Cardinality of parameter to insert	X	X
identifier	Product identifier element. Type Value: string Permitted Values: Not empty string This field is optional: • if present it means that the option is applicable only to this product. • If not present it means that the option is applicable to the whole collection. This identifier, if present, shall be owned by the collection.	X	Not Applicable
grouping	Additional identifier for grouping correlated order options. Type: string (max 40)	X	X

Table 7-2: ParameterDescriptorType description.

7.1.2.3 sps:Parameter

The Parameter Element is used to provide the value for a specific order option. The encoding follows the description that is part of the definition element of an sps:ParameterDescriptor Element. The Parameter

Element is therefore rather simple in its definition. It just has to provide the mandatory parameterID attribute to link the values to the specific order option. The values itself are replacing the any-Element.

In case of order option with nested definition, the value has to be set by setting appropriately the nested sps:Parameter element.

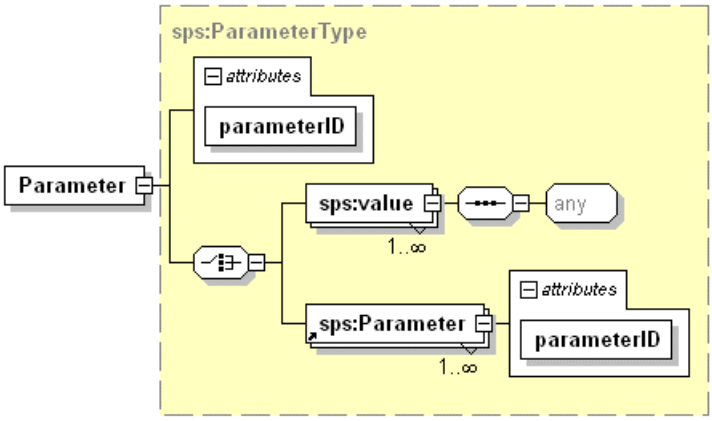


Figure 7-3: sps:Parameter diagram

Tag Name	Tag Description	Product Ordering	Subscription
Parameter	See [NR11] §11.2.1, [OR-6]§8.1	X	X
parameterID	It is the identifier of the order option to use when the order is submitted. Type: xs:ID		
sps:value	It is the value of the order option in case of non-nested definitions. Type: any		
sps:Parameter	Recursive declaration of the sps:Parameter. Type: sps:ParameterType		

Table 7-3: sps:Parameter description.

7.1.2.4 ProductOrderOptionsType

The following figure represents the product order options.

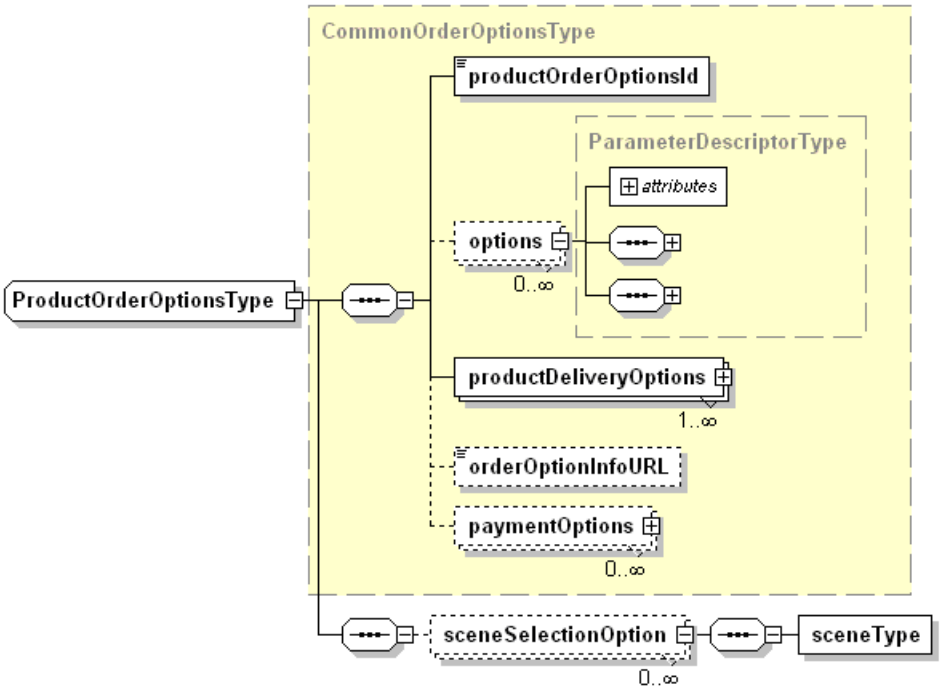


Figure 7-4: ProductOrderOptionsType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
ProductOrderOptionsType	Specific options for product orders. Inherited from CommonOrderOptionsType	X	Not Applicable
sceneSelectionOption	Identifies a scene selection option available for an order option group.		
sceneType	Identifier for the scene type specific to the selected product. Detailed characteristics of the scene type are expected to be specified under link "orderOptionsInfoURL" **Type:** Not empty string (max 20 chars)		

Table 7-4: ProductOrderOptionsType description.

7.1.2.5 SubscriptionOrderOptionsType

The following figure represents the subscription order options.

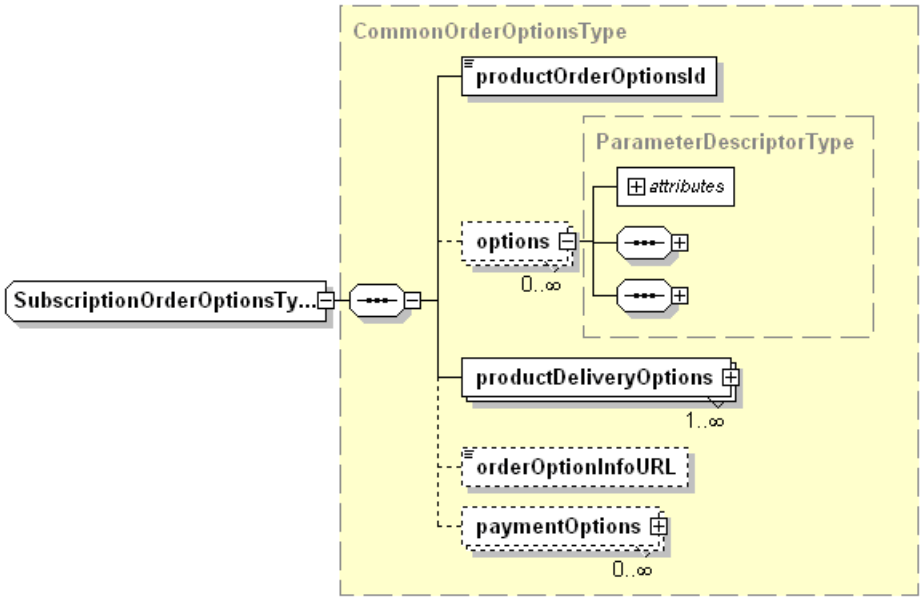


Figure 7-5: SubscriptionOrderOptionsType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
SubscriptionOrderOptionsType	Specific options for subscription orders. Inherited from CommonOrderOptionsType	Not Applicable	X

Table 7-5: SubscriptionOrderOptionsType description.

7.1.2.6 Preliminary and extensible list of ordering options

The ordering parameters include all parameters to be specified for generating the product needed to the user.

The first column specifies the name of the parameter to put in the parameterID attribute of ParameterDescriptorType; the second column describes it; the "Product Orders" column specifies whether the parameter is applicable for product orders; the last column specifies whether the parameter is applicable for Subscriptions.

Tasking Parameter Name	Description	Product Orders	Subscription Orders
processingLevel	Level of processing required on the data to acquire. E.g.; ASA_IMM_1P, MER_RR__2P, etc. Type: ENUMERATED_STRING	X	

Tasking Parameter Name	Description	Product	Subscription
format	Product format e.g.: CEOS, ESA, etc. Type: ENUMERATED_STRING	X	X
startDate	UTC time of the starting visiting period. Type: TIME		X
completionDate	UTC time of the finishing visiting period. Type: TIME		X
numberOfObservations	It specifies how many times the revisiting has to be performed. Type: NUMERIC		X
observationGap	Number of days between 2 successive observations. Type: NUMERIC		X
compression	Type of compression applied to the delivered products. E.g.: none, zip, gzip, bzip2, Type ENUMERATED_STRING	X	X
qualityOfServices	Quality of service available Examples**:** Standard, Rush, NRT **Type:** ENUMERATED_STRING	X	

Table 7-6: Order options extensible list.

7.1.3 Order Specification

This section defines all parameters a client has to specify for submitting an order (products / subscription).

For the definition of orders the following hierarchy of complex types has been declared:

- CommonOrderSpecification, which is the root of the hierarchy and includes all common parameters;
- SubscriptionOrderSpecification, inherited from CommonOrderSpecification and add the parameter specific for subscription orders;
- ProductOrderSpecification, inherited from CommonOrderSpecification and add the parameter specific for product orders;

These types are described in the following figures and tables:

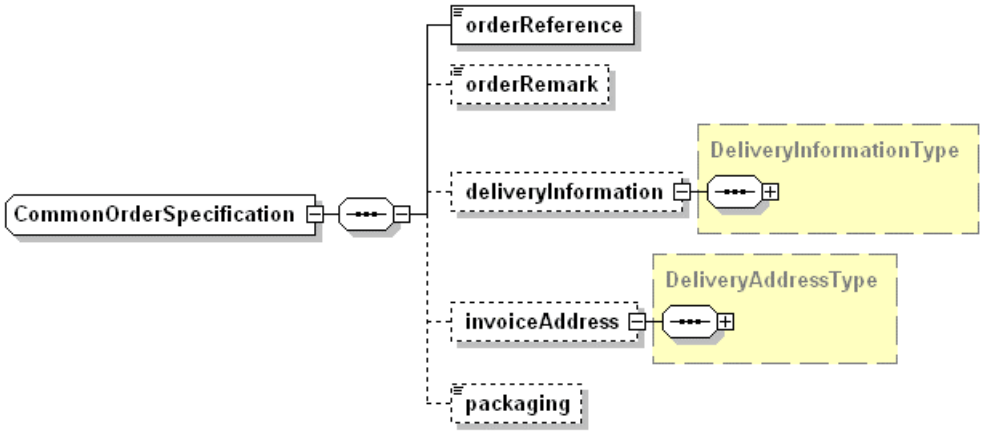


Figure 7-6: CommonOrderSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription
CommonOrderSpecification		X	X
orderReference	User defined name assigned to that order. **Type:** Not empty string (max 30 chars)		
orderRemark	Textual remark on the order. **Type:** Not empty string (max 255 chars)		
deliveryInformation	Delivery Information element. **Type**: DeliveryInformationType (§7.1.3.1)		
invoiceAddress	Invoice Address element. Type: DeliveryAddressType (§7.1.3.2)		
packaging	This element allows packing all ordered items in the same file. **Type**: string **Allowed values**: zip, tar, tgz		

Table 7-7: CommonOrderSpecification description.

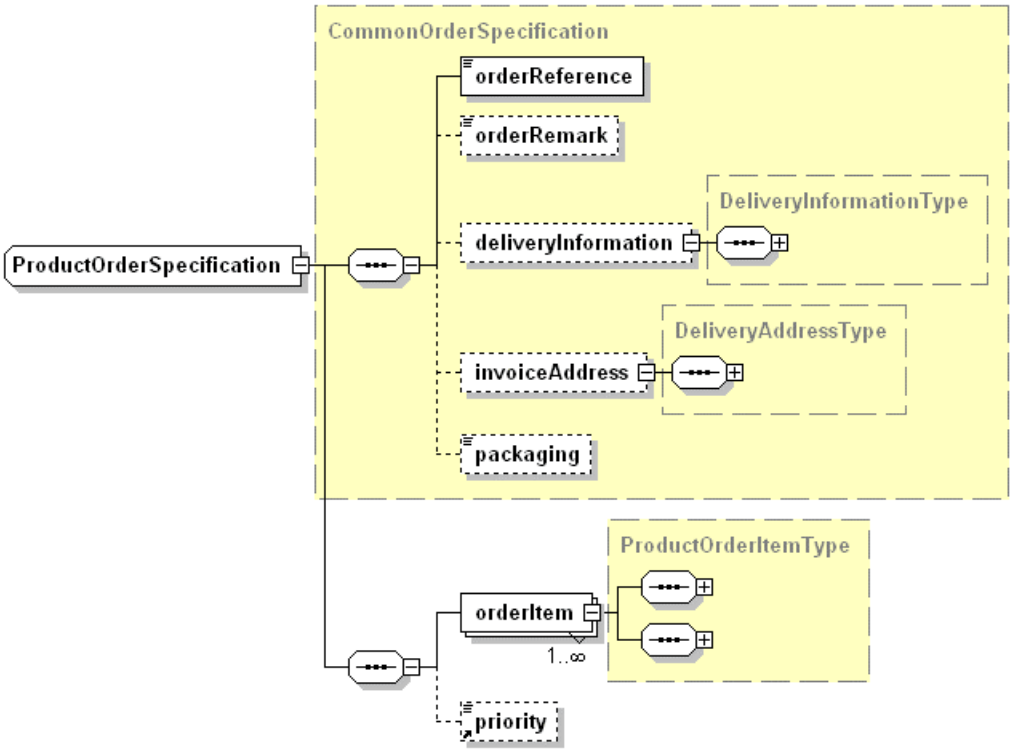


Figure 7-7: ProductOrderSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription
ProductOrderSpecification	Specific parameters for product orders. Inherited from CommonOrderSpecification.	X	Not Applicable
orderItem	Product Order Item element. **Type**: ProductOrderItemType (Its type is described in paragraph 7.1.4)		
priority	Priority of the order Type: number		

Table 7-8: ProductOrderSpecification description.

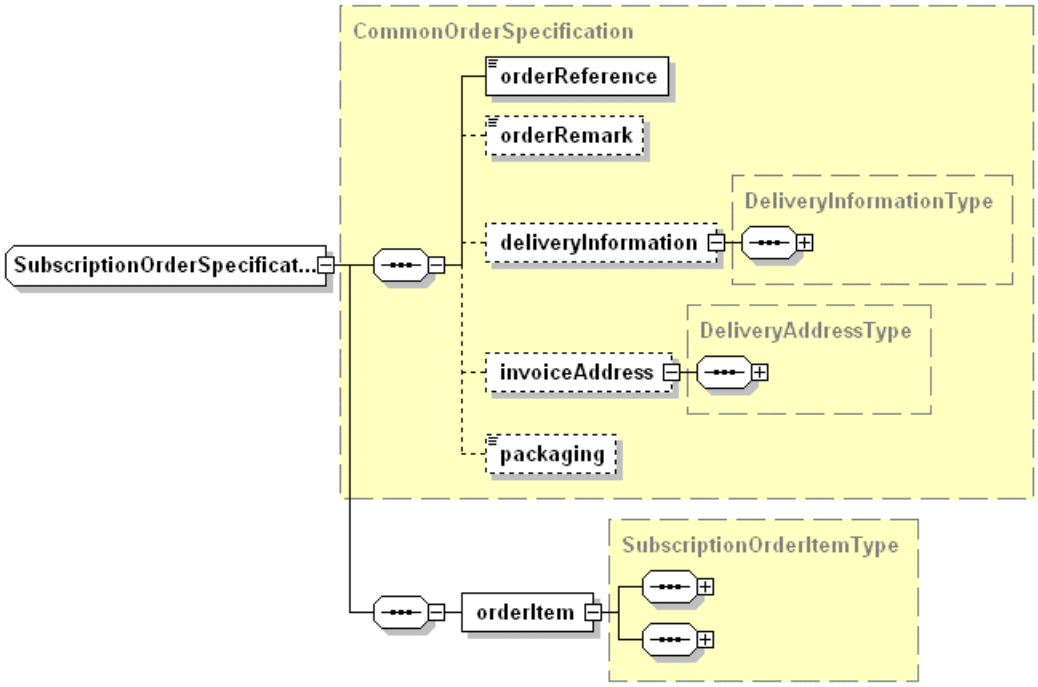


Figure 7-8: SubscriptionOrderSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription
SubscriptionOrderSpecification	Specific parameters for subscription orders. Inherited from CommonOrderSpecification.	Not Applicable	X
orderItem	Subscription Order Item element. **Type**: SubscriptionOrderItemType (§7.1.4)		

Table 7-9: SubscriptionOrderSpecification description.

7.1.3.1 DeliveryInformationType

The following figure gives a graphical representation of DeliveryInformationType:

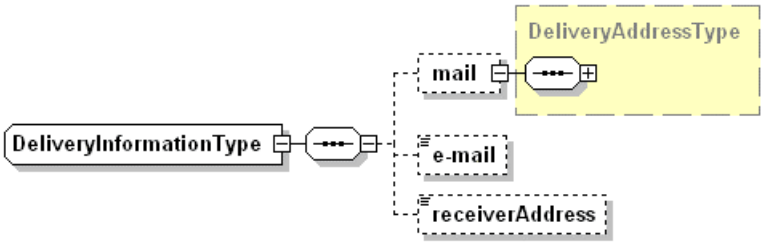


Figure 7-9: DeliveryInformationType diagram.

Tag Name	Tag Description
mail	Mail element. Type: DeliveryAddressType (§7.1.3.2).
e-mail	E-mail address of the user. Type: String (max 40 char)
receiverAddress	DDS address. Syntax: [channel] "." <receiving station address max 10 char> The receiving station is provided to the user during registration to the DDS service (outside this ICD). Type: String (max 20 char)

Table 7-10: DeliveryInformationType description.

7.1.3.2 DeliveryAddressType

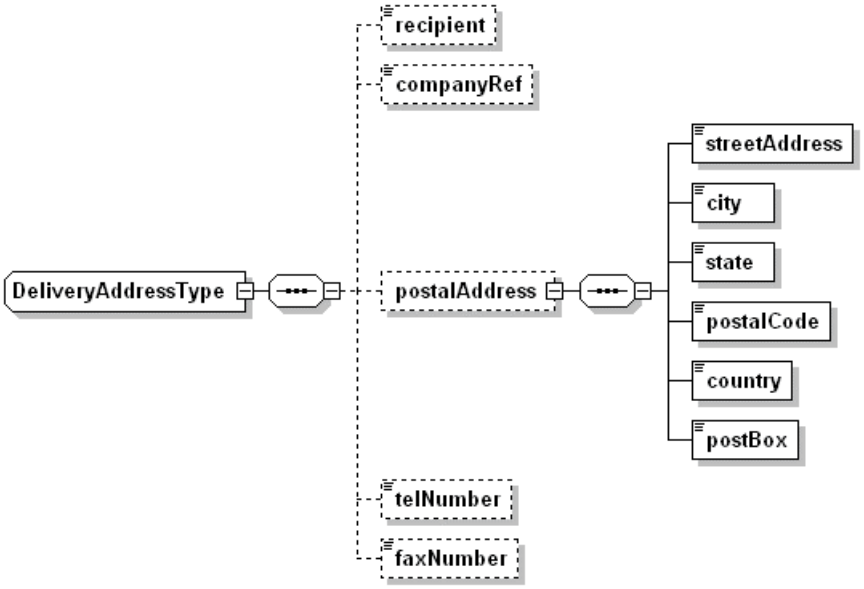


Figure 7-10: DeliveryAddressType diagram.

Tag Name	Tag Description
DeliveryAddressType	
recipient	Identification of the receiving person. **Type:** Not empty string (max 40 chars)
companyRef	Identification of the receiving entity. **Type:** Not empty string (max 40 chars)
postalAddress	Postal Address of the user.
streetAddress	Street Address element. **Type:** String (max 40 chars)
city	City element. **Type:** String (max 40 chars)
state	State element. **Type:** String (max 40 chars)
postalCode	Postal Code element. **Type:** String (max 12 chars)
country	Country element. **Type:** String (max 40 chars)

Tag Name	Tag Description
postalBox	Postal Box element. Only number part, only digits allowed **Type:** String (max 12 chars)
telNumber	Telephone number of the receiving person. **Type:** Not empty string (max 18 chars) matching the following regular expression: "\+?[0-9\(\)-\s]+" (An optional "+" sign followed by a series of (at least one) digit, "(", ")", "-" and blank chars)
faxNumber	FAX number of the receiving person. **Type:** Not empty string (max 18 chars) matching the following regular expression: "\+?[0-9\(\)-\s]+" (An optional "+" sign followed by a series of (at least one) digit, "(", ")", "-" and blank chars)

Table 7-11: DeliveryAddressType description.

7.1.4 Order Item

This section defines all parameters a client has to specify for one item within an order (products / subscription).

For the definition of order items the following hierarchy of complex types has been declared:

- CommonOrderItemType, which is the root of the hierarchy and includes all common parameters;
- ProductOrderItemType, inherited from CommonOrderItemType and add the parameters specific for product orders;
- SubscriptionOrderItemType, inherited from CommonOrderItemType and add the parameters specific for subscription orders;

These types are described in the following sections.

7.1.4.1 CommonOrderItemType

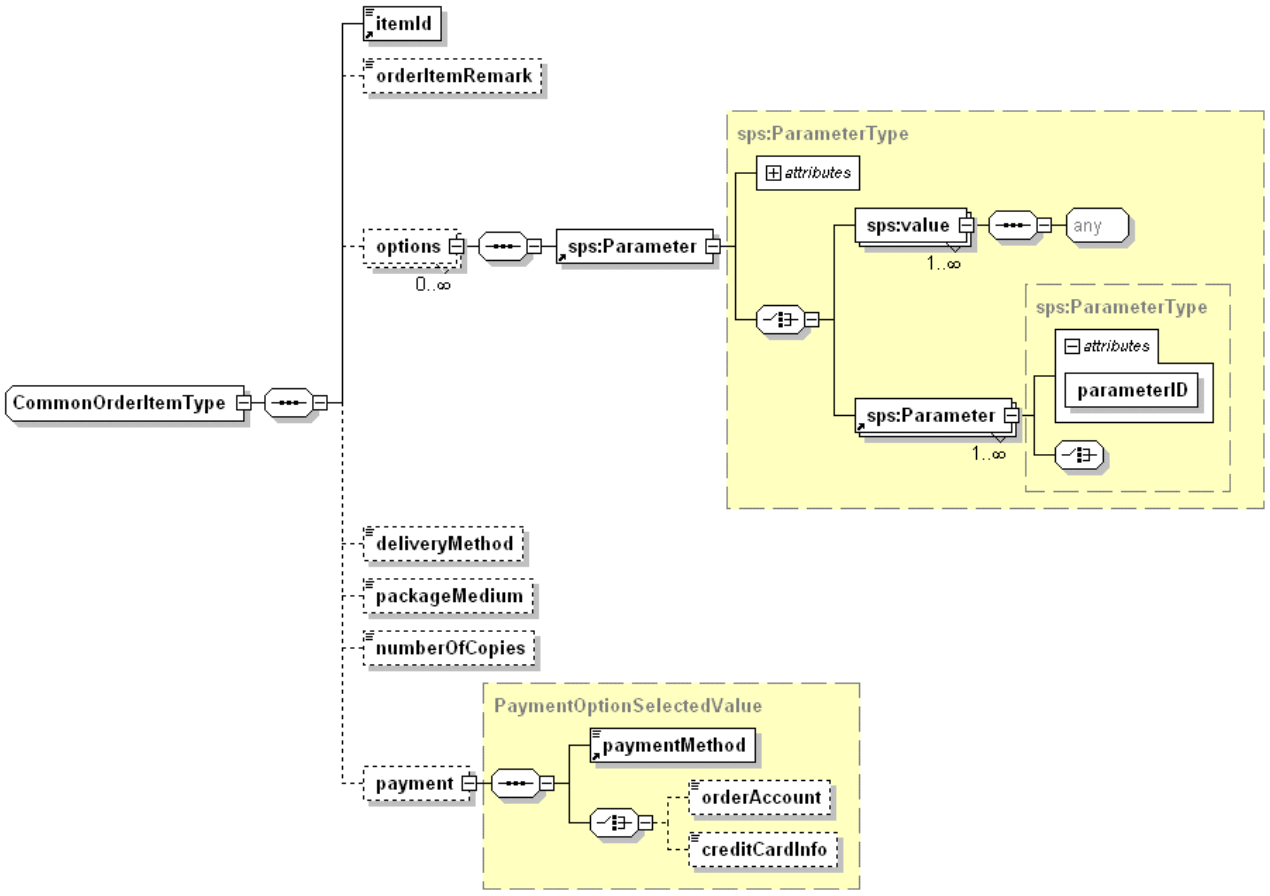


Figure 7-11: CommonOrderItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
CommonOrderItemType	Common parameters of an ordered item.	X	X
itemId	Unique identifier of the item within the order. Type: non empty string (max 80 char)		
orderItemRemark	Textual remark on the order item put by the XML issuer. **Type:** Not empty string (max 255 chars).		
options	It specifies the options to be applied to the ordered item. The list of values specified in this element shall comply with the one returned by GetOptionsResponse.		
sps:Parameter			
parameterID	Name of order option. Type: xs:QName		

Tag Name	Tag Description	Product	Subscription
value	Value of the order option. Type:any		
sps:Parameter	Value of order option in case of recursive definitions. Type: sps:ParameterType		
deliveryMethod	Delivery methods valid for the delivery medium. **Type:** String **Permitted Values**: mail, ftp, P2P, wcs, e-mail, dds		
packageMedium	Identification of a delivery Medium and a Medium Formatting Option. **Type:** String **Permitted values:** NTP, DAT, Exabyte, CD-ROM, DLT, D1, DVD, file, HDDVD, BD (Blu-ray)		
numberOfCopies	Specifies how many copies of the same order item have to be delivered. Type: integer		
payment	User selected payment information. If specified, it overrides the possible payment method and payment info stored in the user profile.		
paymentMethod	Selected payment method: quota, credit card, etc. Type: non empty string (max 40 char)		
orderAccount	In case of payment by quota, this field specifies the account under which the user is authorised to order from the specific provider. Type: non empty string (max 20 chars)		
creditCardInfo	In case of payment by credit card it specifies the credit card information. TBD encoding of credit card information within the message. Type: String		

Table 7-12: CommonOrderItemType description.

7.1.4.2 ProductOrderItemType

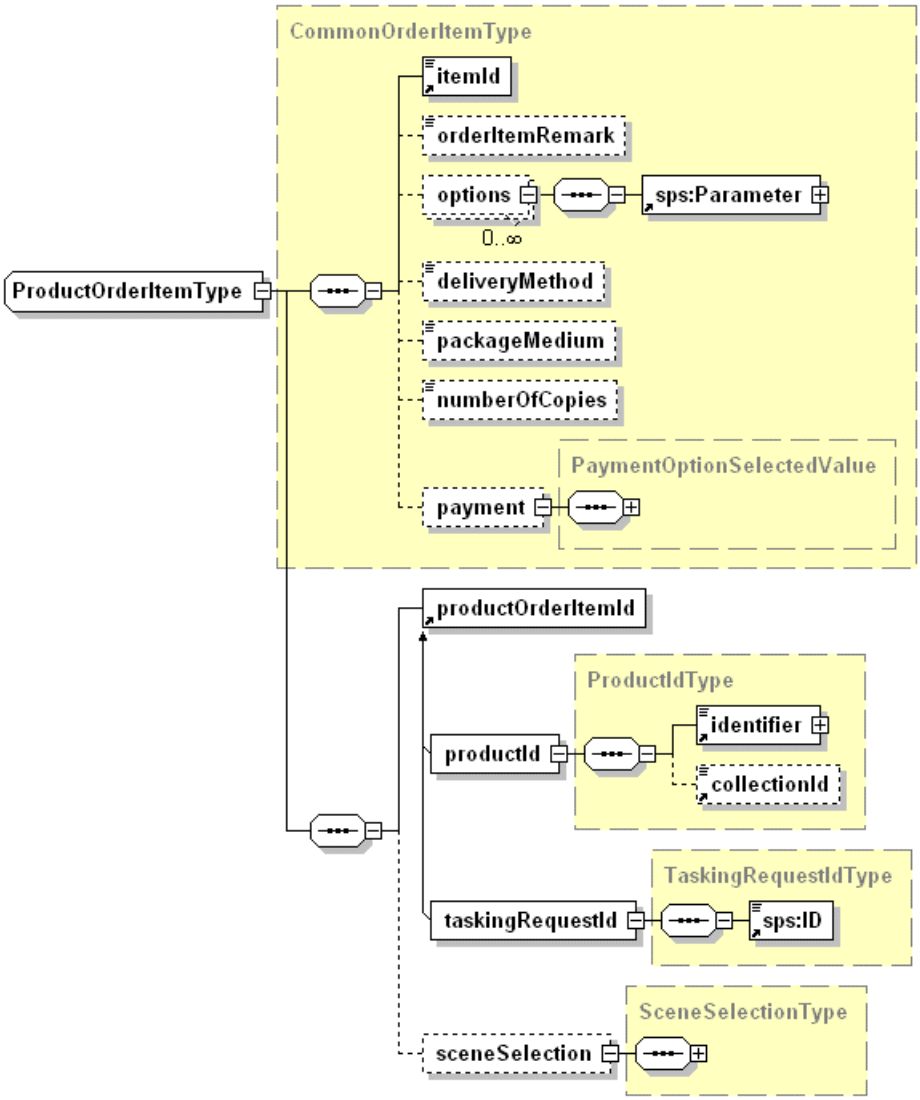


Figure 7-12: ProductOrderItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
ProductOrderItemType	Specific parameters for product order items. Inherited from CommonOrderItemType.	X	Not Applicable

Tag Name	Tag Description	Product	Subscription
productId	This field is set for ordering items from Catalogue. It identifies the target product on which the order item is based. Type: ProductIdType		
identifier	Product identifier element. Depending on the selected options, this item is either: • the ordered product • the parent product from which the product required by the client has to be prepared by applying the selected **options**. Type Value: string Permitted Values: Not empty string Syntax: The identifier format is not mandated by the specification, but is expected to be a persistent identifier.		
collectionId	Search space for the product requested. It is referenced as parentIdentifier in the [OR3]. **Type:** Not empty string **Syntax:** Provider.Facility.Collection identifying a pre-defined TargetService (e.g. ESA.EECF.ERSE_SER for the ESA ERS SAR raw data catalogue).		
taskingRequestId	This element is set for ordering products coming from a tasking request issued to SPS instance linked to the Ordering Service.		
sps:ID	Identifier for the feasibility study / tasking request. Type: xs:token		
sceneSelection	It specifies the selection of the scene from the product that is to be delivered. Its type is described in paragraph 7.1.4.5.		

Table 7-13: ProductOrderItemType description.

7.1.4.3 SubscriptionOrderItemType

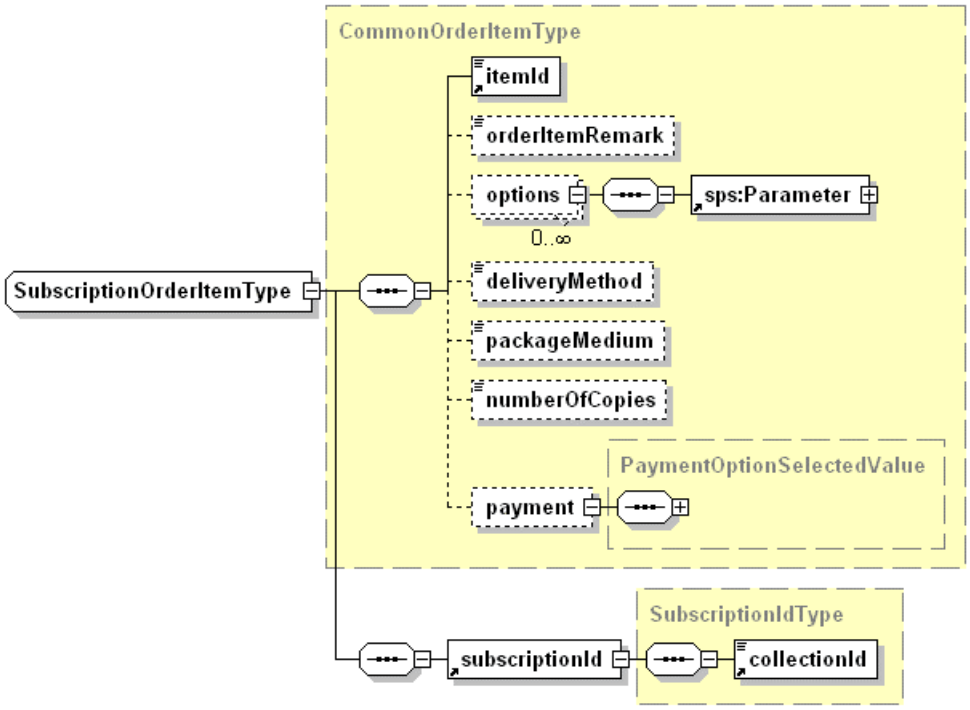


Figure 7-13: SubscriptionOrderItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
SubscriptionOrderItemType	Specific parameters for subscription order items. Inherited from CommonOrderItemType.	Not Applicable	X
subscriptionId	It identifies the target subscription on which the order item is based. Type: SubscriptionIdType		
collectionId	Search space for the product requested. It is referenced as parentIdentifier in the [OR3]. **Type:** Not empty string **Syntax:** Provider.Facility.Collection identifying a pre-defined TargetService (e.g. ESA.EECF.ERSE_SER for the ESA ERS SAR raw data catalogue).		

Table 7-14: SubscriptionOrderItemType description.

7.1.4.4 Order Item Identifier

This section specifies the attributes needed for identifying products and subscriptions within an order.

For the definition of order item identifiers the following elements have been declared:

- orderItemId, virtual element;
- productOrderItemId: virtual element for referencing orders including past and future products
    - productId, which includes the attributes for identifying a product within an order;
    - taskingRequestId, which includes the attributes for identifying a tasking request issued via the linked SPS instance.
- subscriptionId, which includes the attributes for identifying subscriptions within an order;

These elements are described in the following figures and tables:

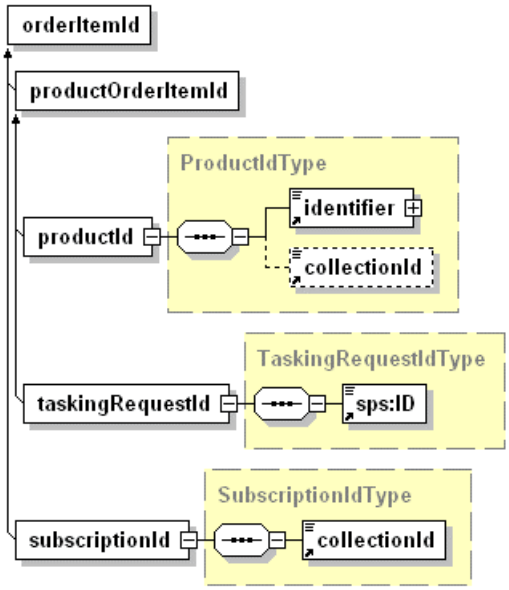


Figure 7-14: order item identifiers.

Tag Name	Tag Description	Product Ordering	Subscription
productId	Type: ProductIdType	X	Not Applicable

Tag Name	Tag Description	Product	Subscription
identifier	Product identifier element. Depending on the selected options, this item is either: • the ordered product • the parent product from which the product required by the client has to be prepared by applying the selected **options**. Type Value: non-empty string Syntax: The identifier format is not mandated by the specification, but is expected to be a persistent identifier.		
collectionId	Search space for the product requested. It is referenced as parentIdentifier in the [OR3]. **Type:** Not empty string **Syntax:** Provider.Facility.Collection identifying a pre-defined TargetService (e.g. ESA.EECF.ERSE_SER for the ESA ERS SAR raw data catalogue).		
taskingRequestId		X	Not Applicable
sps:ID	Identifier for the feasibility study / tasking request. Type: xs:token		
subscriptionId	Type: SubscriptionIdType	Not Applicable	X
collectionId	Identifier of the collection where the subscription is enabled. **Type:** Not empty string **Syntax:** Provider.Facility.Collection identifying a pre-defined TargetService (e.g. ESA.EECF.ERSE_SER for the ESA ERS SAR raw data catalogue).		

Table 7-15: order item identifiers description.

7.1.4.5 SceneSelection Type

The following figure gives a graphical representation of the SceneSelectionType:

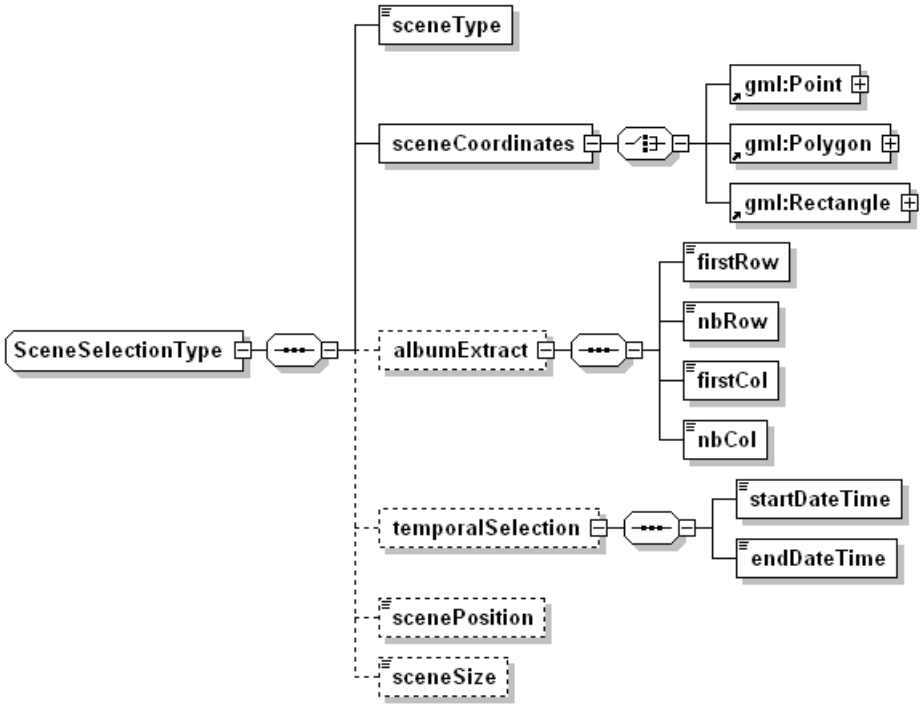


Figure 7-15: SceneSelectionType diagram

Tag Name	Tag Description	Product Ordering	Subscription
SceneSelectionType		X	Not applicable
sceneType	Identifier for the scene type specific to the selected product. **Type:** Not empty string (max 20 chars)		
sceneCoordinates			
gml:Point	Scene center element. Type: gml:PointType		
gml:Polygon	Bounding polygon of the selected scene. Type: gml:PolygonType		
gml:Rectangle	Bounding rectangle of the selected scene. Type: gml:RectangleType		

Tag Name	Tag Description	Product	Subscription
albumExtract	Source data extract defined by its bounding box with album catalogue coordinates (impossible for mosaic or cropping) Album catalogue is a low resolution image of the acquired datastrip stored within the catalogue. In Pleiades case, it corresponds to a 4-bands 22.4m resolution raw image (i.e. un-projected). On these images it is possible to select a sub-image by specifying its row / column range within the parent.		
firstRow	First row Type: Integer		
nbRow	Number of rows Type: Integer		
firstCol	First column Type: Integer		
nbCol	Number of columns Type: Integer		
temporalSelection	Temporal selection element		
startDateTime	Start time for the temporal selection in the following format: CCYY-MM-DDThh:mm:ss.ccZ **Type:** xs:DateTime		
endDateTime	Stop time for the temporal selection in the following format CCYY-MM-DDThh:mm:ss.ccZ **Type:** xs:DateTime		
scenePosition	Provider specific system to define the position of the scene. Examples: “frame 1234” **Type:** Not empty string (max 40 chars)		
sceneSize	Provider specific system to define the size of the scene. Examples: “frames: 3”, “40x50 km”, “26 seconds” **Type:** Not empty string (max 40 chars)		

Table 7-16: SceneSelectionType description.

7.1.5 Order Quotation

This section describes the information provided into the order quotation.

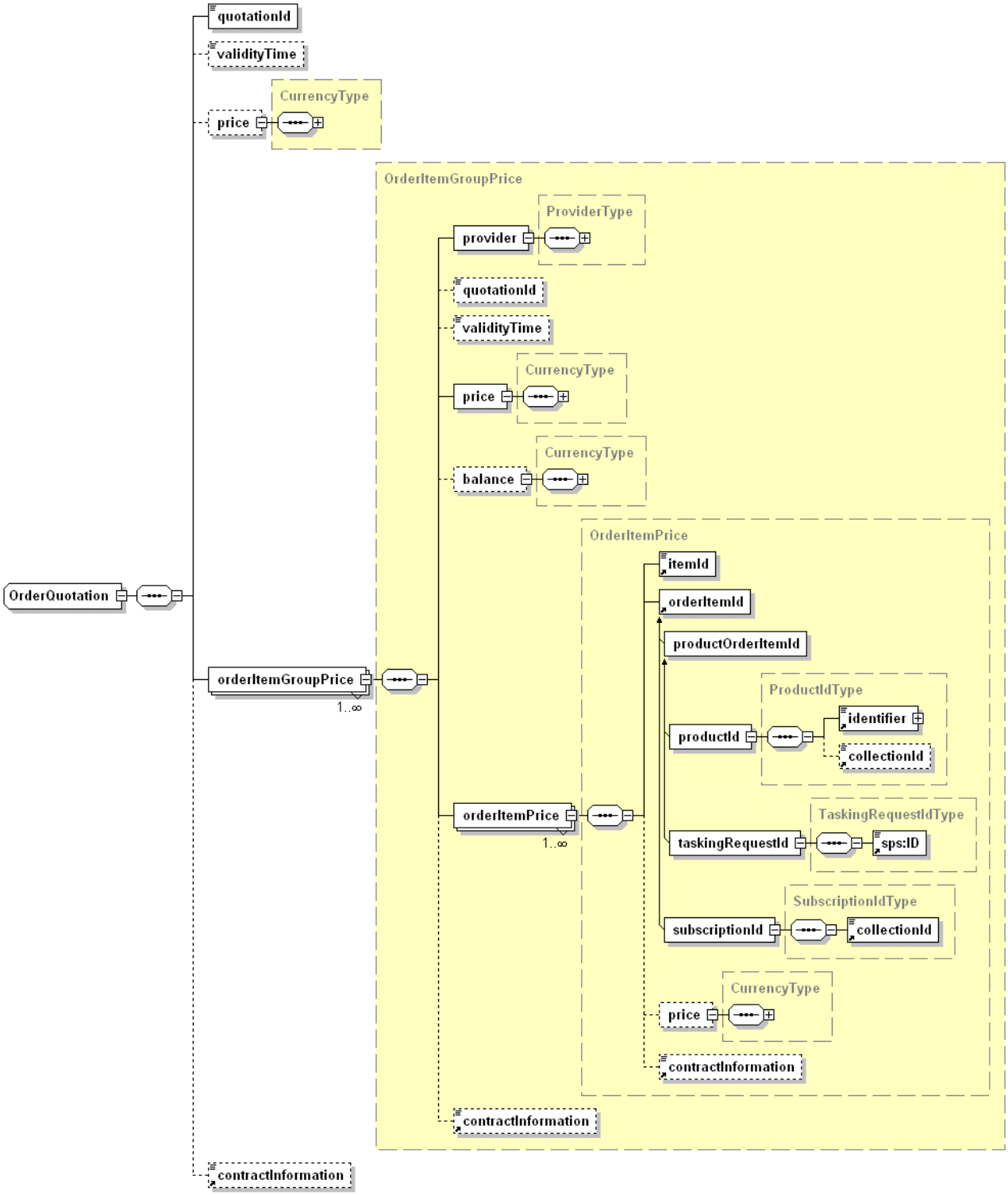


Figure 7-16: OrderQuotation diagram.

Tag Name	Tag Description	Product Ordering	Subscription
OrderQuotation		X	X
quotationId	Identifier of the whole order quotation. URI conventions are followed for encoding this identifier. Type: anyURI		
validityTime	Time until the quotation of the whole order is valid. It is the minimum of the validity time of all orderItem groups. Type: xs:dateTime		
price	Total price of the order. Is not provided when the different orderItem groups have different payment methods (e.g. quota and credit card (USD)) Type: CurrencyType (Table 7-20)		
orderItemGroupPrice	Price information of order items groups. The ordered items are grouped because: • All items managed by the same provider have the same quotation rules; • Discounts can be applied when several items are ordered together; • Different provider can support different payment methods. Type: OrderItemGroupPrice (Table 7-18)		
contractInformation	Textual description of rights and conditions applied to the whole order. Type: string (max 1024 chars)		

Table 7-17: OrderQuotation description.

Tag Name	Tag Description	Product Ordering	Subscription
OrderItemGroupPrice	Price information related to a group of ordered items.	X	X
provider	Provider which accepted the request for quotation for this group of items		
serviceName	Service Name Type: String (max 40 chars)		
organization	Provider's organization name. Type: string (max 40 chars)		

Tag Name	Tag Description	Product	Subscription
quotationId	Identifier of the order group quotation. This identifier is optional because can be returned when the quotation of the ordered items group is performed by an organization different from the one providing the Ordering service itself. URI conventions are followed for encoding this identifier. Type: anyURI		
validityTime	Time until the quotation of the order item group is valid. Type: xs:dateTime		
price	Price of the orderItemGroup. Type: CurrencyType (Table 7-20)		
balance	In case of providers supporting payment by quota, this field returns the balance of the quota considering the price of this orderItemGroup. Type: CurrencyType (Table 7-20)		
orderItemPrice	Price of the each item of the group. Type: OrderItemPrice.		
contractInformation	Textual description of rights and conditions applied to the ordered items. Type: string (max 1024 chars)		

Table 7-18: OrderItemGroupPrice description.

Tag Name	Tag Description	Product Ordering	Subscription
OrderItemPrice	Price information of a single order item.	X	X
itemId	Unique identifier of the order item within the order. It is the same identifier specified in the order. Type: string (max 80 chars)		
orderItemId	Product identifier, task request identifier or subscription identifier. It is the same identifier specified in the order. Type: either ProductIdType or SubscriptionIdType		
price	List price of the order item. Optional because the actual price is the one at group level. Type: CurrencyType		

Tag Name	Tag Description	Product	Subscription
contractInformation	Textual description of rights and conditions applied to the ordered item. Type: string (max 1024 chars)		

Table 7-19: OrderItemPrice description.

Tag Name	Tag Description	Product Ordering	Subscription
CurrencyType		X	X
value	value Type: double		
currency	Currency including ISO 4217 (e.g.: EUR, USD (US Dollar), CAD (Canada Dollar), AUD (Australia Dollar), GBP (United Kingdom Pounds), etc.) and also special values not conflicting with the ISO ones for representing quota. Type: string (max 10 chars)		

Table 7-20: CurrencyType description.

7.1.6 Order Monitoring Specification

This section defines all parameters returned to the client when getting the status of submitted orders.

For the definition of orders the following hierarchy of complex types has been declared:

- CommonOrderMonitorSpecification, which is the root of the hierarchy and includes all common parameters;
- SubscriptionOrderMonitorSpecification, inherited from CommonOrderMonitorSpecification and add the parameter specific for subscription orders;
- ProductOrderMonitorSpecification, inherited from CommonOrderMonitorSpecification and add the parameter specific for product orders;

These types are described in the following sub-sections.

7.1.6.1 CommonOrderMonitorSpecification

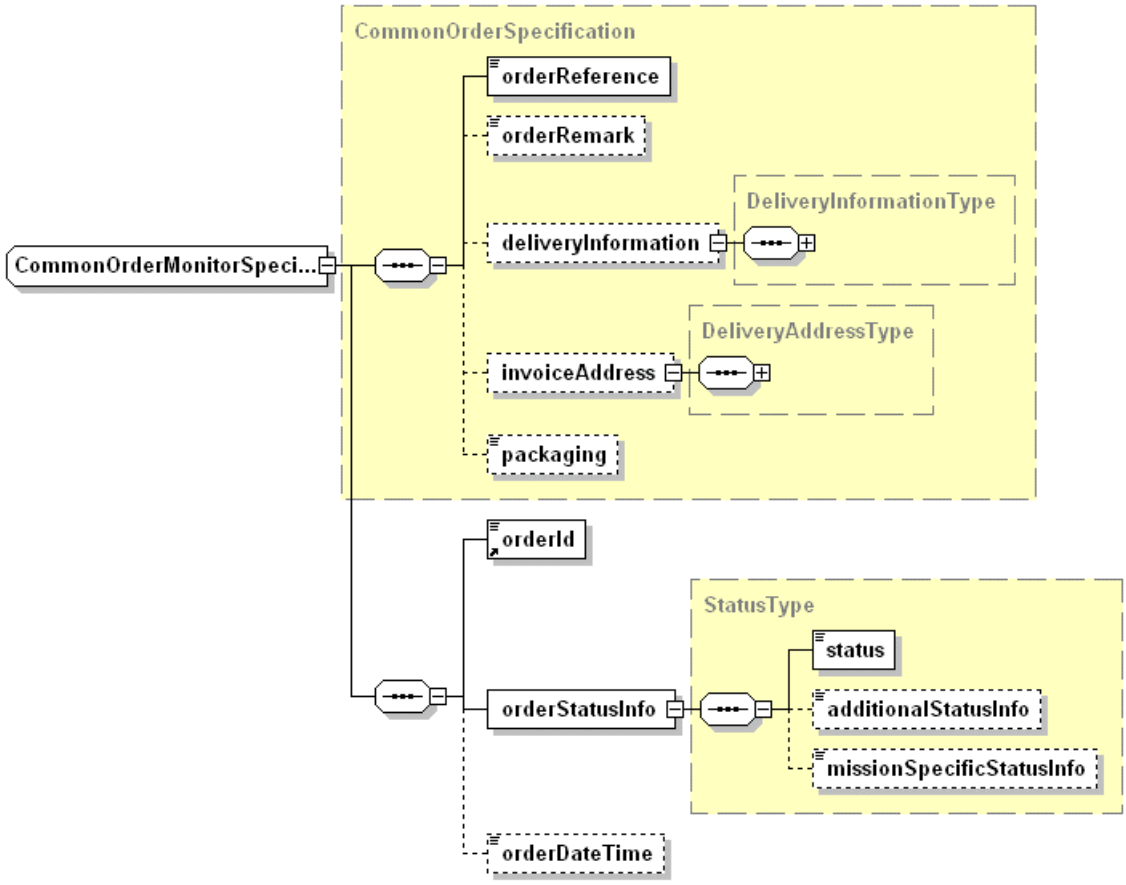


Figure 7-17: CommonOrderMonitorSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription
CommonOrderMonitorSpecification	It specifies the common parameters returned into an order monitor XML document. Inherited from CommonOrderSpecification (Table 7-7)	X	X
orderId	Unique identifier of the order for this service. Type: xs:anyURI		
orderStatusInfo	Contains the Order status information.		

Tag Name	Tag Description	Product	Subscription
status	Status of a product Order. **Type:** String **Current List of Valid Values:** • BeingEstimated (INTERMEDIATE status) • Estimated (INTERMEDIATE status) • Cancelled (previously accepted item cancelled at request of the customer). FINAL status. • Completed (made available to the user as per defined DeliveryMethod). FINAL status.		
additionalStatusInfo	Description associated with the Order status. **Type:** Not empty string (max 255 chars)		
missionSpecificStatusInfo	Additional text description where mission specific information can be put. Type: String (max 255 chars)		
orderDateTime	Date and Time of the order submission/update Type: xs:dateTime		

Table 7-21: CommonOrderMonitorSpecification description.

7.1.6.2 ProductOrderMonitorSpecification

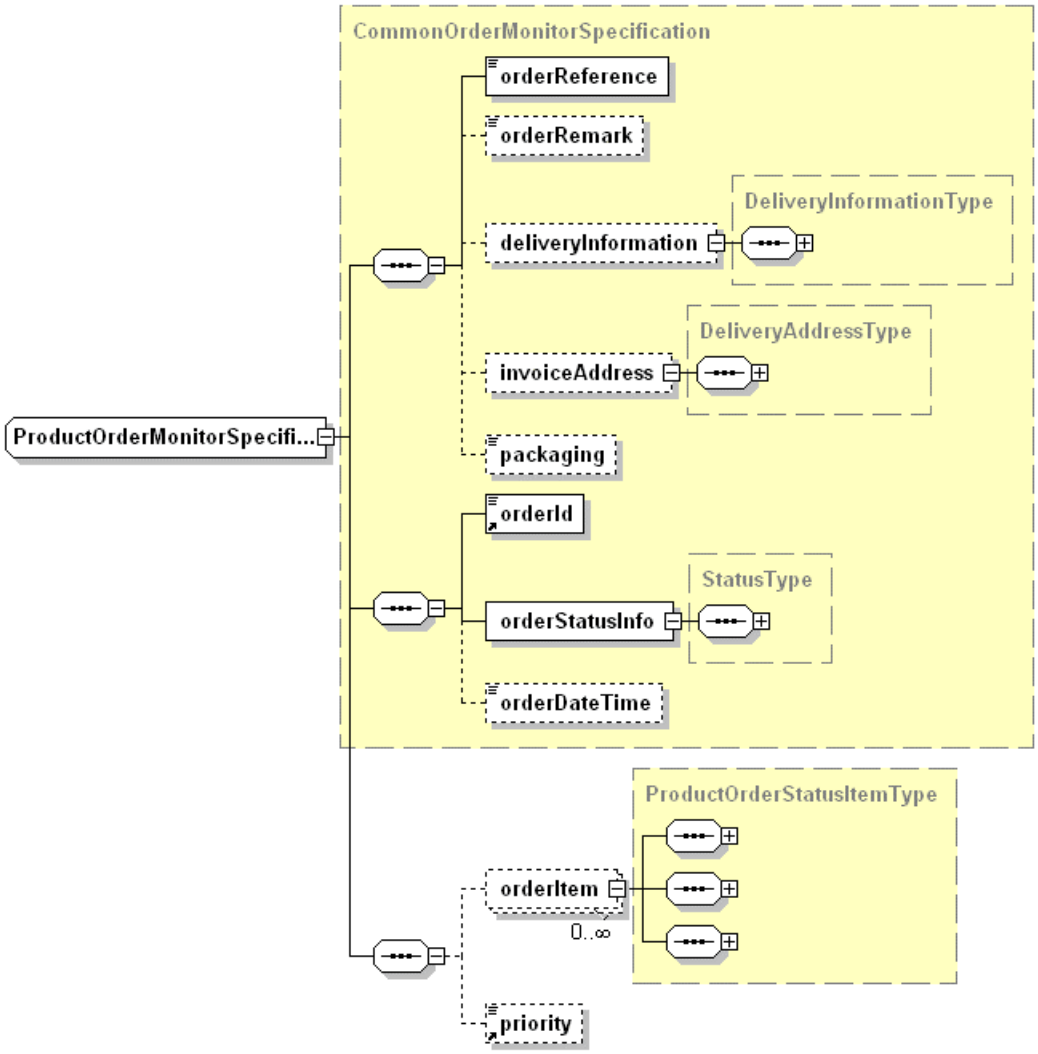


Figure 7-18: ProductOrderMonitorSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription	presentation
ProductOrderMonitorSpecification	It specifies the parameters returned into an order monitor XML document related to a product order. Inherited from CommonOrderMonitorSpecification (Table 7-21)	X	Not Applicable	The CommonOrderMonitorSpecification attributes are returned regardless the presentation

Tag Name	Tag Description	Product	Subscription	presentation
orderItem	This element reports the status information of the order item. Type: ProductOrderStatusItemType.			full
priority	Priority of the order Type: number			Brief & full

Table 7-22: ProductOrderMonitorSpecification description.

7.1.6.3 SubscriptionOrderMonitorSpecification

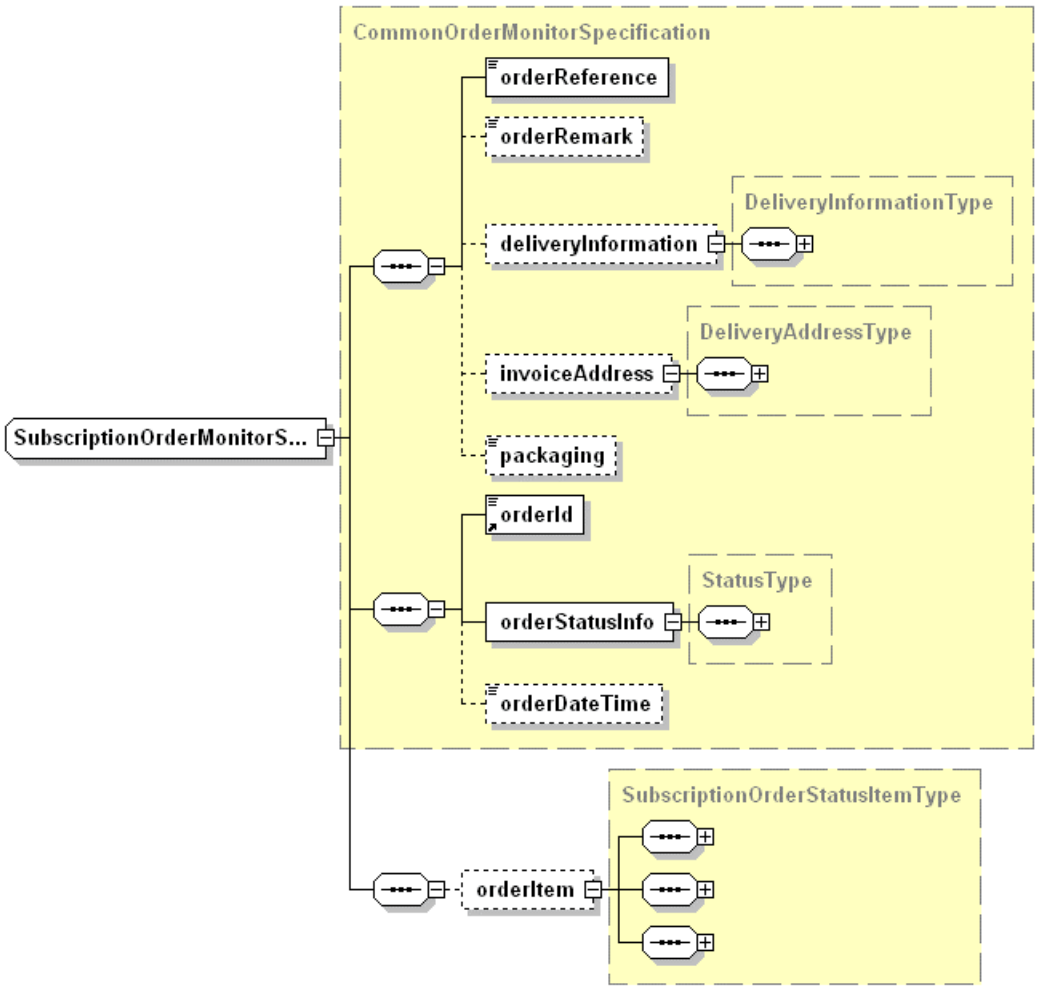


Figure 7-19: SubscriptionOrderMonitorSpecification diagram.

Tag Name	Tag Description	Product Ordering	Subscription	presentation
SubscriptionOrderMonitorSpecification	It specifies the parameters returned into an order monitor XML document related to a subscription order. Inherited from CommonOrderMonitorSpecification (Table 7-21)	Not Applicable	X	The CommonOrderMonitorSpecification attributes are returned regardless the presentation
orderItem	This element reports the status information of the order item. Type: SubscriptionOrderStatusItemType.			full

Table 7-23: SubscriptionOrderMonitorSpecification description.

7.1.7 Order Item Monitoring Specification

This section specifies the status information returned for product and subscription order items.

For the definition of order item monitoring info, the following complex types have been defined:

- CommonOrderStatusItemType, which regroups the common status attributes;
- ProductOrderStatusItemType, which includes the attributes specific for product orders;
- SubscriptionOrderStatusItemType, which includes the attributes specific for subscription orders;

These elements are described in the following sub-sections.

7.1.7.1 CommonOrderStatusItemType

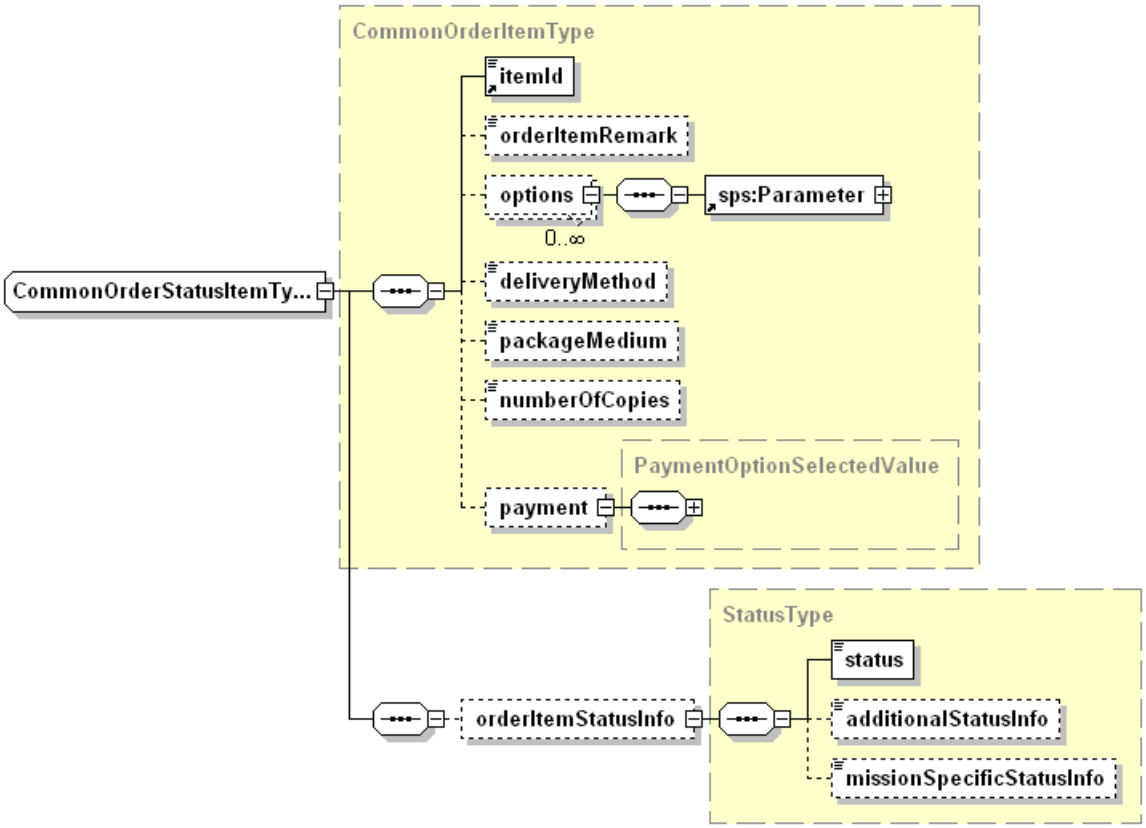


Figure 7-20: CommonOrderStatusItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
CommonOrderStatusItemType	It regroups the common status attributes. Inherited from CommonOrderItemType (Table 7-12)	X	X
orderItemStatusInfo	Status information at item level.		
status	Status of order item. **Type:** String **Current List of Valid Values:** • BeingEstimated (INTERMEDIATE status) • Estimated (INTERMEDIATE status) • Cancelled (previously accepted item cancelled at request of the customer). FINAL status. • Completed (made available to the user as per defined DeliveryMethod). FINAL status.		

Tag Name	Tag Description	Product	Subscription
additionalStatusInfo	Description associated with the Order status. **Type:** Not empty string (max 255 chars)		This free text field can be used for specifying subscription specific info e.g. delivered items, items going to be delivered, etc.
missionSpecificStatusInfo	Additional text description where mission specific information can be put. Type: String (max 255 chars)		

Table 7-24: CommonOrderStatusItemType description.

7.1.7.2 ProductOrderStatusItemType

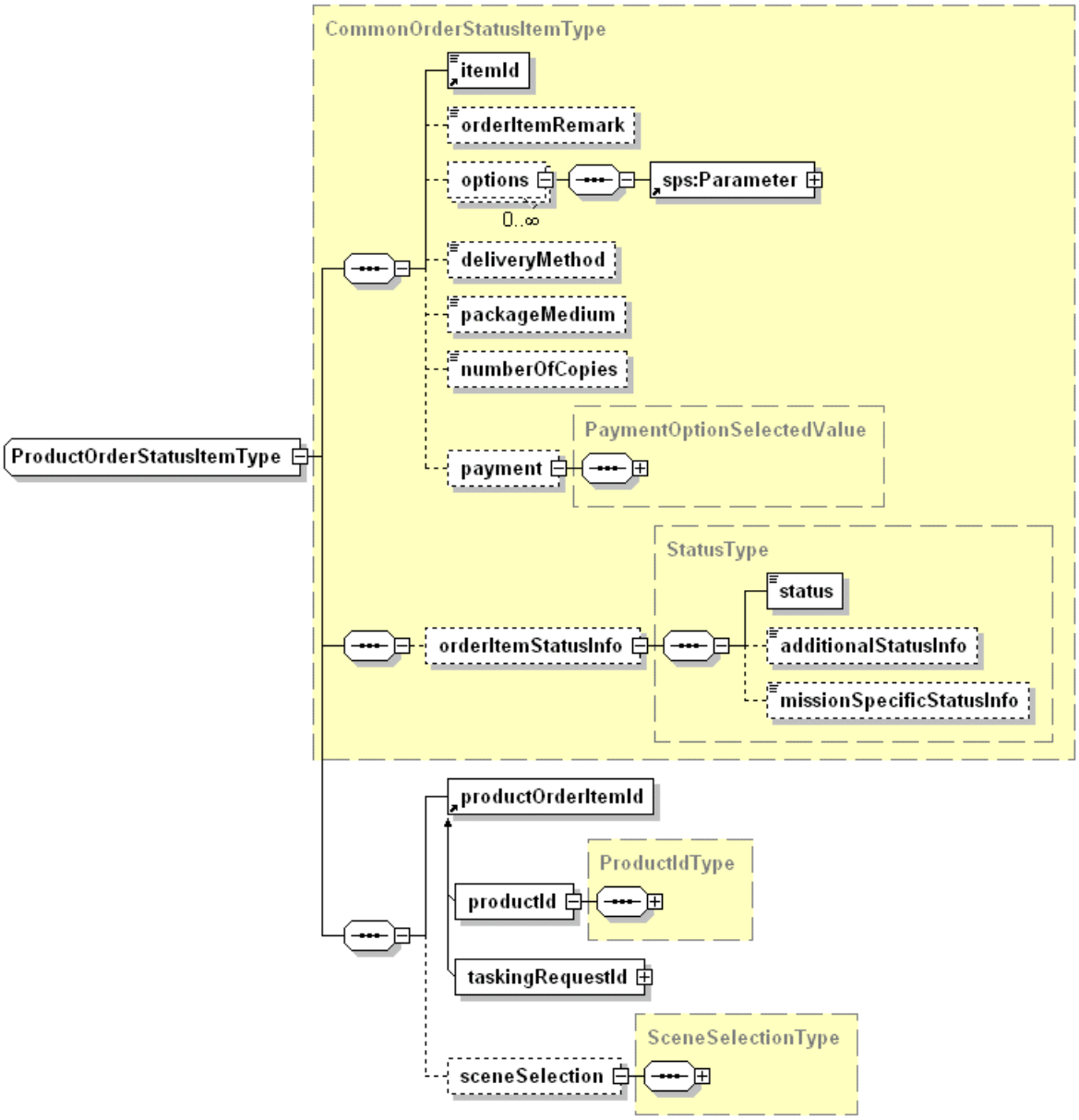


Figure 7-21:ProductOrderStatusItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription

Tag Name	Tag Description	Product	Subscription
ProductOrderStatusItemType	It provides status information for product order item. Inherited from CommonOrderStatusItemType (Table 7-24)	X	Not Applicable
productId	Product order item identifier. Type: ProductIdType (Table 7-15)		
taskingRequestId	Tasking request identifier Type: see Table 7-15		
sceneSelection	Selected scene selection options. Type: SceneSelectionType (Table 7-16)		

Table 7-25: ProductOrderStatusItemType description.

7.1.7.3 SubscriptionOrderStatusItemType

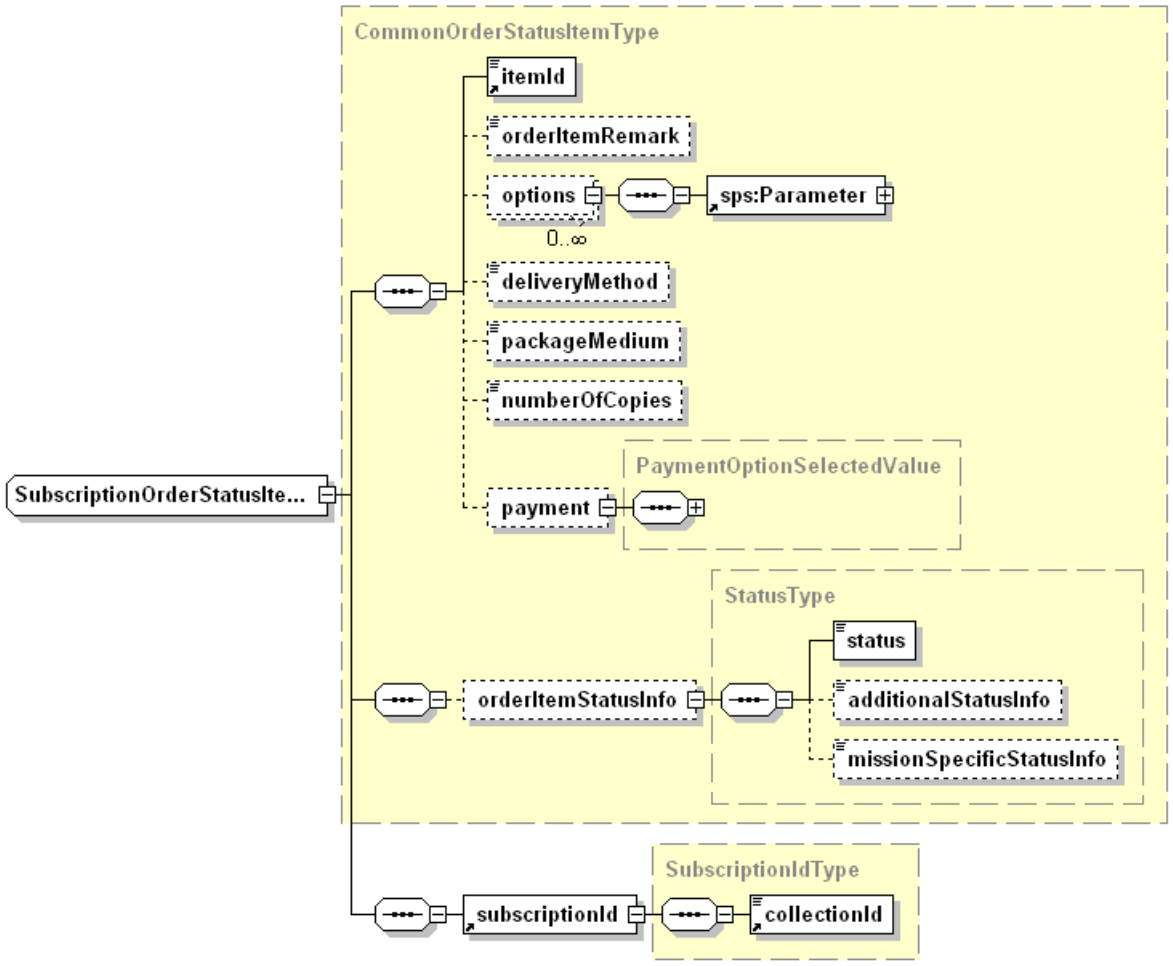


Figure 7-22: SubscriptionOrderStatusItemType diagram.

Tag Name	Tag Description	Product Ordering	Subscription
SubscriptionOrderStatusItemType	It provides status information for subscription order item. Inherited from CommonOrderStatusItemType (Table 7-24)	Not Applicable	X
productId	Order item identifier. Type: SubscriptionIdType (Table 7-15)		

Table 7-26: SubscriptionOrderStatusItemType description.

8 External interfaces

This view describes the externally visible behaviour of the system, including the interfaces provided by its components and the supported protocol bindings. It defines the request and response message structures as part of the operation signatures.

All operations must support the embedding of requests and responses in SOAP messages. Only SOAP messaging (via HTTP/POST) with document/literal style has to be used. Messages must conform to SOAP 1.2 (http://www.w3.org/TR/SOAP/). The message payload will be in the body of the SOAP envelope.

Table 8-1 summarises the Ordering operations and their encoding methods that are applied in this document. The mandatory method bindings and data encodings are printed in bold.

Table 8-1: Operation request encoding

Ordering Operation	Request encoding	Sync / Async	Comment
GetCapabilities	**XML/SOAP**	**Synchronous request**	
GetOptions	**XML/SOAP**	**Synchronous request**	
GetQuotation	**XML/SOAP**	**Synchronous / Asynchronous request**	This operation can be used in different ways depending on the client and server ability: o Synchronous, when the server is able to provide a real time response; o Asynchronous via Notification, when the client is able to work as a server for getting the asynchronous notification o Asynchronous via Monitoring: the client has to ask the server until it returns the quotation. In case of Asynchronous via Notification usage, after the reception of this request, the order service calls the GetQuotationResponse operation provided by the client for sending the quotation.

GetQuotationResponse	**XML/SOAP**	**Call-back for asynchronous request**	This operation is called by the order service for sending the quotation in case of Asynchronous via Notification usage.
Submit	**XML/SOAP**	**Asynchronous request**	This operation is asynchronous and then, after the reception of this request, the order service calls (optionally) the SubmitResponse operation provided by the client.
SubmitResponse	**XML/SOAP**	**Call-back for asynchronous request**	This operation is called by the order service after the reception of Submit operations.
GetStatus	**XML/SOAP**	**Synchronous request**	
Cancel	**XML/SOAP**	**Asynchronous request**	This operation is asynchronous and then, after the reception of this request, the order service calls (optionally) the CancelResponse operation provided by the client.
CancelResponse	**XML/SOAP**	**Call-back for asynchronous request**	This operation is called by the order service after the reception of Cancel operations.
DescribeResultAccess	**XML/SOAP**	**Synchronous request**	

Regarding the asynchronous request and replies the WS-addressing ([NR10]) SOAP header extensions have been used:

- In the SOAP header of GetQuotation, Submit and Cancel operations request messages the following tags have to be included (**wsa** is the namespace of WS-addressing definitions):

  <wsa: ReplyTo>
  <wsa:Address> *order service URI of the client* </wsa:Address>
  </wsa: ReplyTo>
  <wsa:MessageID> *unique identifier of the request* </wsa:MessageID>

  In case the reply address is set to:

  http://schemas.xmlsoap.org/ws/2003/03/addressing/role/anonymous

it means that the client does not have to be notified. It is useful for standard clients not having server capabilities. In this case the client has to ask the status of asynchronous requests calling dedicated operations (e.g. GetStatus for checking the status Submit and Cancel operations).

- In the SOAP header of GetQuotationResponse / SubmitResponse / CancelResponse operations request messages the following tags have to be included (**wsa** is the namespace of WS-addressing definitions):

  <wsa:RelatesTo RelationshipType="wsa:Response">
  Identifier of the GetQuotation, Submit or Cancel previously submitted requests
  </wsa:RelatesTo>

The following sequence diagram explains the usage scenario of Submit, Cancel and GetQuotation operations:

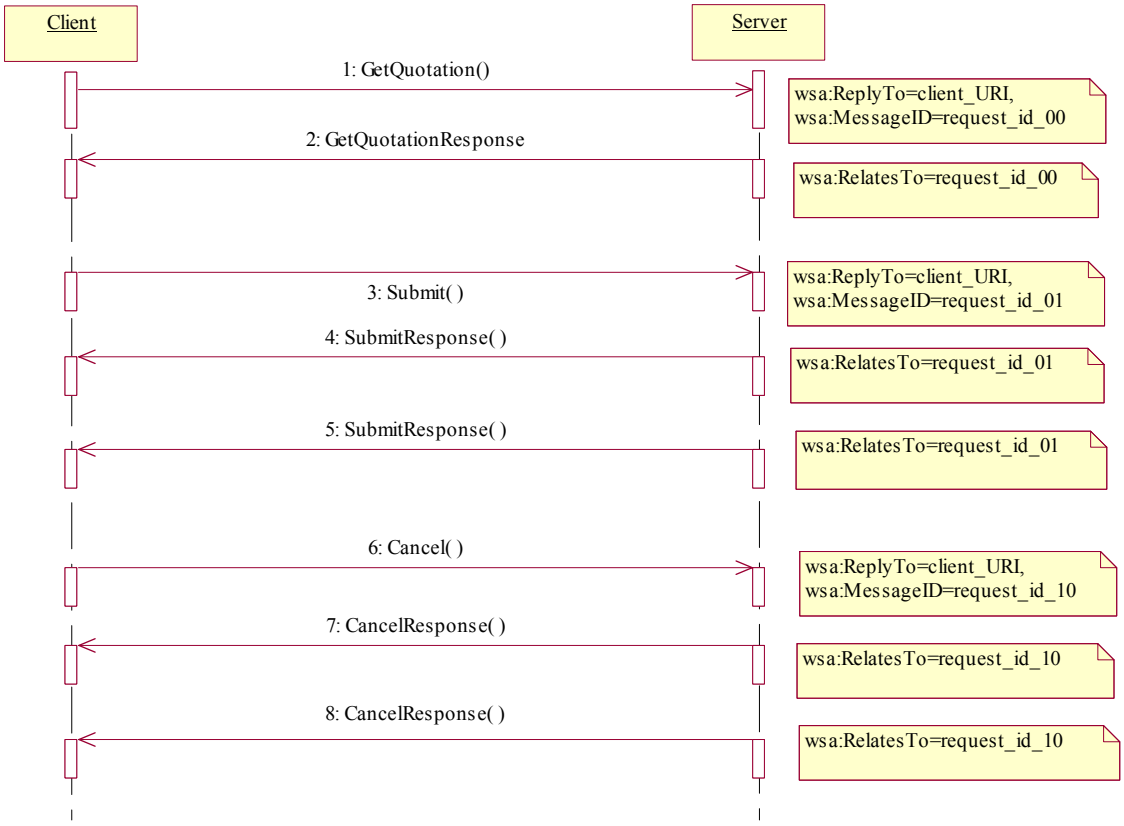


Figure 8-1: Asynchronous requests scenario.

8.1 Interface specifications

It gives formal, language-independent interface specifications that admit multiple programming language bindings and shows error conditions that can occur.

8.1.1 Shared parameters

8.1.1.1 UserInformation type

This is an element common to many order service operations. It specifies the user name of the submitter of the request.

The following figure gives a graphical representation of this type.

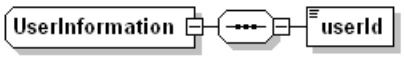


Figure 8-2: UserInformation complex type diagram.

Tag Name	Tag Description
UserInformation	It contains the personal user information as provided as input by the order issuer.
userId	User identifier. **Type:** Not empty string (max 20 chars)

Table 8-2: UserInformation complex type description.

8.1.1.2 statusNotification element

This element is used in asynchronous requests for specifying whether the client has to be notified and in which way:

- no notifications
- all status changes to be notified
- just the completion of the order submission to be notified

Tag Name	Tag Description

Tag Name	Tag Description
statusNotification	This element specifies how many status notifications are sent back to the client. Type: String Permitted Values: • None (no status notification sent back) • All (all status changes are notified) • Final (only the completion of the order is notified)

8.1.2 GetCapabilities Operation

The mandatory GetCapabilities operation allows clients to retrieve service metadata from a server. The response to a GetCapabilities request shall be an XML document containing service metadata about the server, including specific information about an Order Service. This section specifies the XML document that an Order Service server must return to describe its capabilities.

8.1.2.1 GetCapabilities input message: GetCapabilities element

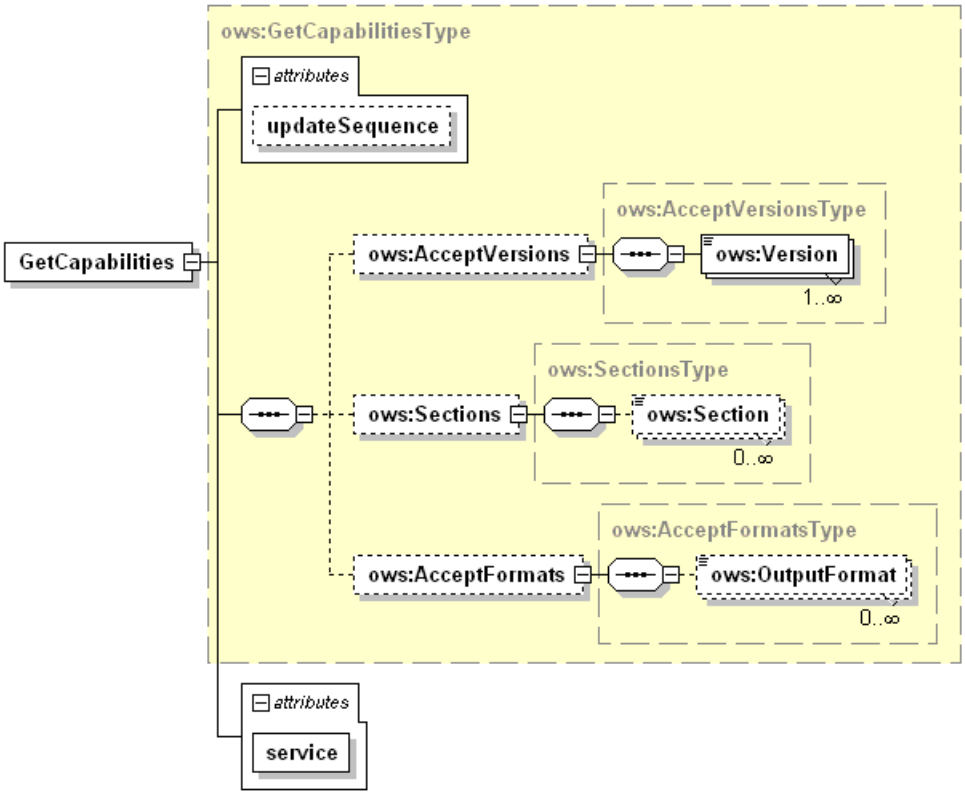


Figure 8-3: GetCapabilities request diagram.

The GetCapabilities operation request shall be as specified in Subclauses 7.2 and 7.3 of [NR9]. The value of the "service" parameter shall be "OS". The allowed set of service metadata (or Capabilities) XML document section names and meanings shall be as specified in Tables 3 and 7 of [NR9].

The "Multiplicity and use" column in Table 1 of [NR9] specifies the optionality of each listed parameter in the GetCapabilities operation request. The following table specifies the implementation of those parameters by Order Service clients and servers.

Name	Multiplicity	Client implementation	Server implementation
service	One (mandatory)	The parameter shall be implemented by all clients, using the specified value	The parameter shall be implemented by all servers, checking that each parameter is received with specified value
AcceptVersions	Zero or one (optional)	Should be implemented by all software clients, using specified values	Shall be implemented by all servers, checking if parameter is received with specified value(s)
Sections	Zero or one (optional)	Each parameter may be implemented by each client If parameter not provided, shall expect default response If parameter provided, shall allow default or specified response	Each parameter may be implemented by each server If parameter not implemented or not received, shall provide default response If parameter implemented and received, shall provide specified response
updateSequence	Zero or one (optional)		
AcceptFormats	Zero or one (optional)		

Table 8-3: Implementation of parameters in GetCapabilities operation request

8.1.2.2 GetCapabilities output message: Capabilities element

The following figure provides a graphical representation of the Capabilities XML document.

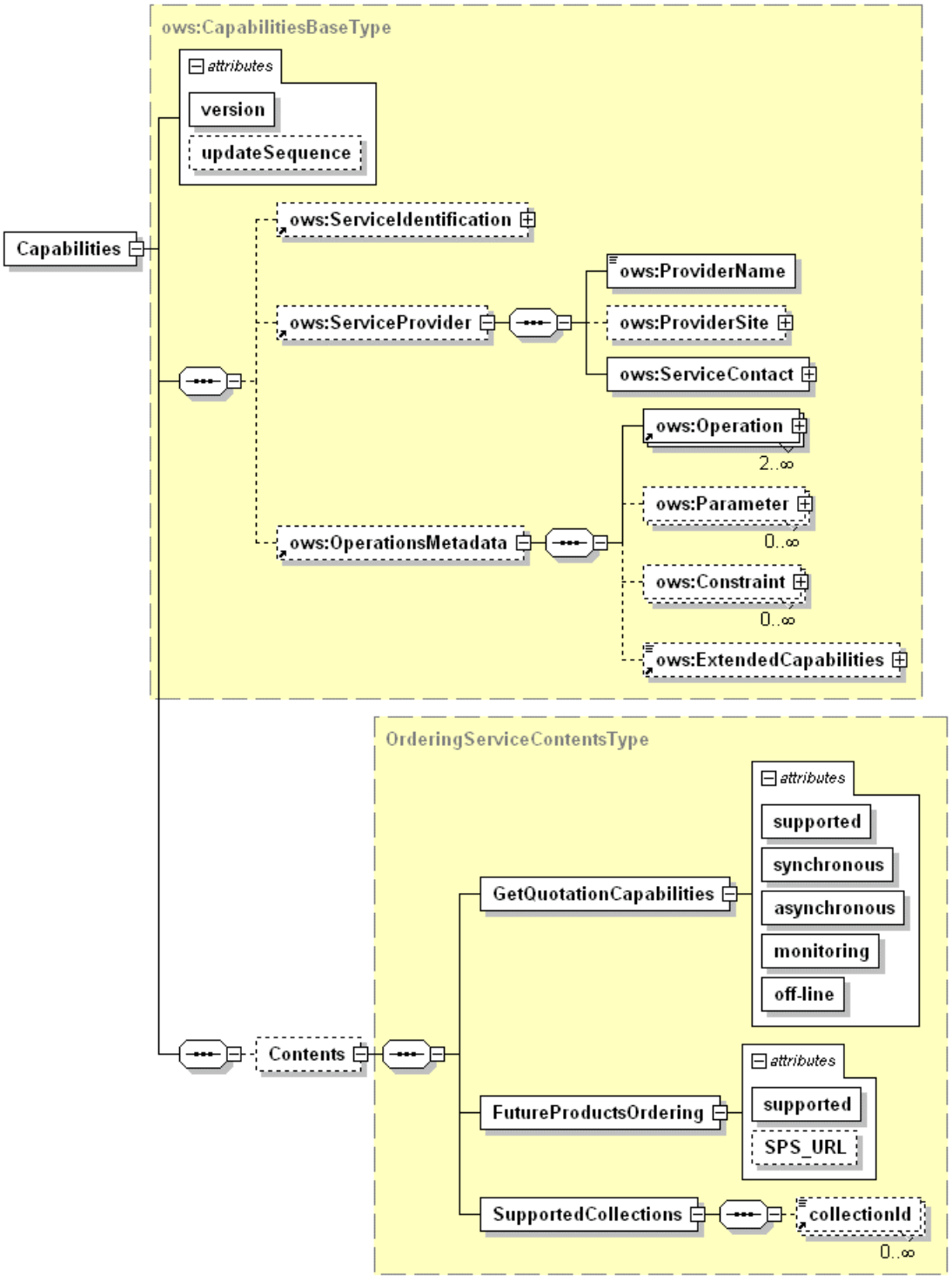


Figure 8-4: Capabilities diagram.

The GetCapabilities response shall contain the Order Service sections specified in the following table. Depending on the values in the Sections parameter of the GetCapabilities operation request, any combination of these sections can be requested and shall be returned when requested.

Section name	Contents
ServiceIdentification	Metadata about this specific server. The schema of this section shall be the same as for all OWSs, as specified in Subclause 7.4.3 and owsServiceIdentification.xsd of [NR9].
ServiceProvider	Metadata about the organization operating this server. The schema of this section shall be the same for all OWSs, as specified in Subclause 7.4.4 and owsServiceProvider.xsd of [NR9].
OperationsMetadata	Metadata about the operations specified by this service and implemented by this server, including the URLs for operation requests. The basic contents and organization of this section shall be the same as for all OWSs, as specified in Subclause 7.4.5 and owsOperationsMetadata.xsd of [NR9].

Table 8-4: Section name values and content.

In addition to these sections, each service metadata document shall include the mandatory "version" and optional updateSequence parameters specified in Table 6 in Subclause 7.4.1 of [NR9].

8.1.2.2.1 OperationsMetadata section standard contents

For the Order Service, the OperationsMetadata section shall be the same as for all OGC Web Services, as specified in Subclause 7.4.5 and owsOperationsMetadata.xsd of [NR9]. The mandatory values of various (XML) attributes shall be as specified in Table 8-5. Similarly, the optional attribute values listed in Table 8-6 shall be included or not depending on whether that operation is implemented by that server. In these tables the "Attribute name" column uses dot-separator notation to identify parts of a parent item. The "Attribute value" column references an operation parameter, in this case an operation name, and the meaning of including that value is listed in the right column.

Attribute name	Attribute value	Meaning of attribute value
Operation.name	GetCapabilities	Implemented by the server
Operation.name	GetOptions	Implemented by the server
Operation.name	Submit	Implemented by the server

Table 8-5: Mandatory Order Service operations.

Attribute name	Attribute value	Meaning of attribute value
Operation.name	GetQuotation	Implemented by the server
Operation.name	GetStatus	Implemented by the server
Operation.name	Cancel	Implemented by the server
Operation.name	DescribeResultAccess	Implemented by the server

Table 8-6: Optional Order Service operations.

8.1.2.2.2 Contents section

This section provides additional information about the order quotation.

Tag Name	Tag Description	Product Ordering	Subscription
Contents			
GetQuotationCapabilities	This element specifies how the quotation is supported by the Ordering service. In fact, depending on client and service capabilities different options are considered in this specification: o Quotation can be supported or not; o Quotation can be provided either synchronously or asynchronously; o Quotation can be provided via operation interaction; o In case of asynchronous quotation, the client can get it either via asynchronous notification or asking the quotation again until the service actually returns it. The different attributes of GetQuotationCapabilities element specify which of these possibilities are supported by the service.	X	X
supported	Set to true whether the quotation is supported. Type: xs:boolean		
synchronous	Set to true if the service is able to provide synchronous answer to GetQuotation. Type: xs:boolean		
asynchronous	Set to true if the service is able to provide an asynchronous answer to GetQuotation. Type: xs:boolean		

Tag Name	Tag Description	Product	Subscription
monitoring	This attribute is set to true when the client has to call GetQuotation several times until the server provides the quotation. Then in this case the quotation process works in this way: o at the first call of GetQuotation the client specifies all order parameters; o the server replies with the quotationId; o then the client calls GetQuotation specifying the quotationId received at the previous call; o if the quotation is available, then the server returns it, otherwise the quotationId is returned again. o This process continues until the server returns the quotation. Type: xs:boolean		
off-line	Set to true if the service is able to provide answer to quotation via mail / e-mail notification. Type: xs:boolean		
FutureProductsOrdering	This element specifies whether the ordering service supports also future product ordering and, if it is the case, the URL of the SPS instance to use with it.	X	
supported	Set to true when the Ordering Service supports future products ordering. Type: xs:boolean		
SPS_URL	It is the SPS instance URL for submitting tasking requests for future products orders. This element shall be specified in case the "supported" flag is true. Type: anyURI		
SupportedCollections	This element specifies the list of collections supported by this Ordering service. This list includes collections for products ordering and for subscriptions.	X	X
collectionId	Collection identifier Type: non empty string max 62 chars		

Table 8-7: Description of Contents section of Capabilities document.

8.1.3 GetOptions Operation

This operation allows getting the possible options for preparing an EO products order or for subscribing to EO products.

Depending on the input parameters, this operation works in different ways:

- Options by collection identifier

Because the collection identifier can refer either a product collection or a subscription then there are 2 cases:

- Product collection:

  In this case the operation returns options for ordering products from that collection. All products shall have the same options otherwise an exception is thrown.

- Subscription:

  Subscription options returned.

- Options by collection and product identifier

  In this case the collection shall support product ordering and all options available for the specified product are returned.

- Options by tasking identifier

  When the tasking identifier is specified (i.e. SPS:ID), which can refer to either a feasibility study or task submitted to SPS instance linked to this Ordering service, the operation returns the options available for ordering products starting from the acquisitions corresponding to the provided SPS:ID.

  The SPS:ID can refer different type of requests:

  - Precisely identifier acquisitions, i.e. acquisitions are identified by their key attributes e.g.: orbit and start and stop equator crossing times OR UTC start and stop times etc.
  - Coverage request, i.e. acquisitions are specified via the definition of the area to cover and the related time frame.
  - Standing request, similar to the previous one, but the coverage is performed several times with a defined periodicity.

Returned options are structured in array of groups, each identified by the **productOrderOptionsId** and representing a valid combination of options (e.g. one group can specify the options for getting a level 1 product, another group specifies options for getting another level 1 product, another for level 2 product, etc.). Each group includes mainly the following attributes:

- Delivery options
- Payment options
- Scene selection options (not applicable for subscriptions)
- Extensible list of options e.g.: processing level, product format. This list can be product specific and then the identifier of the product can be optionally specified.

8.1.3.1 GetOptions input message: GetOptions

The type of GetOptions is OrderOptionsRequestType.

The following figure provides a graphical representation of this type.

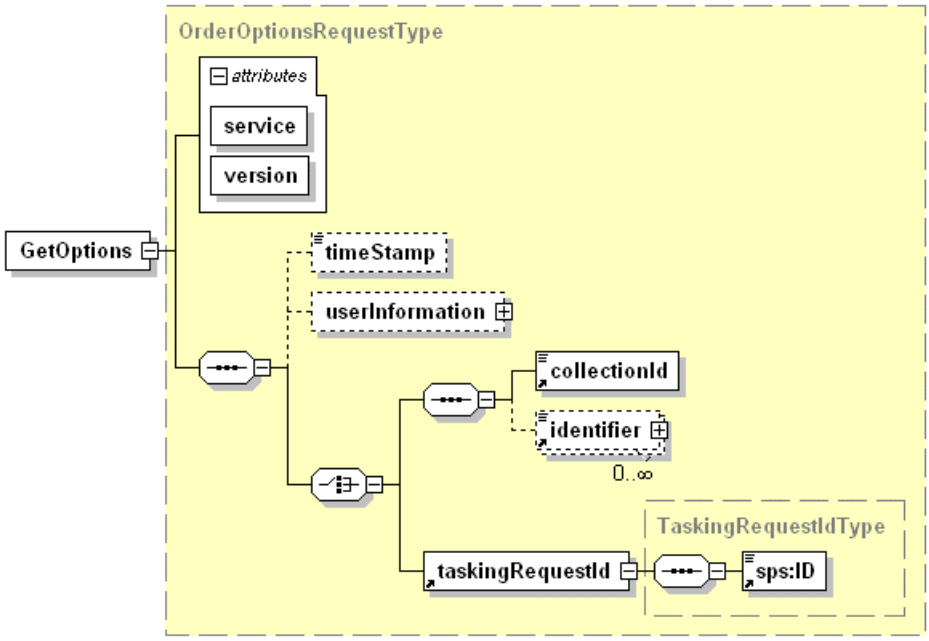


Figure 8-5: GetOptions element diagram.

Tag Name	Tag Description	Product Ordering	Subscription
GetOptions			
service	Service type identifier Type: non-empty string Allowed values: OS	X	X
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>	X	X
timeStamp	It is the time when the request has been issued. Type: xs:DateTime	X	X
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2: UserInformation complex type description.	X	X
collectionId	It is the identifier of the dataset collection to get ordering options. It is referenced as parentIdentifier in the [OR3]. Type Value: string Permitted Values: Not empty string Syntax: The identifier format is not mandated by the specification. Source: [OpenGIS], CG_QueryRequest	It is the identifier of the collection storing the EO product to order.	It is the identifier of the subscription.

Tag Name	Tag Description	Product	Subscription
identifier	Product identifier element. Type Value: string Permitted Values: Not empty string This field is optional and multiple: • if present then only the options related these products shall be returned. • If not present all options applicable to the collection shall be returned. This identifier, if present, shall be owned by the collection. If the identifier is **not** present and the options depend always on it, the operation returns error.	X	Not Applicable
taskingRequest	This field is alternative to collectionId and identifier. This field has to be used in case of future product orders issued via both Ordering ICD and Programming ICD [OR-6].		
sps:ID	Identifier for the feasibility study / tasking request. Type: xs:token	X	

Table 8-8: GetOptions element description.

8.1.3.2 GetOptions output message: GetOptionsResponse

The following figure provides a graphical representation of this element.

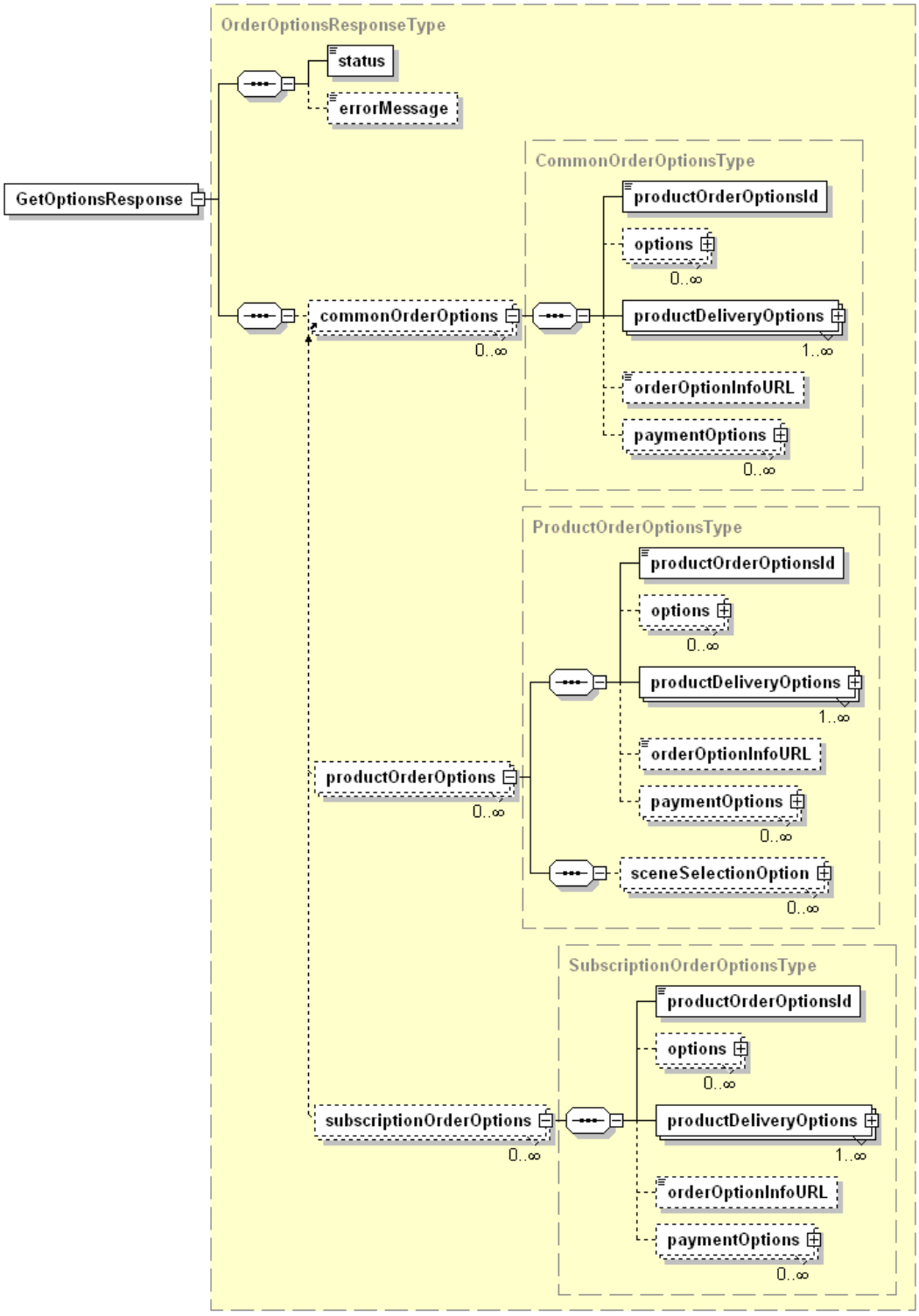


Figure 8-6: GetOptionsResponse diagram

Tag Name	Tag Description
GetOptionsResponse	GetOptions Response element.
status	Completion result of the operation: o success: operation successfully executed; o partial: some error occurred during the processing of the request which lead to an incomplete response. o failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, partial, failure
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).
productOrderOptions / subscriptionOrderOptions	Order Options Set if status different from failure. Type: either ProductOrderOptionsType (Table 7-4) or SubscriptionOrderOptionsType Table 7-5.

Table 8-9: GetOptionsResponse description.

8.1.4 GetQuotation Operation

This operation allows getting the quotation of the order specified as input parameter.

Order quotation can be performed in different ways depending on client and server capabilities:

- Synchronous quotation

  The server is able to provide the quotation in real time and then it is returned in the acknowledge message of GetQuotation operation.

  Synchronous quotation is performed when:

  - Capabilities/Content/GetQuotationCapabilities/synchronous is set to true;

- Asynchronous quotation with notification

  The server supports asynchronous quotation and the client is able to work as a server for getting the notification carrying on the quotation.

  The asynchronous quotation with notification is performed:

  - Capabilities/Content/GetQuotationCapabilities/asynchronous is set to true;
  - <wsa:ReplyTo> of GetQuotation message is set with the address where the client is listening to the notification and <wsa:MessageID> shall include a unique identifier of the request.

Then the quotation process is composed of the following interactions:

- The client calls GetQuotation of the server specifying its address in <wsa:ReplyTo> element;
- The server will call GetQuotationResponse operation of the client for sending the produced quotation.

- Asynchronous quotation with monitoring

  It is a variation of the previous one: the server support asynchronous quotation, but the client cannot work as a server. In this case the client will receive an id at the first call and then it has to call again GetQuotation providing the previously received id until the server will return the quotation in the acknowledge message of the operation.

  The mechanism is performed when:

  - Capabilities/Content/GetQuotationCapabilities/asynchronous is set to true;
  - <wsa:ReplyTo> of GetQuotation message is set with the anonymous address: http://schemas.xmlsoap.org/ws/2003/03/addressing/role/anonymous

- Off-line quotation

  In this case the quotation is sent to the user via fax / mail to the address specified in the **invoiceAddress** element of the order specification.

  Off line quotation is performed when:

  - Capabilities/Content/GetQuotationCapabilities/off-line is set to true;
  - <wsa:ReplyTo> is set with the anonymous address.
  - No other mechanisms are possible.

8.1.4.1 GetQuotation input message: GetQuotation

The type of GetQuotation is GetQuotationRequestType.

The following figure provides a graphical representation of this type.

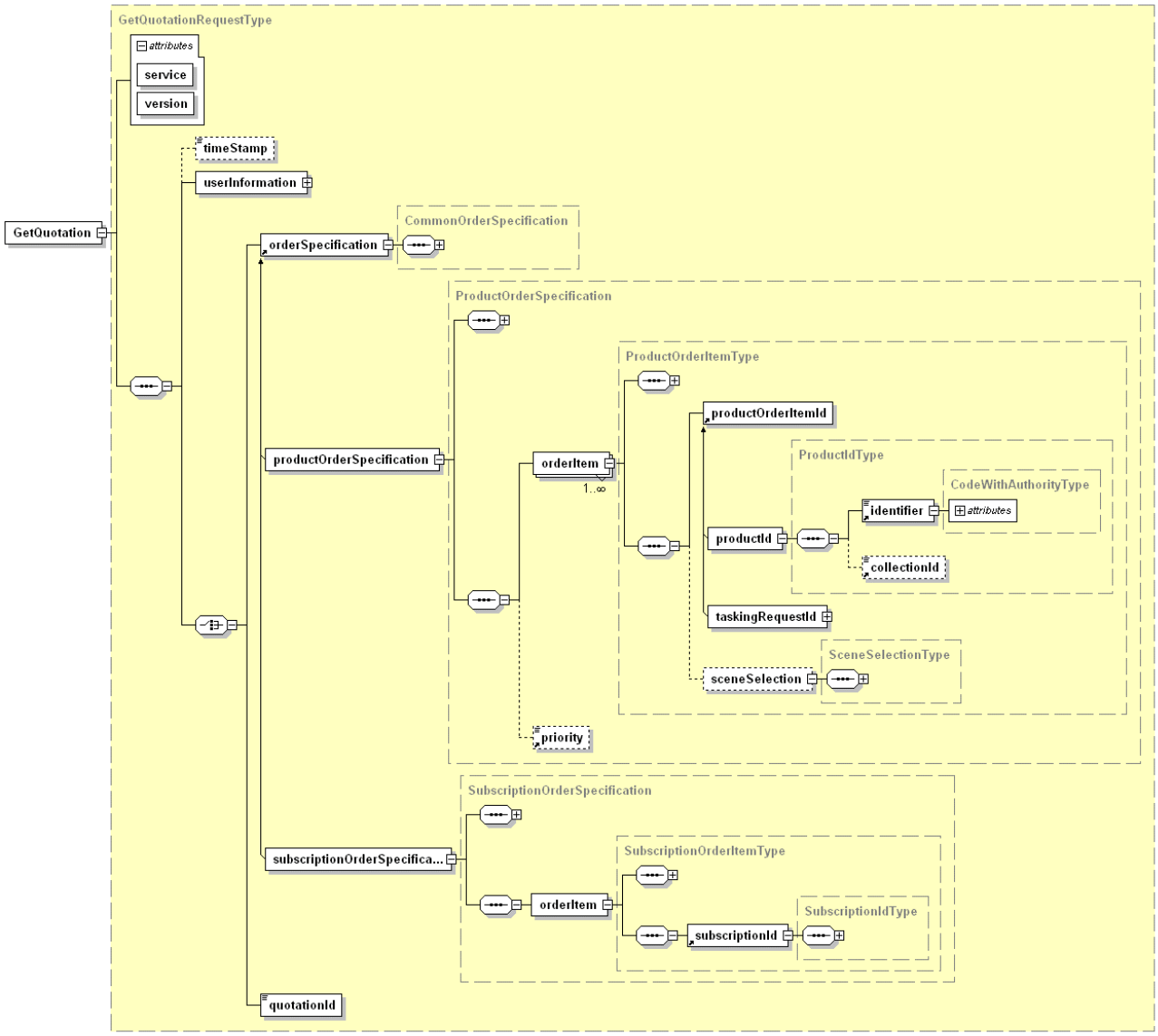


Figure 8-7: GetQuotation diagram.

Tag Name	Tag Description	Product Ordering	Subscription
GetQuotation		X	X
service	Service type identifier Type: non-empty string Allowed values: OS		

Tag Name	Tag Description	Product	Subscription
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>		
timeStamp	It is the time when the request has been issued. Type: xs:DateTime		
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2: UserInformation complex type description.		
orderSpecification	Order Specification: either product order or subscription order.		
quotationId	This field is alternative to the previous one. It is a quotation identifier returned by a previous call to GetQuotation operation. In this case GetQuotation will return either the quotation of the order or again the same identifier. This behaviour is supported when Capabilities/Content/GetQuotationCapabilities/monitoring is true. Type QuotationIdType		

Table 8-10: GetQuotation description.

8.1.4.2 GetQuotation output message: GetQuotationAck

The following figure provides a graphical representation of this element.

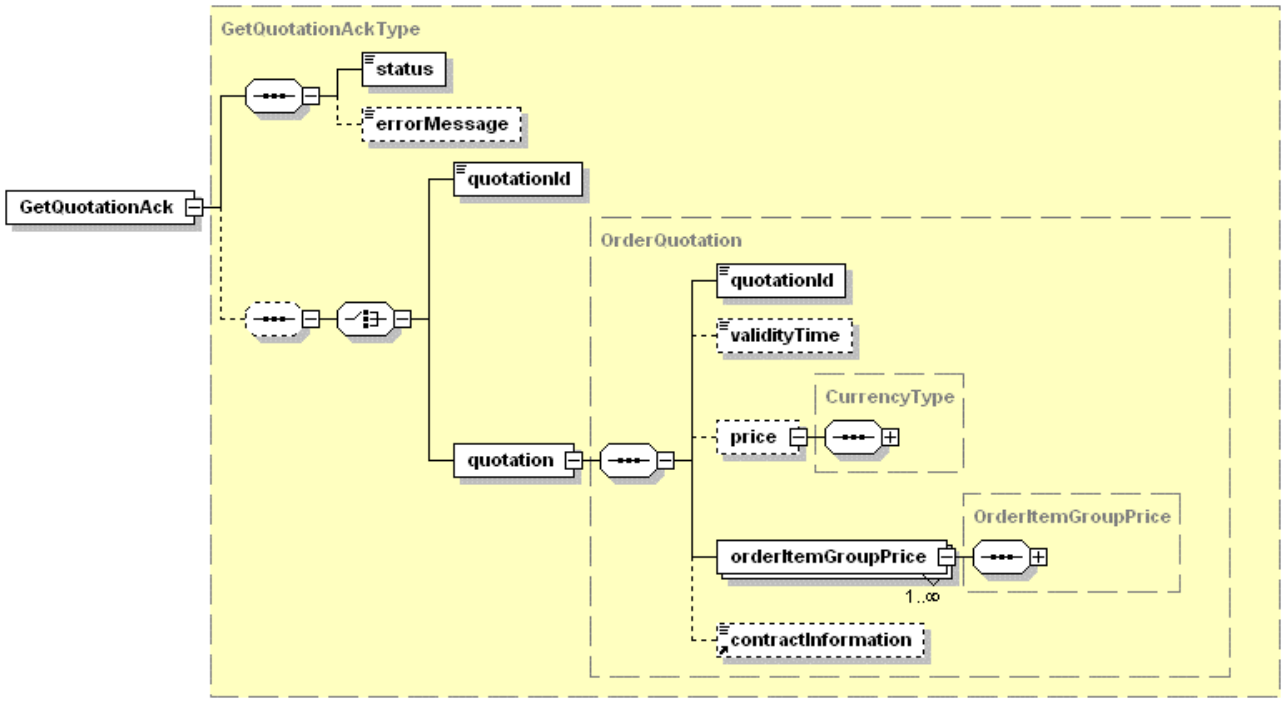


Figure 8-8: GetQuotationAck element diagram.

Tag Name	Tag Description
GetQuotationAck	Acknowledge to GetQuotation.
status	Completion result of the operation: ○ success: operation successfully executed; ○ partial: non blocking errors occurred during processing of the request. ○ failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, partial, failure
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).
quotationId	Identifier of the requested quotation. This field is set in case of asynchronous quotation. Set if status different from failure. Type: QuotationIdType

Tag Name	Tag Description
quotation	This field is alternative to the previous one. It specifies the quotation of the order. It is set only in case of synchronous / asynchronous with Monitoring quotation requests. Set if status different from failure. Type: OrderQuotation.

Table 8-11: GetQuotationAck description.

8.1.5 GetQuotationResponse: call-back for GetQuotation operation.

This operation has to be implemented by a client of Ordering service supporting asynchronous operations.

This operation allows the Ordering Service to send to the client the quotation of a specified order (8.1.4).

8.1.5.1 GetQuotationResponse input message: GetQuotationResponse

The following figure provides a graphical representation of this element.

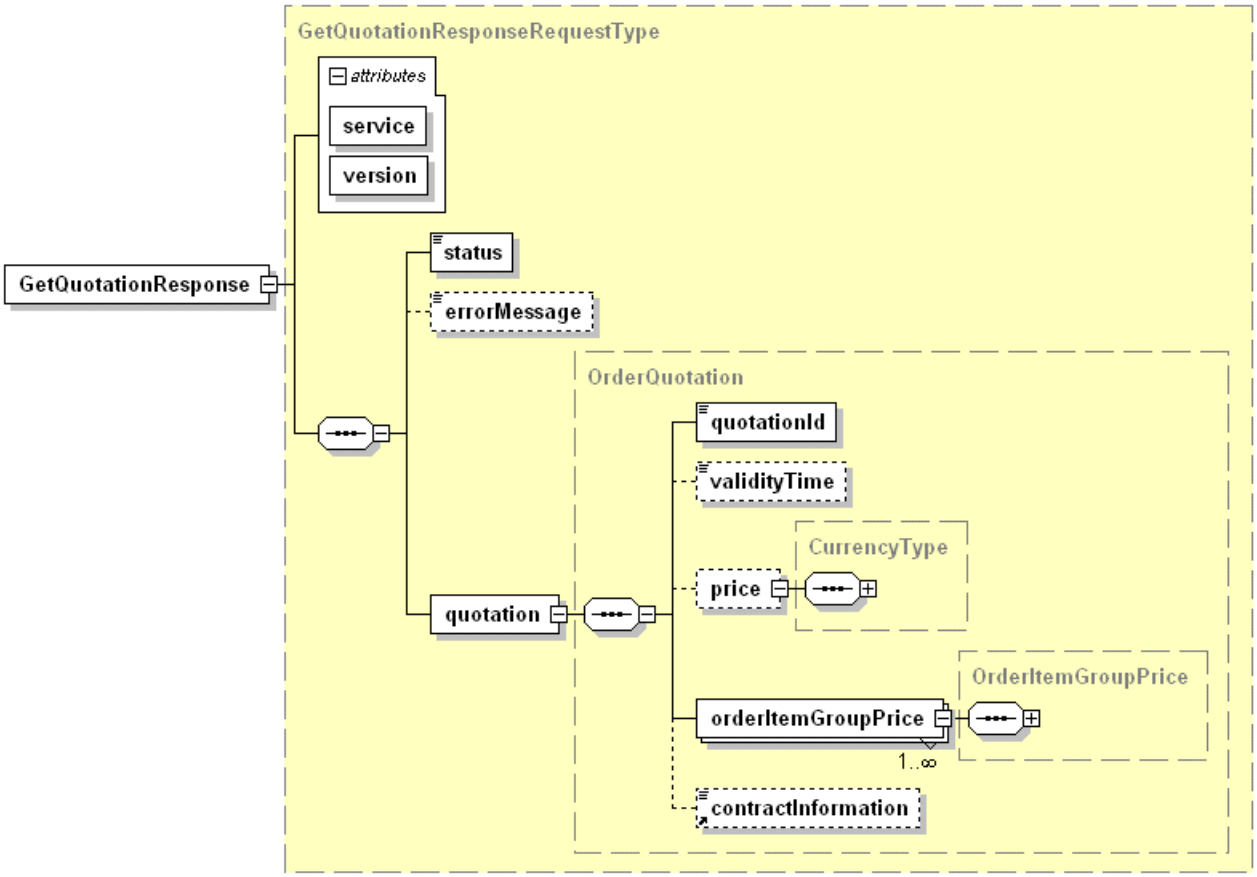


Figure 8-9: GetQuotationResponse diagram.

Tag Name	Tag Description
GetQuotationResponse	Message sending the order quotation to the client.
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
status	Completion result of the quotation process: ○ success: operation successfully executed; ○ partial: some items have not been quoted. ○ failure: severe error occurred during the processing of the request. Quotation aborted. **Type:** String **Permitted Values:** success, partial, failure

Tag Name	Tag Description
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).
quotation	It specifies the quotation of the order. It is set if status different from failure. Type: OrderQuotation.

Table 8-12: GetQuotationResponse description.

8.1.5.2 GetQuotationResponse output message: GetQuotationResponseAck

The following figure provides a graphical representation of this element.

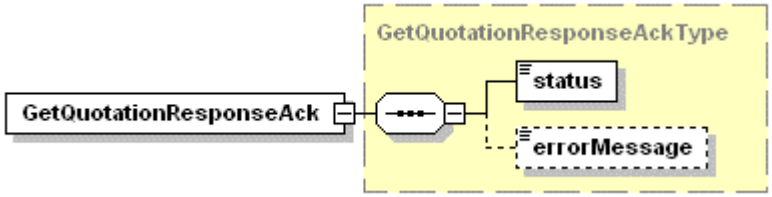


Figure 8-10: GetQuotationResponseAck diagram.

Tag Name	Tag Description
GetQuotationResponseAck	Acknowledge to GetQuotationResponse.
status	Completion result of the operation: o success: operation successfully executed; o partial: not applicable. o failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, partial, failure
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).

Table 8-13: GetQuotationResponseAck description.

8.1.6 Submit Operation

This operation allows either to submit an EO products order or to subscribe EO products.

The order to submit can be specified in two different ways:

- Via quotation identifier

  When the server supports order quotation, then the order can be submitted specifying the quotation identifier received from the previously executed GetQuotation operation.

- Via order specification

  When the server does not support quotation or the user does not need it then the order can be submitted directly specifying all the order parameters.

Submit is asynchronous operation, but allows the client to specify the amount of notification to receive:

- None: no asynchronous notification is sent to the client.

  This kind of notification is activated by:

  - setting Submit/statusNotification to None.

- Final: the client is notified when the whole order has been completed. This mechanism is possible only for clients working as server and implementing the SubmitResponse operation.

  This kind of notification is activated by:

  - setting Submit/statusNotification has to Final;
  - setting <wsa:ReplyTo> of Submit message with the address where the client is listening to the notification and <wsa:MessageID> shall include a unique identifier of the request.

- Every change of the order status is notified to the client. This mechanism is possible only for clients working as server and implementing the SubmitResponse operation.

  This kind of notification is activated by:

  - setting Submit/statusNotification to All;
  - setting <wsa:ReplyTo> of Submit message with the address where the client is listening to the notification and <wsa:MessageID> shall include a unique identifier of the request.

8.1.6.1 Submit input message: Submit

The type of Submit is SubmitProductOrderRequestType.

The following figure provides a graphical representation of this type.

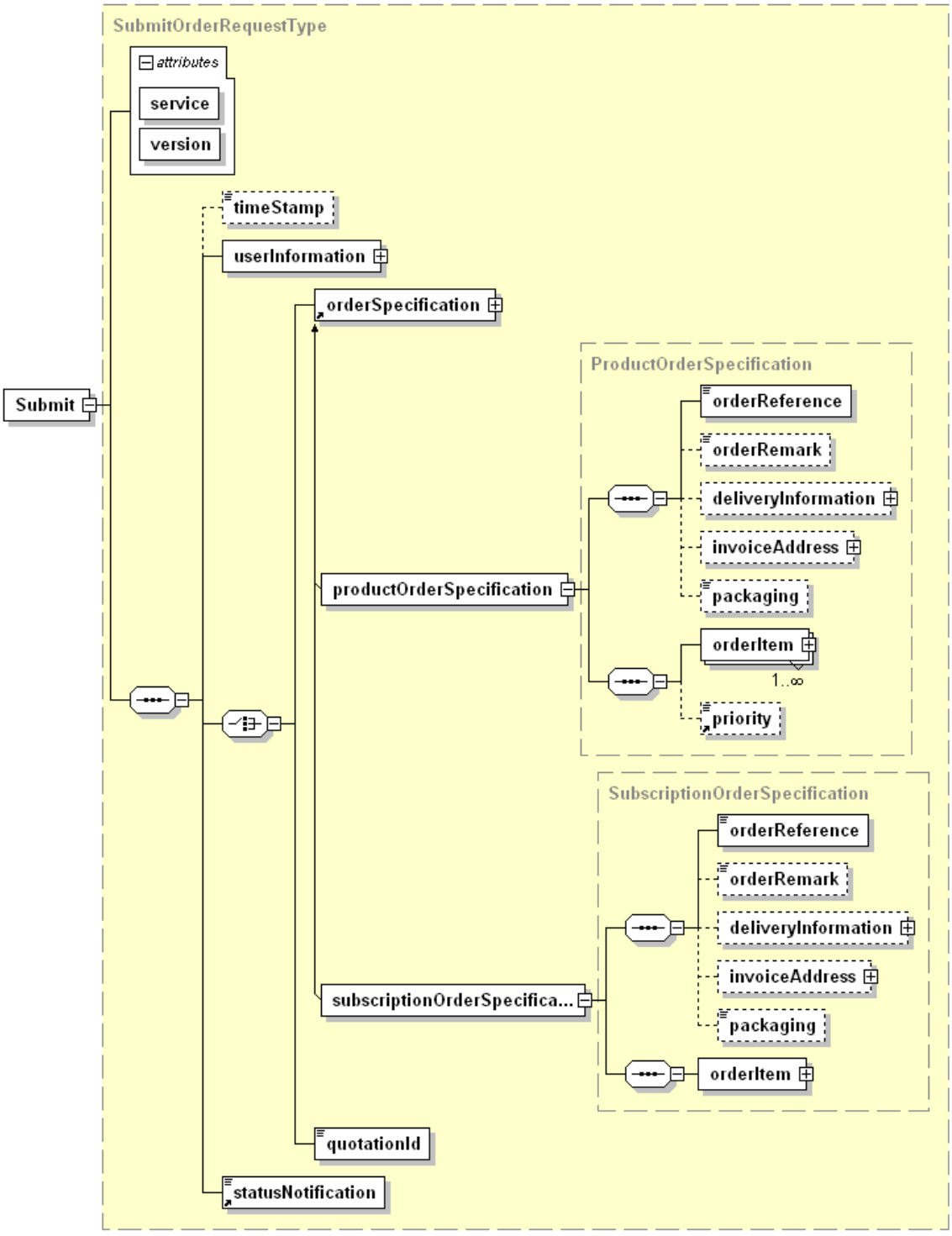


Figure 8-11: Submit diagram.

Tag Name	Tag Description
Submit	It contains the information to submit an order.
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2: UserInformation complex type description.
orderSpecification	Order Specification element. Type: either ProductOrderSpecification (Table 7-8) or SubscriptionOrderSpecification (Table 7-9)
quotationId	QuotationId returned by GetQuotation operation, Type: QuotationIdType.
statusNotification	This element specifies how many status notifications are sent back to the client (see 8.1.1.2)

Table 8-14: Submit description.

8.1.6.2 Submit output message: SubmitAck

The type of SubmitAck is SubmitProductOrderResponseType.

The following figure provides a graphical representation of this type.

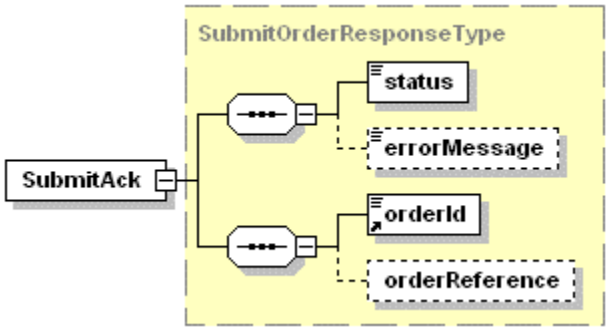


Figure 8-12: SubmitAck diagram

Tag Name	Tag Description
SubmitAck	Acknowledgment to order submission.
status	Completion result of the operation: o success: operation successfully executed; o partial: non blocking errors occurred during processing of the request. o failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, partial, failure.
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).
orderId	Order identification number unique for this Provider. Set to "FAILURE" in case **status** field is set to failure **Type:** xs:anyURI
orderReference	See Table 8-14

Table 8-15: SubmitAck description.

8.1.7 SubmitResponse: call-back for Submit operation.

This operation has to be implemented by a client of Ordering service supporting asynchronous operations.

This operation allows the Ordering Service to send to the client notifications about the progress of submitted orders.

8.1.7.1 SubmitResponse input message: SubmitResponse

The following figure provides a graphical representation of this element.

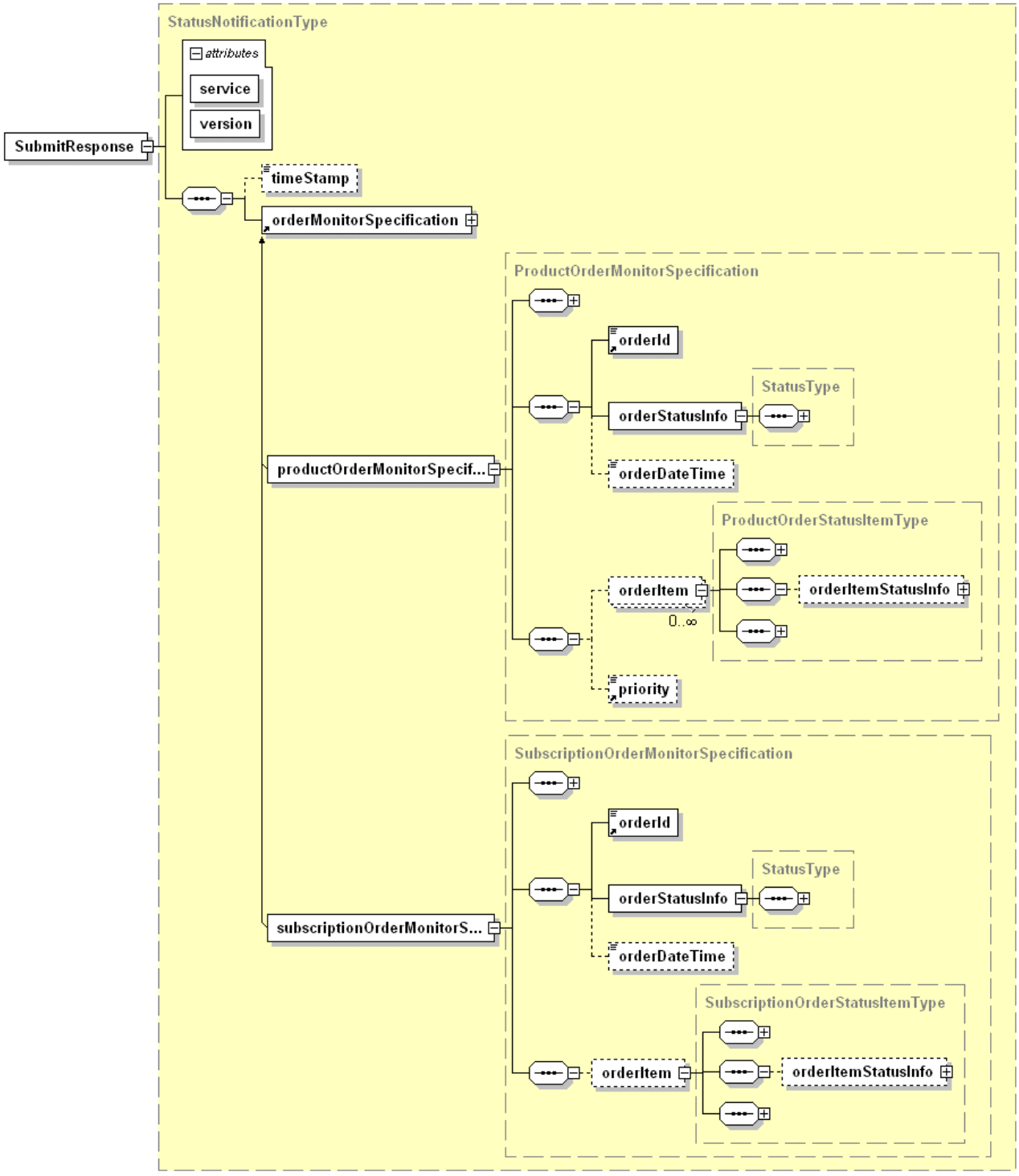


Figure 8-13: SubmitResponse diagram.

Tag Name	Tag Description
SubmitResponse	
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
orderMonitorSpecification	Order Monitor Specification element. The content of this element correspond to that returned by GetStatus with **full** presentation. Type: either ProductOrderMonitorSpecification (Table 7-22) or SubscriptionOrderMonitorSpecification (Table 7-23)

Table 8-16: SubmitResponse description.

8.1.7.2 SubmitResponse output message: SubmitResponseAck

The following figure provides a graphical representation of this element.

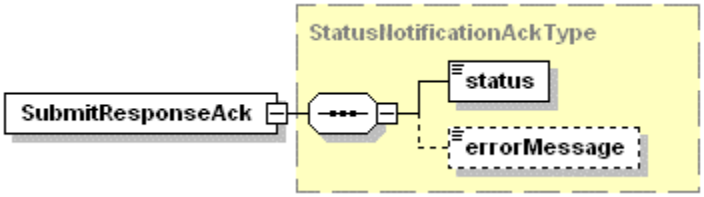


Figure 8-14: SubmitResponseAck diagram.

Tag Name	Tag Description
SubmitResponseAck	Acknowledge to SubmitResponse.
status	Status of reception of SubmitResponse message. **Type:** String **Permitted Values:** success, partial, failure

Tag Name	Tag Description
errorMessage	Error Message element. **Type:** Not empty string (max 255 chars).

Table 8-17: SubmitResponseAck description.

8.1.8 GetStatus Operation

This operation is in charge of returning the status of submitted orders.

It can be used in different ways:

- Order search

  In this way the operation returns all orders matching the filtering criteria:

  - Last update: all orders updated after the specified date are returned;
  - Order status: all orders having the specified status are returned;

- Order retrieve

  Only the order matching the order identifier is returned.

The amount of returned information depends on the presentation:

- brief: only order level information are returned (no order items returned);
- full: whole information returned.

Both presentation values can be used for order search and order retrieve, but for the sake of efficiency the following usage is recommended:

- brief presentation to be used for order search;
- full presentation to be used for getting all details of some of the orders returned by the order search.

8.1.8.1 GetStatus input message: GetStatus

The type of GetStatus is GetStatusRequestType.

The following figure provides a graphical representation of this type.

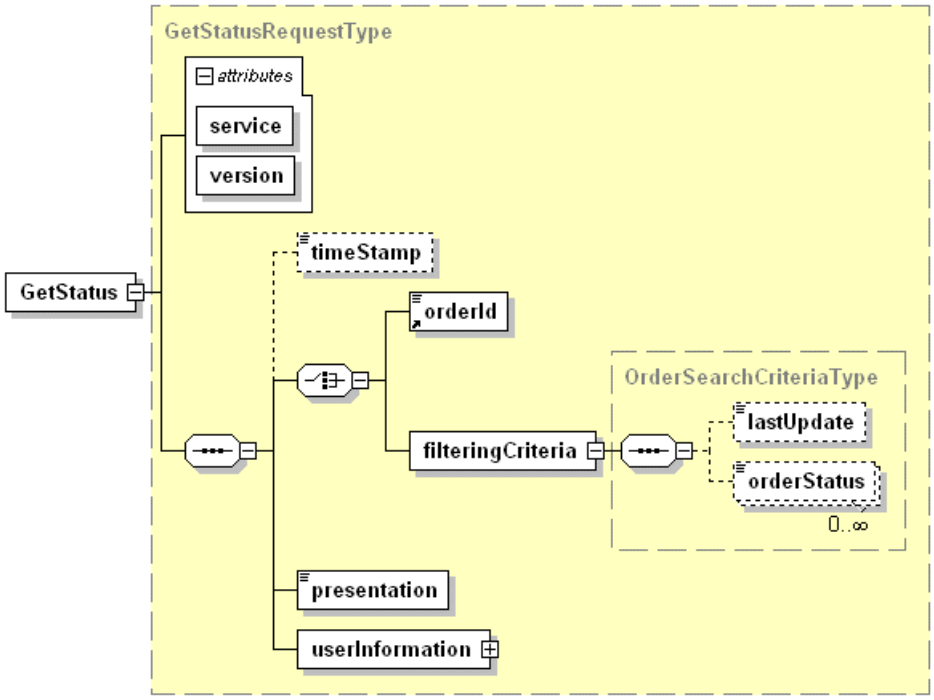


Figure 8-15: GetStatus diagram.

Tag Name	Tag Description
GetStatus	OrderMonitorRequest element.
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
orderId	Identifier of the order to retrieve. See Table 8-15

Tag Name	Tag Description
filteringCriteria	This element, alternative to the orderId, allows searching submitted orders. Supported search criteria are: o Last update: only orders which status has been changed after the specified date and time are returned o orderStatus: only orders having the specified statuses are returned.
lastUpdate	Last update of the order. Type: Type: date in ISO 8601 format (CCYY-MM-DD)
orderStatus	Status of an order. **Type:** String (Table 7-21)
presentation	This element specifies the amount of information to be returned by the GetStatus operation: o brief: only information about the whole order are returned. No order items are returned. o full: the whole order information are returned. Type: enumerated string Permitted values: brief, full
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2: UserInformation complex type description.

Table 8-18: GetStatus description.

8.1.8.2 GetStatus output message: GetStatusResponse

The type of GetStatusResponse is GetStatusResponseType.

The following figure provides a graphical representation of this type.

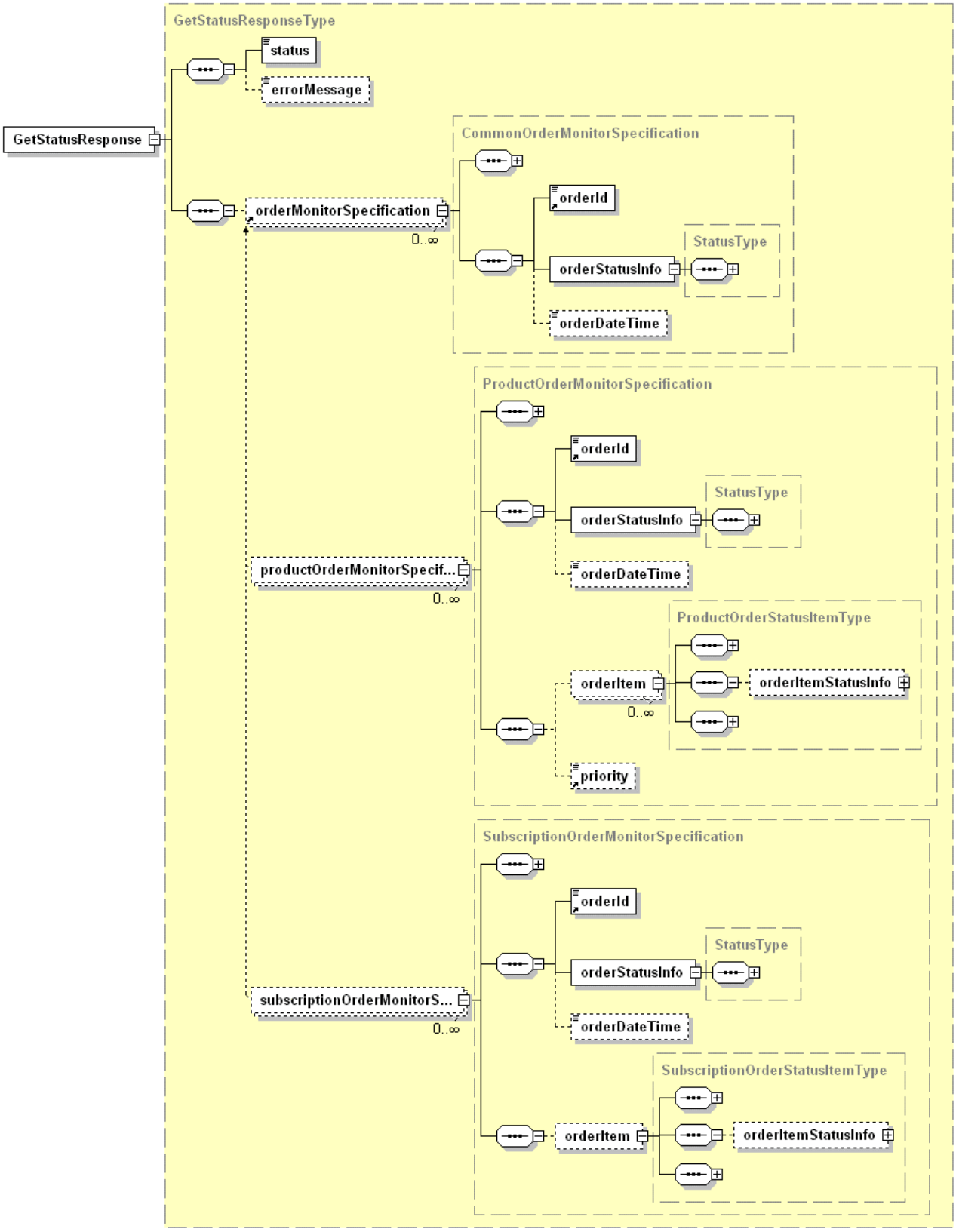


Figure 8-16: GetStatusResponse element diagram.

Tag Name	Tag Description	Product Ordering	Subscription
GetStatusResponse	OrderMonitorResponse element for submitted order.	X	X
status	Completion result of the operation: o success: operation successfully executed; o partial: some error occurred during the processing of the request which lead to an incomplete response. o failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, failure, incomplete		
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).		
orderMonitorSpecification	Order Monitor Specification element. The amount of returned information depends on the presentation specified in the request message. Mandatory if status <> failure. Type: either ProductOrderMonitorSpecification (Table 7-22) or SubscriptionOrderMonitorSpecification (Table 7-23)		

Table 8-19: GetStatusResponse description.

8.1.9 DescribeResultAccess operation

This operation is in charge of returning the URL of products ordered specifying on-line delivery.

8.1.9.1 DescribeResultAccess input message: DescribeResultAccess

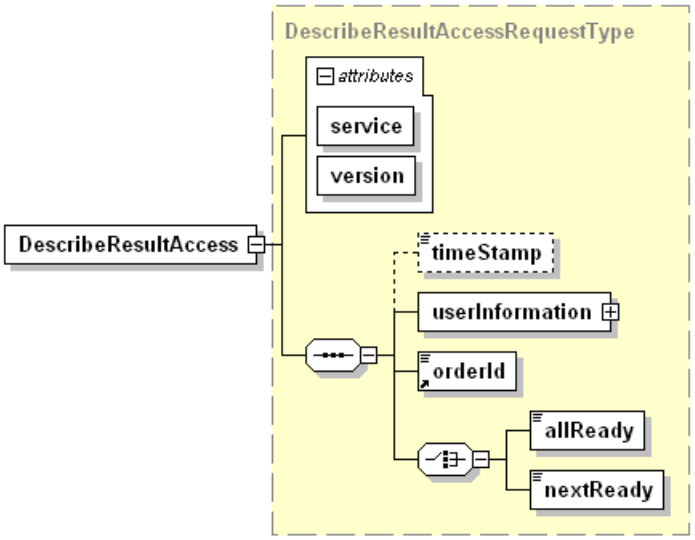


Figure 8-17: DescribeResultAccess diagram.

Tag Name	Tag Description
DescribeResultAccess	
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2
orderId	See Table 8-15
allReady	Flag indicating if all the currently completed items are to be retrieved. Calling DescribeResultAccess with this flag before at least one Item is in status "Completed" will return an empty list of URL(s). **Type**: Boolean.

Tag Name	Tag Description
nextReady	Flag indicating if all the completed items since last call (or from the beginning of the processing anyway) are to be retrieved. When all the involved Items are in status "Completed" calling DescribeResultAccess with this flag will return an empty list of URL(s). **Type**: Boolean.

Table 8-20: DescribeResultAccess description.

8.1.9.2 DescribeResultAccess output message: DescribeResultAccessResponse

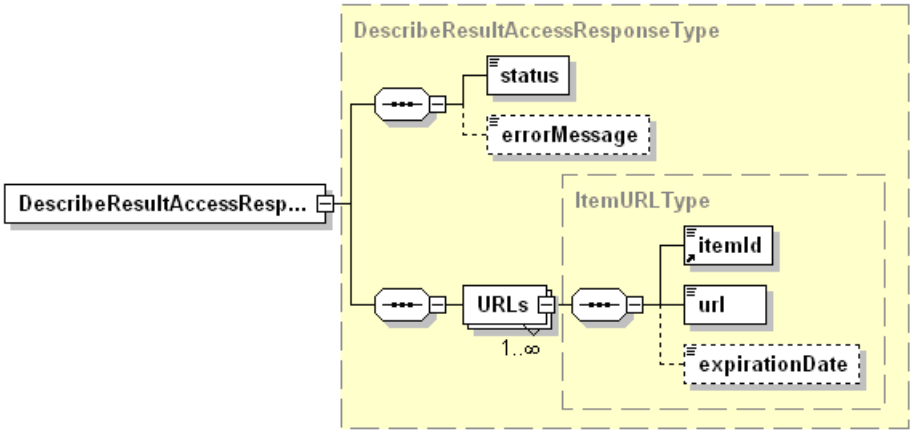


Figure 8-18: DescribeResultAccessResponse diagram.

Tag Name	Tag Description
DescribeResultAccessResponse	
status	Completion result of the operation: o success: operation successfully executed; o partial: some error occurred during the processing of the request which lead to an incomplete response. o failure: severe error occurred during the processing of the request. Request aborted. **Type:** String **Permitted Values:** success, failure, incomplete
errorMessage	Error Message element. Set if status different from success. **Type:** Not empty string (max 255 chars).

Tag Name	Tag Description
URLs	
itemId	Order item identifier specified in the Submit request. **Type**: non-empty string (max 80 chars)
url	This is the URL of a single "item" to be retrieved; according to the settings of "packaging" in Submit an "item" might be the whole result of the Submit operation or a subset. If "allReady" flag is set to true, this list will contain the URL(s) of all the items currently available: if there are still items being processed these will NOT be available. According to the settings of packaging flag in Submit this might yield a single item or a bunch of items (packaging=None). If "nextReady" flag is set to true, this list will contain all the products available since last call (or from the beginning of the processing if called for the first time). According to the settings of packaging flag in Submit, this might yield a single item or a bunch of items (packaging=None). **Type**: anyURI.
expirationDate	Date and time at which the URL will expire. Type: xs:dateTime

Table 8-21: DescribeResultAccessResponse description.

8.1.10 Cancel Operation

This operation allows cancelling a previously submitted order.

In case of EO product orders this operation triggers the cancellation of the order items; in case of subscriptions it means to unsubscribe from them.

The cancellation of product order items is not always possible, and then the operation returns the following results:

- "success", if all items can be cancelled;
- "incomplete", in case of partial cancellation
- "failure" in case the cancellation is not supported by the service or no item can be cancelled.

The cancellation is not a real-time process, and then the operation is asynchronous.

8.1.10.1Cancel input message: Cancel

The type of Cancel is CancelRequestType.

The following figure provides a graphical representation of this type.

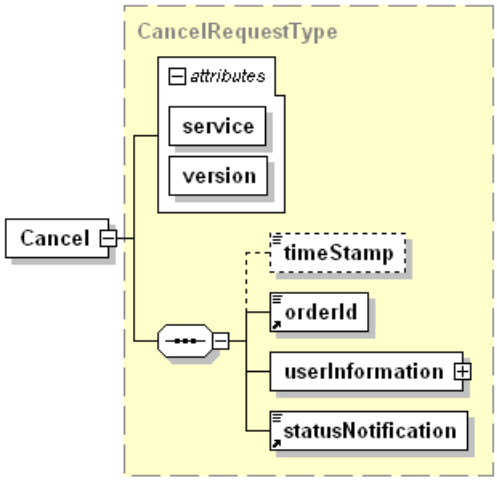


Figure 8-19: Cancel diagram.

Tag Name	Tag Description
Cancel	Cancel Request element.
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
orderId	See Table 8-15
userInformation	It contains the personal user information as provided as input by the order issuer. See Table 8-2: UserInformation complex type description.
statusNotification	This element specifies how many status notifications are sent back to the client (see 8.1.1.2)

Table 8-22: Cancel description.

8.1.10.2Cancel output message: CancelAck

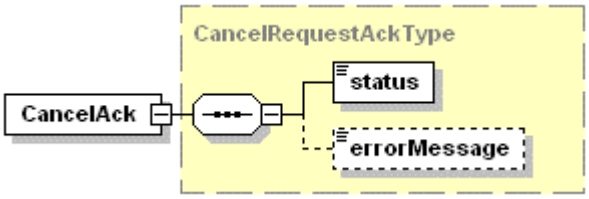


Figure 8-20: CancelAck diagram.

Tag Name	Tag Description
CancelAck	Cancel acknowledge for submitted order.
status	Completion result of the operation (see 8.1.10). **Type:** String **Permitted Values:** success, failure, incomplete
errorMessage	Error Message element. **Type:** Not empty string (max 255 chars).

Table 8-23: CancelAck description.

8.1.11 CancelResponse: call-back for Cancel operation.

This operation has to be implemented by a client of Ordering service supporting asynchronous operations.

This operation allows the Ordering Service to send to the client notifications about the progress of cancellation of submitted orders.

8.1.11.1CancelResponse input message: CancelResponse

Because the UpdateStatus operation carries the same information returned by the GetStatus operation, then the UpdateStatus element uses the OrderMonitorSpecification, which is used into the GetStatusResponse element.

The following figure provides a graphical representation of this element.

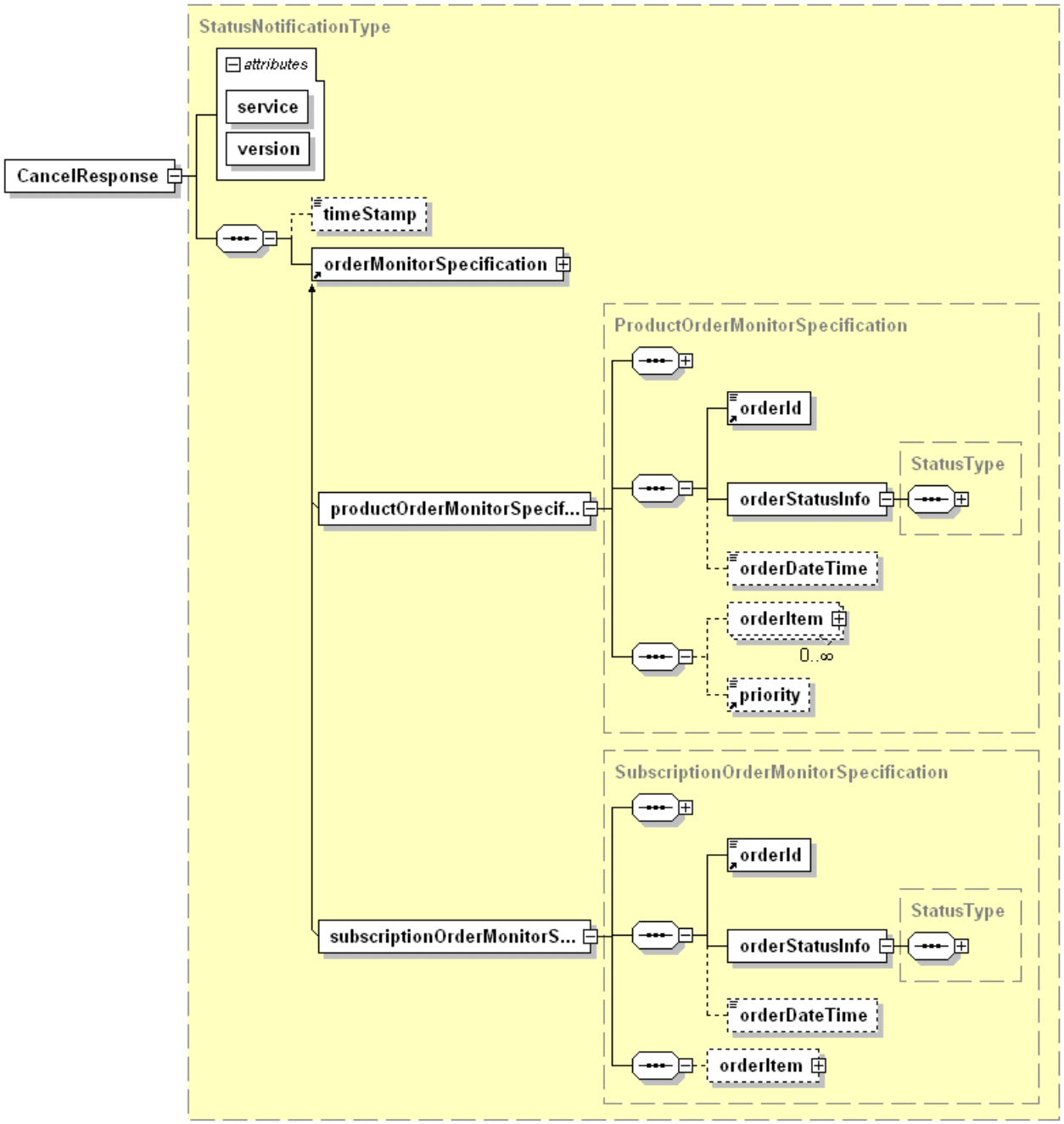


Figure 8-21: CancelResponse diagram.

Tag Name	Tag Description
CancelResponse	
service	Service type identifier Type: non-empty string Allowed values: OS
version	Specification version for operation Type: non-empty string. Format: <x>.<y>.<z>
timeStamp	It is the time when the request has been issued. Type: xs:DateTime
orderMonitorSpecification	Order Monitor Specification element. The content of this element correspond to that returned by GetStatus with **full** presentation. Type: either ProductOrderMonitorSpecification (Table 7-22) or SubscriptionOrderMonitorSpecification (Table 7-23)

Table 8-24: CancelResponse description.

8.1.11.2CancelResponse output message: CancelResponseAck

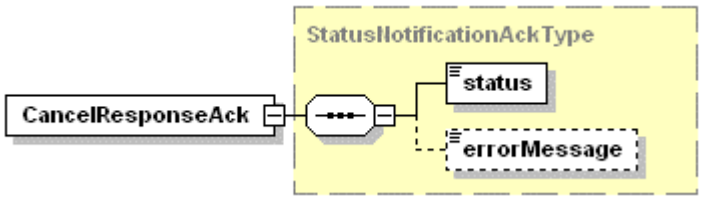


Figure 8-22: CancelResponseAck diagram.

Tag Name	Tag Description
CancelResponseAck	
status	Status of reception of CancelResponse message. **Type:** String **Permitted Values:** success, partial, failure
errorMessage	Error Message element. **Type:** Not empty string (max 255 chars).

Table 8-25: CancelResponseAck description.

8.2 Implementation guidance

The following section gives developers help when setting up an order service instance that complies with this interface specification. Any information provided here is non-normative or is a detailing of former descriptions.

8.2.1 Distributed Orders implementation

The Order Service operations have been defined to support also a multi-provider scenario where the client is allowed to build and submit orders involving Earth Observation products managed by different providers (e.g. ESA Multi-Mission Ground Segment, SPOT and Radarsat-2 CSA Ground Segment). Then in this scenario we have different order service instances with different roles:

- **façade Order Service Instance**, which is the intermediary element in charge of providing the clients a transparent access to the different providers and to orchestrate the access to them.
- **Delegated Order Service Instances**, which are the services instances running in the provider's environment that are in charge of effectively carrying out the orders.

In the following sections the interactions occurring between the different service instances for executing the Order Service operations are described.

8.2.1.1 Get Options scenario

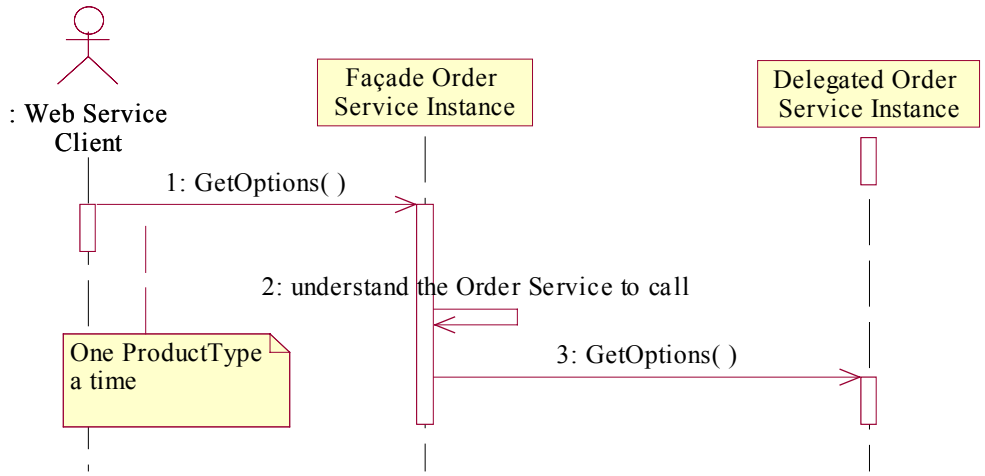


Figure 8-23: Get Options Scenario.

The order options are not centralised in the façade Order Service instance, but are distributed between the different providers.

- The client asks order options for **one** specific data set collection;
- The façade Order Service instance retrieves the information about the order services allowing to order that specific product / data set collection;
- The order options are asked to the right provider and then returned back to the client.

8.2.1.2 Get Quotation scenario

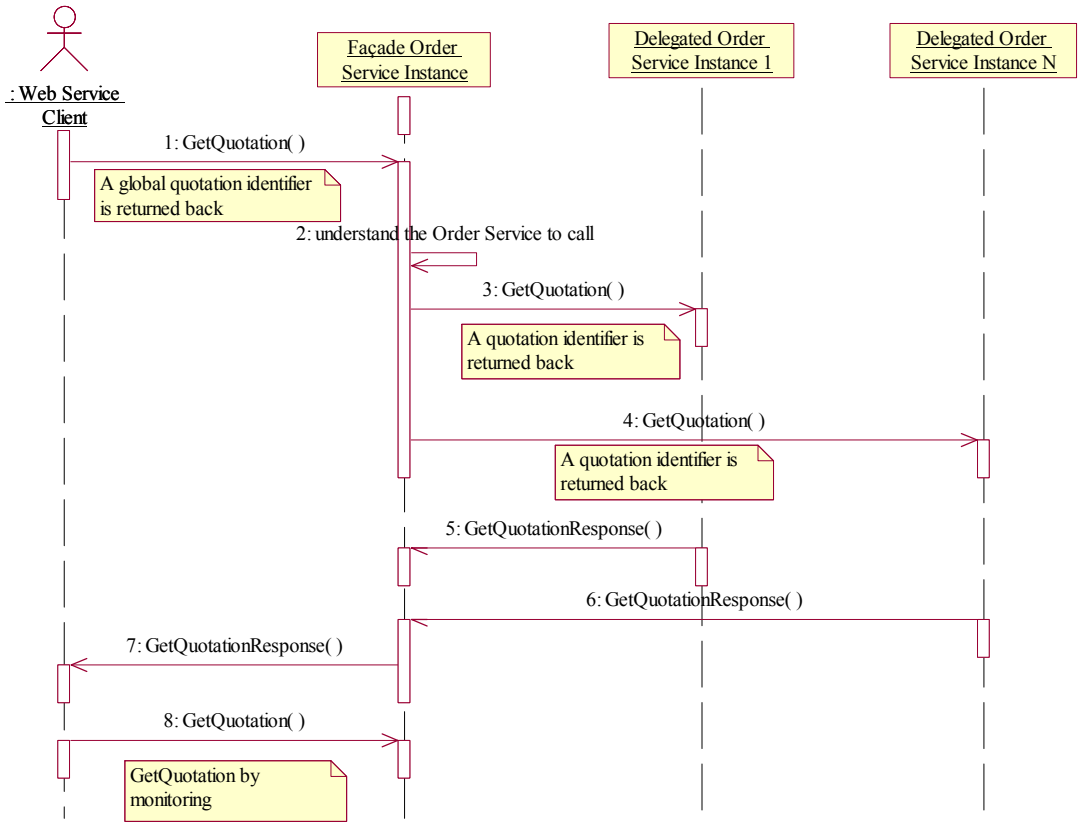


Figure 8-24: Get Quotation Scenario.

- The client has prepared the order with needed products and suitable options. Before submitting the order, it asks the quotation;
- The façade Order Service instance retrieves the information about the order services allowing to order that specific products / data set collections;

- The input order is split into different sub-orders each regrouping all items that can be managed by a single provider;
- The different identified providers are asked for the quotation of the different sub-orders. Each returns the identifier of the received quotation request. All the received quotation identifiers are stored locally and a global quotation id generated by the façade Order Service is sent to the client.
- The different providers send back the quotations to the façade calling the asynchronous call-back operation.
- When all quotations have been received, several options are possible:
    - If the client specified asynchronous quotation, the client is notified by calling the call-back operation;
    - If the client specified no notification, then the client has to monitor the status of the quotation by calling again GetQuotation operation specifying the quotationId received by the first call.

8.2.1.3 Submit scenario

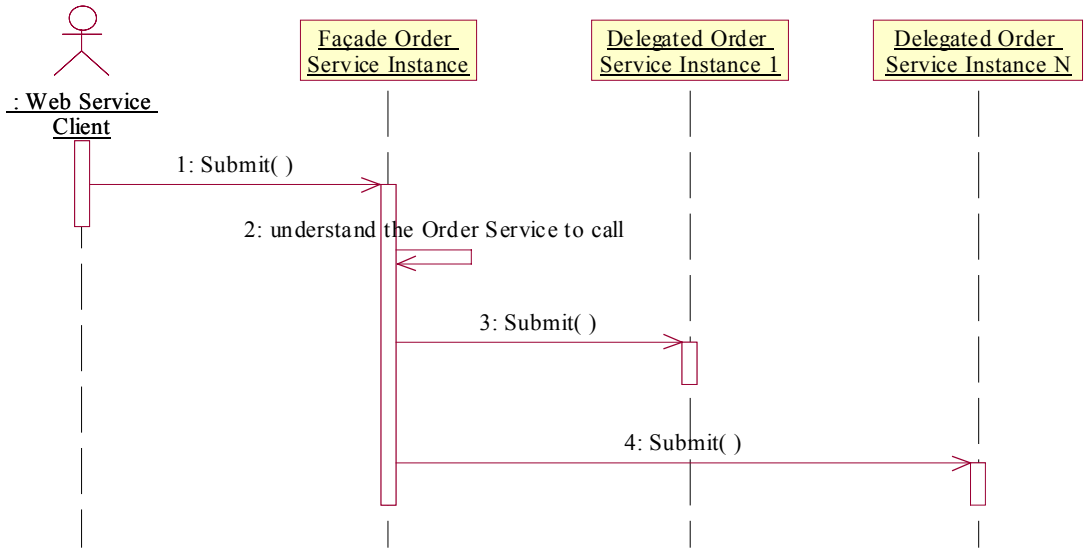


Figure 8-25: Submit Scenario.

- The client has prepared an order for precisely identified items. Before submitting the order, it has also asked the quotation; then the order is submitted.
- In case the order is submitted providing the quotationId, the quotation id of the different sub-orders are retrieved from the local store and are used for actually submitting the sub-orders.

- In case the order is submitted specifying all parameters:
    - The façade Order Service instance retrieves the information about the order services allowing to order that specific product / subscription;
    - The input order is split into different sub-orders each regrouping all items that can be managed by a single provider;
    - The split sub-orders are sent to different providers identified in the second step.
- Each provider creates and returns back the identifier of the sub-order that has been submitted to it.
- The façade Order Service instance creates and returns back to the client the identifier of the whole order. Internally it has to manage the link between the "Client Order" and the different "Sub Orders".

8.2.1.4 Status notification scenario

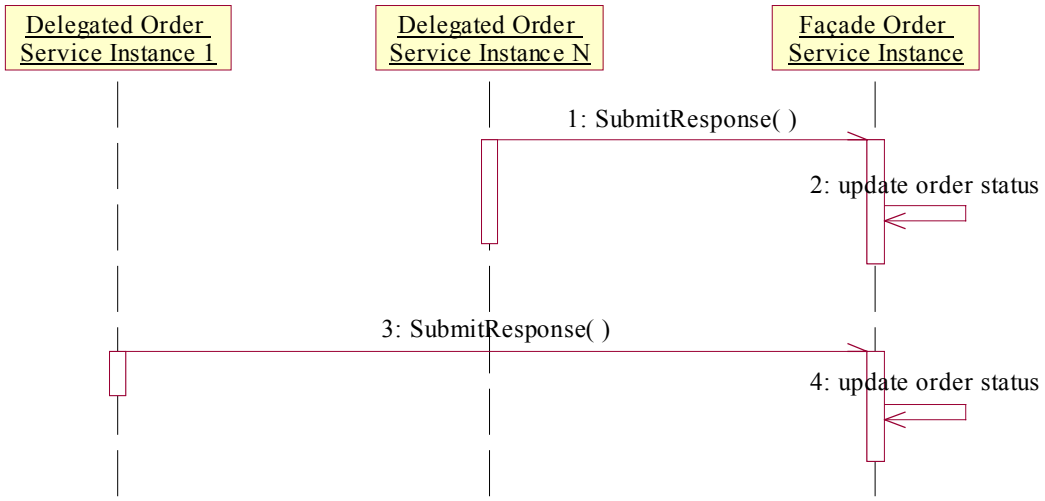


Figure 8-26: Update Status Scenario.

- Whenever a sub-order processed by a delegated order service instance changes its status and depending also on the values set in the statusNotification element, the façade Order Service Instance is notified through the SubmitResponse operation.
- The SubmitResponse is called specifying the identifier of the sub-order, then the façade Order Service Instance has to retrieve the original order submitted by the client and then has to update the status of items specified in the notification.

8.2.1.5 Get Status scenario

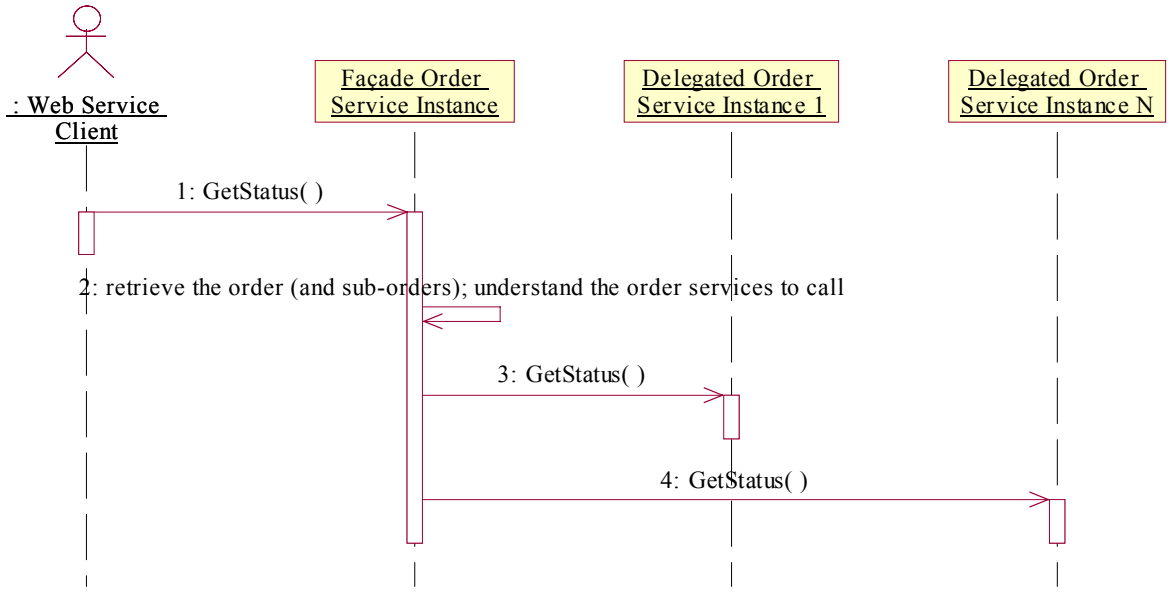


Figure 8-27: Get Status Scenario.

- The client asks the status of a previously submitted order.
- The façade Order Service instance retrieves the identifiers of the sub-orders linked to the order to get the status.
- For each sub-order a GetStatus request is sent to the corresponding provider. The received statuses are put together and sent back to the client.

8.2.1.6 Cancel scenario

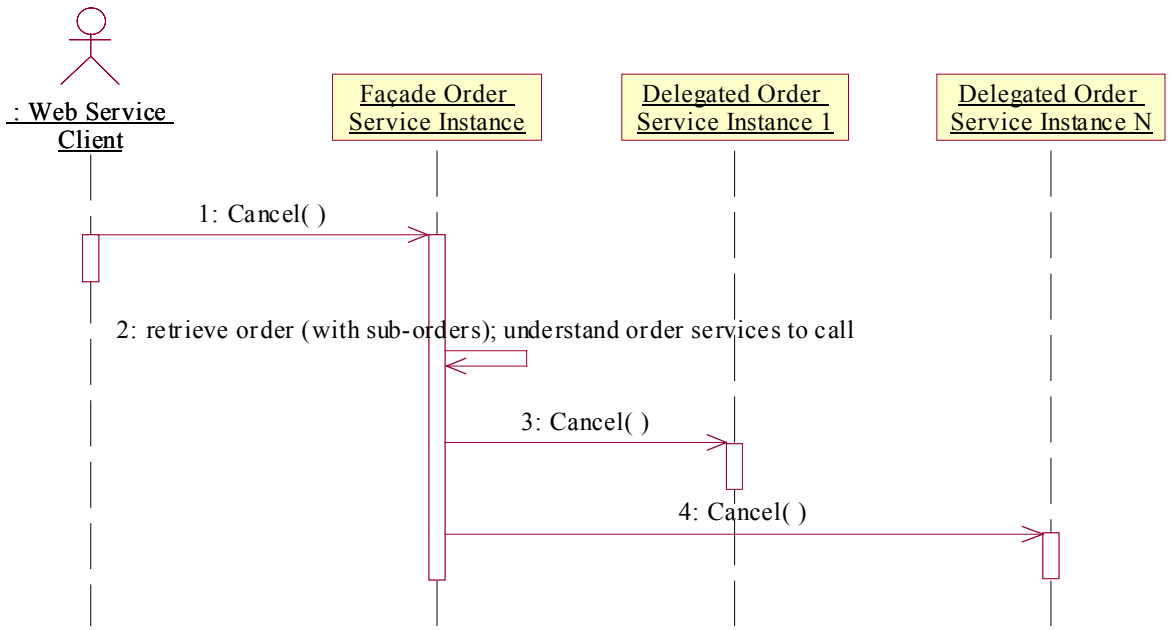


Figure 8-28: Cancel Scenario.

- The client requires the cancellation of a specific order.
- The façade Order Service instance retrieves the identifiers of the sub-orders linked to the order to be cancelled.
- For each sub-order a cancellation request is sent to the corresponding provider.

8.2.1.7 Retrieval of on-line available data scenario

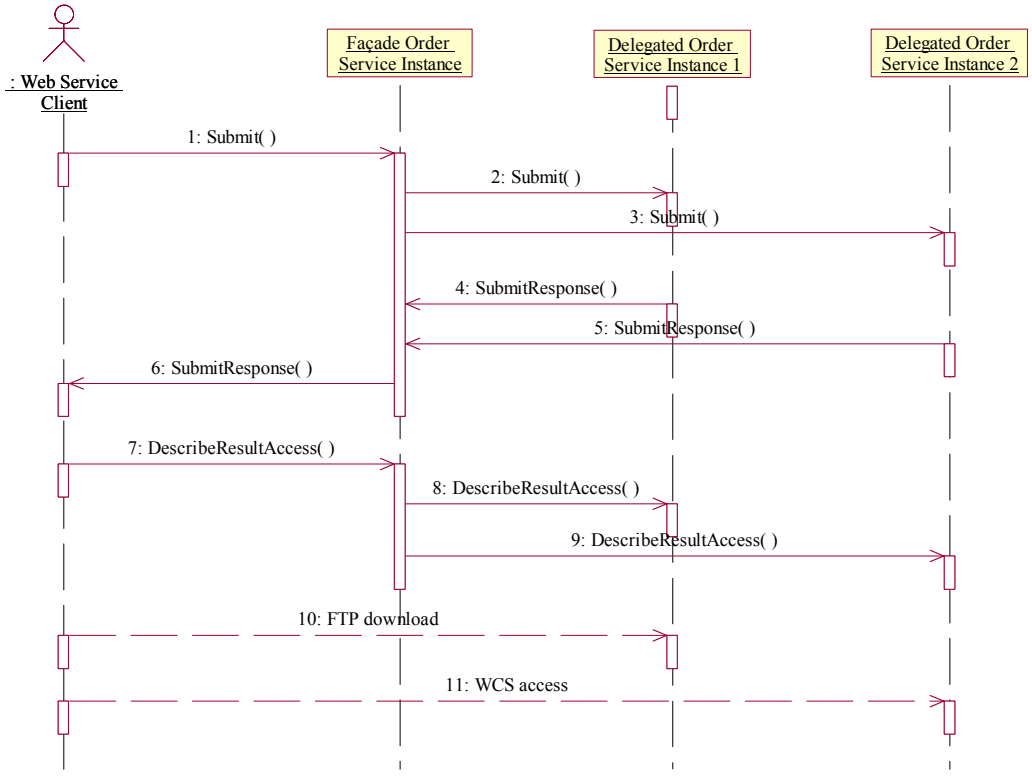


Figure 8-29: Retrieval of on-line available data scenario

- The initial steps for preparing the order are not considered in this scenario.
- An order with on-line delivery is prepared and submitted by the client asking final asynchronous notification.
- When all providers had made available the data the SubmitResponse of the façade is called.
- The façade notifies the client by calling the SubmitResponse operation of it.
- The client can access the data by calling the DescribeResultAccess operation.
- Depending on the selected delivery method, the client can download the data via FTP or can interact with it by using the WCS protocol, etc.

8.2.2 Semantic issues

None.

8.2.3 Technical issues

- SOAP: Only SOAP messaging (via HTTP/POST) with document/literal style has to be used. Messages must conform to SOAP 1.2 (http://www.w3.org/TR/SOAP/). The message payload will be in the body of the SOAP envelope.

8.2.4 Other Issues

- Order modification due to the delegated order services.

  In some cases, the order services update the received orders. A possible example is the ESA Multi Mission Ground Segment, where the orders submitted by the users can be:

  - re-shuffled, because internally the order is organized in deliveries and then all order items having the same delivery type are managed together.
  - Updated, in case of problems on some ordered products, the order operator, upon agreement with the user, can replace them with possible alternatives.

  Then, to manage these possible modifications performed by the delegated order service instances, the UpdateStatus operation should be allowed also to update orders.

- Order Options management.

  The current approach is that order options are not centralized in the Façade Order Service Instance, and then the GetOptions request is forwarded to right Order Service instance owning the specified order options.

  A better approach is the centralized management of data, because the order options, similarly to the collection and service metadata, is almost static data and then once the data is stored in a registry, the possible updates are very rare.

APPENDIX A XML Schema definitions (Normative)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--                    :.xsd
Type    :C Schema
                :       May 2007
        :Order Schema
                :
                :Marchionni
                :.2 -->
<xs:schema xmlns="http://earth.esa.int/hma/ordering" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:ows="http://www.opengis.net/ows" xmlns:gml="http://www.opengis.net/gml" xmlns:swe="http://www.opengis.net/swe/0.0"
xmlns:sps="http://www.opengis.net/sps/0" targetNamespace="http://earth.esa.int/hma/ordering" elementFormDefault="qualified"
attributeFormDefault="unqualified">
        <xs:import namespace="http://www.opengis.net/swe/0.0" schemaLocation="../swe/sweCommon/0.0.0/swe.xsd"/>
        <xs:import namespace="http://www.opengis.net/ows" schemaLocation="../ows/1.0.0/owsGetCapabilities.xsd"/>
        <xs:import namespace="http://www.opengis.net/sps/0" schemaLocation="Order_spsCommon.xsd"/>
        <xs:import namespace="http://www.opengis.net/gml" schemaLocation="../gml/3.1.1/base/gml.xsd"/>
        <!-- ================================================================== -->
        <!-- ====================== Operations root element ===========================-->
        <!-- ================================================================== -->
        <xs:element name="GetCapabilities">
                <xs:annotation>
                        <xs:documentation>Request to a Order Service to perform the GetCapabilities operation. This operation
allows a client to retrieve service metadata (capabilities XML) providing metadata for the specific Order server. In this XML encoding, no
"request" parameter is included, since the element name specifies the specific operation. </xs:documentation>
                </xs:annotation>
                <xs:complexType>
                        <xs:complexContent>
                                <xs:extension base="ows:GetCapabilitiesType">
                                        <xs:attribute name="service" type="ows:ServiceType" use="required" fixed="OS"/>
                                </xs:extension>
                        </xs:complexContent>
                </xs:complexType>
        </xs:element>
        <xs:element name="Capabilities">
                <xs:annotation>
                        <xs:documentation>XML encoded Order Service GetCapabilities operation response. This document
provides clients with service metadata about a specific service instance. If the server does not implement the updateSequence
parameter, the server shall always return the complete Capabilities document, without the updateSequence parameter. When the server
implements the updateSequence parameter and the GetCapabilities operation request included the updateSequence parameter with the
current value, the server shall return this element with only the "version" and "updateSequence" attributes. Otherwise, all optional
elements shall be included or not depending on the actual value of the Sections parameter in the GetCapabilities operation request.
</xs:documentation>
                </xs:annotation>
                <xs:complexType>
                        <xs:complexContent>
                                <xs:extension base="ows:CapabilitiesBaseType">
                                        <xs:sequence>
                                                <xs:element name="Contents" type="OrderingServiceContentsType"
minOccurs="0"/>
                                        </xs:sequence>
                                </xs:extension>
                        </xs:complexContent>
                </xs:complexType>
        </xs:element>
        <xs:element name="GetOptions" type="OrderOptionsRequestType"/>
        <xs:element name="GetOptionsResponse" type="OrderOptionsResponseType"/>
        <xs:element name="GetQuotation" type="GetQuotationRequestType">
                <xs:annotation>
                        <xs:documentation>GetQuotation operation - request message</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="GetQuotationAck" type="GetQuotationAckType">
                <xs:annotation>
                        <xs:documentation>GetQuotation operation - response message</xs:documentation>
```

```
                </xs:annotation>
        </xs:element>
        <xs:element name="GetQuotationResponse" type="GetQuotationResponseRequestType">
                <xs:annotation>
                        <xs:documentation>Async reply to GetQuotation  - This message carries on the
quotation.</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="GetQuotationResponseAck" type="GetQuotationResponseAckType">
                <xs:annotation>
                        <xs:documentation>Response to acknowledge the receiption of quotation.</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="Submit" type="SubmitOrderRequestType"/>
        <xs:element name="SubmitAck" type="SubmitOrderResponseType"/>
        <xs:element name="SubmitResponse" type="StatusNotificationType"/>
        <xs:element name="SubmitResponseAck" type="StatusNotificationAckType">
                <xs:annotation>
                        <xs:documentation>Response to acknowledge the receiption of order status
notification.</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="GetStatus" type="GetStatusRequestType"/>
        <xs:element name="GetStatusResponse" type="GetStatusResponseType"/>
        <xs:element name="DescribeResultAccess" type="DescribeResultAccessRequestType"/>
        <xs:element name="DescribeResultAccessResponse" type="DescribeResultAccessResponseType"/>
        <xs:element name="Cancel" type="CancelRequestType"/>
        <xs:element name="CancelAck" type="CancelRequestAckType"/>
        <xs:element name="CancelResponse" type="StatusNotificationType"/>
        <xs:element name="CancelResponseAck" type="StatusNotificationAckType"/>
        <!-- ========================================================================= -->
        <!-- ======================== Elements Definition Section  ======================== -->
        <!-- ========================================================================= -->
        <xs:element name="orderId" type="xs:anyURI"/>
        <xs:element name="priority" type="xs:integer"/>
        <xs:element name="statusNotification">
                <xs:simpleType>
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="None"/>
                                <xs:enumeration value="Final"/>
                                <xs:enumeration value="All"/>
                        </xs:restriction>
                </xs:simpleType>
        </xs:element>
        <xs:element name="collectionId">
                <xs:annotation>
                        <xs:documentation>ESA GS: Provider.Facility.CollectionId --> 62 char</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                        <xs:restriction base="xs:string">
                                <xs:minLength value="1"/>
                                <xs:maxLength value="62"/>
                        </xs:restriction>
                </xs:simpleType>
        </xs:element>
        <!--========================================================================= -->
        <!--===================== ComplexType  Definition Section ====================== -->
        <!--========================================================================= -->
        <xs:complexType name="OrderRequestBaseType">
                <xs:annotation>
                        <xs:documentation>XML encoded SPS operation request base, for all operations except Get Capabilities.
In this XML encoding, no "request" parameter is included, since the element name specifies the specific operation. </xs:documentation>
                </xs:annotation>
                <xs:attribute name="service" type="xs:string" use="required" fixed="OS">
                        <xs:annotation>
                                <xs:documentation>Service type identifier. </xs:documentation>
                        </xs:annotation>
```

```
                </xs:attribute>
                <xs:attribute name="version" use="required">
                        <xs:annotation>
                                <xs:documentation>Specification version for SPS version and operation.</xs:documentation>
                        </xs:annotation>
                        <xs:simpleType>
                                <xs:restriction base="xs:string">
                                        <xs:maxLength value="5"/>
                                </xs:restriction>
                        </xs:simpleType>
                </xs:attribute>
        </xs:complexType>
        <xs:complexType name="OrderResponseBaseType">
                <xs:annotation>
                        <xs:documentation>Base type for all Ordering Service operation responses.</xs:documentation>
                </xs:annotation>
                <xs:sequence>
                        <xs:element name="status" type="OrderResponseStatusType" nillable="false"/>
                        <xs:element name="errorMessage" minOccurs="0">
                                <xs:annotation>
                                        <xs:documentation>This field is set when status element is different from success. It
provides some information about the occurred problem.</xs:documentation>
                                </xs:annotation>
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="255"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="OrderingServiceContentsType">
                <xs:sequence>
                        <xs:element name="GetQuotationCapabilities">
                                <xs:annotation>
                                        <xs:documentation>This element specifies if and how the order quotation is
supported: synchronously, asynchronously, synchronous with polling.</xs:documentation>
                                </xs:annotation>
                                <xs:complexType>
                                        <xs:attribute name="supported" type="xs:boolean" use="required"/>
                                        <xs:attribute name="synchronous" type="xs:boolean" use="required"/>
                                        <xs:attribute name="asynchronous" type="xs:boolean" use="required"/>
                                        <xs:attribute name="monitoring" type="xs:boolean" use="required"/>
                                        <xs:attribute name="off-line" type="xs:boolean" use="required"/>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="FutureProductsOrdering">
                                <xs:annotation>
                                        <xs:documentation>Specifies whether the Ordering Services supports future products
ordering and the corresponding SPS URL.</xs:documentation>
                                </xs:annotation>
                                <xs:complexType>
                                        <xs:attribute name="supported" type="xs:boolean" use="required"/>
                                        <xs:attribute name="SPS_URL" type="xs:anyURI"/>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="SupportedCollections">
                                <xs:annotation>
                                        <xs:documentation>List of collections allowed for ordering.</xs:documentation>
                                </xs:annotation>
                                <xs:complexType>
                                        <xs:sequence>
                                                <xs:element ref="collectionId" minOccurs="0" maxOccurs="unbounded"/>
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                </xs:sequence>
```

```
	</xs:complexType>
	<!-- ========================================================================== -->
	<!--====================   Order Submission   ======================== -->
	<!-- ========================================================================== -->
	<xs:complexType name="SubmitOrderRequestType">
		<xs:complexContent>
			<xs:extension base="OrderRequestBaseType">
				<xs:sequence>
					<xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
					<xs:element name="userInformation" type="UserInformation"/>
					<xs:choice>
						<xs:element ref="orderSpecification"/>
						<xs:element name="quotationId" type="QuotationIdType"/>
					</xs:choice>
					<xs:element ref="statusNotification">
						<xs:annotation>
							<xs:documentation>This element specifies how many status
notifications are sent back to the caller of the Submit operation.</xs:documentation>
						</xs:annotation>
					</xs:element>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:complexType name="SubmitOrderResponseType">
		<xs:complexContent>
			<xs:extension base="OrderResponseBaseType">
				<xs:sequence>
					<xs:element ref="orderId"/>
					<xs:element name="orderReference" minOccurs="0"/>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:complexType name="CommonOrderSpecification">
		<xs:sequence>
			<xs:element name="orderReference">
				<xs:simpleType>
					<xs:restriction base="xs:string">
						<xs:minLength value="1"/>
						<xs:maxLength value="30"/>
					</xs:restriction>
				</xs:simpleType>
			</xs:element>
			<xs:element name="orderRemark" minOccurs="0">
				<xs:simpleType>
					<xs:restriction base="xs:string">
						<xs:maxLength value="255"/>
						<xs:minLength value="1"/>
					</xs:restriction>
				</xs:simpleType>
			</xs:element>
			<xs:element name="deliveryInformation" type="DeliveryInformationType" minOccurs="0"/>
			<xs:element name="invoiceAddress" type="DeliveryAddressType" minOccurs="0">
				<xs:annotation>
					<xs:documentation>Address for sending the invoice.</xs:documentation>
				</xs:annotation>
			</xs:element>
			<xs:element name="packaging" type="EnumPackagingType" nillable="true" minOccurs="0"/>
		</xs:sequence>
	</xs:complexType>
	<xs:complexType name="SubscriptionOrderSpecification">
		<xs:complexContent>
			<xs:extension base="CommonOrderSpecification">
				<xs:sequence>
					<xs:element name="orderItem" type="SubscriptionOrderItemType"/>
				</xs:sequence>
```

```
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="ProductOrderSpecification">
                    <xs:complexContent>
                        <xs:extension base="CommonOrderSpecification">
                            <xs:sequence>
                                <xs:element name="orderItem" type="ProductOrderItemType"
maxOccurs="unbounded"/>
                                <xs:element ref="priority" minOccurs="0"/>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:element name="orderSpecification" type="CommonOrderSpecification" abstract="true"/>
                <xs:element name="subscriptionOrderSpecification" type="SubscriptionOrderSpecification"
substitutionGroup="orderSpecification"/>
                <xs:element name="productOrderSpecification" type="ProductOrderSpecification" substitutionGroup="orderSpecification"/>
                <xs:complexType name="CreditCardInfoType">
                    <xs:sequence>
                        <xs:element name="creditCardInstitute"/>
                        <xs:element name="nameOnCard"/>
                        <xs:element name="cardNumber"/>
                        <xs:element name="expirationDate"/>
                    </xs:sequence>
                </xs:complexType>
                <xs:complexType name="PaymentOptionSelectedValue">
                    <xs:sequence>
                        <xs:element ref="paymentMethod"/>
                        <xs:choice>
                            <xs:element name="orderAccount" minOccurs="0">
                                <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                        <xs:minLength value="1"/>
                                        <xs:maxLength value="20"/>
                                    </xs:restriction>
                                </xs:simpleType>
                            </xs:element>
                            <xs:element name="creditCardInfo" type="xs:string" minOccurs="0">
                                <xs:annotation>
                                    <xs:documentation>This element should be managed in more secure
way</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                        </xs:choice>
                    </xs:sequence>
                </xs:complexType>
                <!-- ========================================================================== -->
                <!--======================     Order Monitoring     ======================= -->
                <!-- ========================================================================== -->
                <xs:complexType name="GetStatusRequestType">
                    <xs:complexContent>
                        <xs:extension base="OrderRequestBaseType">
                            <xs:sequence>
                                <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                                <xs:choice>
                                    <xs:element ref="orderId"/>
                                    <xs:element name="filteringCriteria" type="OrderSearchCriteriaType"/>
                                </xs:choice>
                                <xs:element name="presentation" type="PresentationType"/>
                                <xs:element name="userInformation" type="UserInformation"/>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="GetStatusResponseType">
                    <xs:complexContent>
```

```
                        <xs:extension base="OrderResponseBaseType">
                            <xs:sequence>
                                <xs:element ref="orderMonitorSpecification" minOccurs="0"
maxOccurs="unbounded"/>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="CommonOrderMonitorSpecification">
                    <xs:complexContent>
                        <xs:extension base="CommonOrderSpecification">
                            <xs:sequence>
                                <xs:element ref="orderId"/>
                                <xs:element name="orderStatusInfo" type="StatusType"/>
                                <xs:element name="orderDateTime" type="xs:dateTime" minOccurs="0"/>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="ProductOrderMonitorSpecification">
                    <xs:complexContent>
                        <xs:extension base="CommonOrderMonitorSpecification">
                            <xs:sequence>
                                <xs:element name="orderItem" type="ProductOrderStatusItemType" minOccurs="0"
maxOccurs="unbounded">
                                    <xs:annotation>
                                        <xs:documentation>The orderItem has been defined optional in
order to  perform GetStatus request with brief presentation. Of course orders without order items cannot be
submitted.</xs:documentation>
                                    </xs:annotation>
                                </xs:element>
                                <xs:element ref="priority" minOccurs="0"/>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="SubscriptionOrderMonitorSpecification">
                    <xs:complexContent>
                        <xs:extension base="CommonOrderMonitorSpecification">
                            <xs:sequence>
                                <xs:element name="orderItem" type="SubscriptionOrderStatusItemType"
minOccurs="0">
                                    <xs:annotation>
                                        <xs:documentation>The orderItem has been defined optional in
order to  perform GetStatus request with brief presentation. Of course orders without order items cannot be
submitted.</xs:documentation>
                                    </xs:annotation>
                                </xs:element>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:element name="orderMonitorSpecification" type="CommonOrderMonitorSpecification" abstract="true"/>
                <xs:element name="productOrderMonitorSpecification" type="ProductOrderMonitorSpecification"
substitutionGroup="orderMonitorSpecification"/>
                <xs:element name="subscriptionOrderMonitorSpecification" type="SubscriptionOrderMonitorSpecification"
substitutionGroup="orderMonitorSpecification"/>
                <xs:complexType name="OrderSearchCriteriaType">
                    <xs:sequence>
                        <xs:element name="lastUpdate" type="DateTimeTypes" minOccurs="0"/>
                        <xs:element name="orderStatus" type="EnumStatusType" minOccurs="0" maxOccurs="unbounded"/>
                    </xs:sequence>
                </xs:complexType>
                <!-- ========================================================================== -->
                <!--====================     Order Item     ====================== -->
                <!-- ========================================================================== -->
                <xs:complexType name="CommonOrderItemType">
```

```
                <xs:sequence>
                        <xs:element ref="itemId"/>
                        <xs:element name="orderItemRemark" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="255"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                        <xs:element name="options" minOccurs="0" maxOccurs="unbounded">
                                <xs:complexType>
                                        <xs:sequence>
                                                <xs:element ref="sps:Parameter"/>
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="deliveryMethod" type="DeliveryMethodType" minOccurs="0"/>
                        <xs:element name="packageMedium" type="PackageMedium" minOccurs="0"/>
                        <xs:element name="numberOfCopies" type="xs:int" minOccurs="0">
                                <xs:annotation>
                                        <xs:documentation>In case of mail delivery, the number of copies to be delivered can
be specified.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                        <xs:element name="payment" type="PaymentOptionSelectedValue" minOccurs="0"/>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ProductOrderItemType">
                <xs:complexContent>
                        <xs:extension base="CommonOrderItemType">
                                <xs:sequence>
                                        <xs:element ref="productOrderItemId"/>
                                        <xs:element name="sceneSelection" type="SceneSelectionType" minOccurs="0"/>
                                </xs:sequence>
                        </xs:extension>
                </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="SubscriptionOrderItemType">
                <xs:complexContent>
                        <xs:extension base="CommonOrderItemType">
                                <xs:sequence>
                                        <xs:element ref="subscriptionId"/>
                                </xs:sequence>
                        </xs:extension>
                </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="OrderItemIdType" abstract="false">
                <xs:annotation>
                        <xs:documentation>Root type of the hierarchy of order item identifiers</xs:documentation>
                </xs:annotation>
        </xs:complexType>
        <xs:element name="orderItemId" type="OrderItemIdType" abstract="true"/>
        <xs:element name="productOrderItemId" abstract="true" substitutionGroup="orderItemId"/>
        <xs:complexType name="ProductIdType">
                <xs:annotation>
                        <xs:documentation>Identifier of catalogued product</xs:documentation>
                </xs:annotation>
                <xs:complexContent>
                        <xs:extension base="OrderItemIdType">
                                <xs:sequence>
                                        <xs:element ref="identifier"/>
                                        <xs:element ref="collectionId" minOccurs="0"/>
                                </xs:sequence>
                        </xs:extension>
                </xs:complexContent>
        </xs:complexType>
        <xs:element name="productId" type="ProductIdType" substitutionGroup="productOrderItemId"/>
```

```
	<xs:complexType name="SubscriptionIdType">
		<xs:annotation>
			<xs:documentation>Identifier of subscription</xs:documentation>
		</xs:annotation>
		<xs:complexContent>
			<xs:extension base="OrderItemIdType">
				<xs:sequence>
					<xs:element ref="collectionId"/>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:complexType name="TaskingRequestIdType">
		<xs:complexContent>
			<xs:extension base="OrderItemIdType">
				<xs:sequence>
					<xs:element ref="sps:ID"/>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:element name="taskingRequestId" type="TaskingRequestIdType" substitutionGroup="productOrderItemId"/>
	<xs:element name="subscriptionId" type="SubscriptionIdType" substitutionGroup="orderItemId"/>
	<!-- ========================================================================= -->
	<!--======================          Order Item Monitor          ====================== -->
	<!-- ========================================================================= -->
	<xs:complexType name="CommonOrderStatusItemType">
		<xs:complexContent>
			<xs:extension base="CommonOrderItemType">
				<xs:sequence>
					<xs:element name="orderItemStatusInfo" type="StatusType" minOccurs="0"/>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:complexType name="ProductOrderStatusItemType">
		<xs:complexContent>
			<xs:extension base="CommonOrderStatusItemType">
				<xs:sequence>
					<xs:element ref="productOrderItemId"/>
					<xs:element name="sceneSelection" type="SceneSelectionType" minOccurs="0">
						<xs:annotation>
							<xs:documentation>This is an option for products
requests</xs:documentation>
						</xs:annotation>
					</xs:element>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<xs:complexType name="SubscriptionOrderStatusItemType">
		<xs:complexContent>
			<xs:extension base="CommonOrderStatusItemType">
				<xs:sequence>
					<xs:element ref="subscriptionId"/>
				</xs:sequence>
			</xs:extension>
		</xs:complexContent>
	</xs:complexType>
	<!-- ========================================================================= -->
	<!--====================       Order Options Definitions   ======================-->
	<!-- ========================================================================= -->
	<xs:simpleType name="PackageMedium">
		<xs:restriction base="xs:string">
			<xs:enumeration value="NTP"/>
			<xs:enumeration value="DAT"/>
			<xs:enumeration value="Exabyte"/>
```

```
                        <xs:enumeration value="CD-ROM"/>
                        <xs:enumeration value="DLT"/>
                        <xs:enumeration value="D1"/>
                        <xs:enumeration value="DVD"/>
                        <xs:enumeration value="file"/>
                        <xs:enumeration value="HDDVD"/>
                        <xs:enumeration value="BD"/>
                    </xs:restriction>
                </xs:simpleType>
                <xs:simpleType name="DeliveryMethodType">
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="mail"/>
                        <xs:enumeration value="ftp"/>
                        <xs:enumeration value="ftps"/>
                        <xs:enumeration value="sftp"/>
                        <xs:enumeration value="P2P"/>
                        <xs:enumeration value="wcs"/>
                        <xs:enumeration value="e-mail"/>
                        <xs:enumeration value="dds"/>
                    </xs:restriction>
                </xs:simpleType>
                <xs:complexType name="OrderOptionsRequestType">
                    <xs:complexContent>
                        <xs:extension base="OrderRequestBaseType">
                            <xs:sequence>
                                <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                                <xs:element name="userInformation" type="UserInformation" minOccurs="0"/>
                                <xs:choice>
                                    <xs:sequence>
                                        <xs:element ref="collectionId"/>
                                        <xs:element ref="identifier" minOccurs="0"
maxOccurs="unbounded"/>
                                    </xs:sequence>
                                    <xs:element ref="taskingRequestId"/>
                                </xs:choice>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="OrderOptionsResponseType">
                    <xs:complexContent>
                        <xs:extension base="OrderResponseBaseType">
                            <xs:sequence>
                                <xs:element ref="commonOrderOptions" minOccurs="0" maxOccurs="unbounded">
                                    <xs:annotation>
                                        <xs:documentation>This element is not set when status is failure.
It can be set if status is incomplete. It shall be set when status is success.</xs:documentation>
                                    </xs:annotation>
                                </xs:element>
                            </xs:sequence>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="CommonOrderOptionsType">
                    <xs:sequence>
                        <xs:element name="productOrderOptionsId">
                            <xs:simpleType>
                                <xs:restriction base="xs:string">
                                    <xs:maxLength value="40"/>
                                    <xs:minLength value="1"/>
                                </xs:restriction>
                            </xs:simpleType>
                        </xs:element>
                        <xs:element name="options" type="ParameterDescriptorType" minOccurs="0" maxOccurs="unbounded"/>
                        <xs:element name="productDeliveryOptions" maxOccurs="unbounded">
                            <xs:complexType>
                                <xs:sequence>
```

```
                                                <xs:element name="deliveryMethod" type="DeliveryMethodType"/>
                                                <xs:element name="packageMedium" type="PackageMedium"
maxOccurs="unbounded"/>
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="orderOptionInfoURL" type="xs:anyURI" minOccurs="0"/>
                        <xs:element name="paymentOptions" type="PaymentOptionDefinitionType" minOccurs="0"
maxOccurs="unbounded">
                                <xs:annotation>
                                        <xs:documentation>List of possible payment options for ordering the product. This
element is not specified if the payment options are defined in the user profile.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ProductOrderOptionsType">
                <xs:complexContent>
                        <xs:extension base="CommonOrderOptionsType">
                                <xs:sequence>
                                        <xs:element name="sceneSelectionOption" minOccurs="0"
maxOccurs="unbounded">
                                                <xs:complexType>
                                                        <xs:sequence>
                                                                <xs:element name="sceneType">
                                                                        <xs:simpleType>
                                                                                <xs:restriction base="xs:string">
                                                                                        <xs:maxLength
value="20"/>
                                                                                        <xs:minLength
value="1"/>
                                                                                </xs:restriction>
                                                                        </xs:simpleType>
                                                                </xs:element>
                                                        </xs:sequence>
                                                </xs:complexType>
                                        </xs:element>
                                </xs:sequence>
                        </xs:extension>
                </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="SubscriptionOrderOptionsType">
                <xs:complexContent>
                        <xs:extension base="CommonOrderOptionsType"/>
                </xs:complexContent>
        </xs:complexType>
        <xs:element name="commonOrderOptions" type="CommonOrderOptionsType" abstract="true"/>
        <xs:element name="subscriptionOrderOptions" type="SubscriptionOrderOptionsType"
substitutionGroup="commonOrderOptions"/>
        <xs:element name="productOrderOptions" type="ProductOrderOptionsType" substitutionGroup="commonOrderOptions"/>
        <xs:complexType name="PaymentOptionDefinitionType">
                <xs:sequence>
                        <xs:element ref="paymentMethod"/>
                        <xs:element name="paymentOptionInfoURL" type="xs:anyURI" minOccurs="0"/>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ParameterDescriptorType">
                <xs:complexContent>
                        <xs:extension base="sps:ParameterDescriptorType">
                                <xs:sequence>
                                        <xs:element ref="identifier" minOccurs="0"/>
                                        <xs:element name="grouping" minOccurs="0">
                                                <xs:annotation>
                                                        <xs:documentation>It identifies the group the option belong to
e.g. processing option, etc.</xs:documentation>
                                                </xs:annotation>
                                                <xs:simpleType>
```

```
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="40"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                    </xs:sequence>
                                </xs:extension>
                            </xs:complexContent>
                        </xs:complexType>
                        <!-- ========================================================================== -->
                        <!--============   Order Quotation Definitions   =========================-->
                        <!-- ========================================================================== -->
                        <xs:complexType name="GetQuotationRequestType">
                            <xs:complexContent>
                                <xs:extension base="OrderRequestBaseType">
                                    <xs:sequence>
                                        <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                                        <xs:element name="userInformation" type="UserInformation"/>
                                        <xs:choice>
                                            <xs:element ref="orderSpecification">
                                                <xs:annotation>
                                                    <xs:documentation>This choice is set for getting the
quotation of an order.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                            <xs:element name="quotationId" type="QuotationIdType">
                                                <xs:annotation>
                                                    <xs:documentation>This choice is set when quotation
monitoring is supported and a quotation request has been already submitted.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                        </xs:choice>
                                    </xs:sequence>
                                </xs:extension>
                            </xs:complexContent>
                        </xs:complexType>
                        <xs:complexType name="GetQuotationAckType">
                            <xs:complexContent>
                                <xs:extension base="OrderResponseBaseType">
                                    <xs:sequence minOccurs="0">
                                        <xs:annotation>
                                            <xs:documentation>The element is set when status is different from
failure.</xs:documentation>
                                        </xs:annotation>
                                        <xs:choice>
                                            <xs:element name="quotationId" type="QuotationIdType">
                                                <xs:annotation>
                                                    <xs:documentation>This choice is set in case of non
sync quotations.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                            <xs:element name="quotation" type="OrderQuotation">
                                                <xs:annotation>
                                                    <xs:documentation>This choice is set in case of
synchronous quotations or as answer to quotation monitoring.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                        </xs:choice>
                                    </xs:sequence>
                                </xs:extension>
                            </xs:complexContent>
                        </xs:complexType>
                        <xs:complexType name="GetQuotationResponseRequestType">
                            <xs:complexContent>
                                <xs:extension base="OrderRequestBaseType">
                                    <xs:sequence>
                                        <xs:element name="status" type="OrderResponseStatusType" nillable="false"/>
```

```
                                        <xs:element name="errorMessage" minOccurs="0">
                                                <xs:annotation>
                                                        <xs:documentation>This field is set when status element is
different from success. It provides some information about the occurred problem.</xs:documentation>
                                                </xs:annotation>
                                                <xs:simpleType>
                                                        <xs:restriction base="xs:string">
                                                                <xs:maxLength value="255"/>
                                                        </xs:restriction>
                                                </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="quotation" type="OrderQuotation"/>
                                </xs:sequence>
                        </xs:extension>
                </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="GetQuotationResponseAckType">
                <xs:complexContent>
                        <xs:extension base="OrderResponseBaseType"/>
                </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="OrderQuotation">
                <xs:sequence>
                        <xs:element name="quotationId" type="QuotationIdType"/>
                        <xs:element name="validityTime" type="xs:dateTime" minOccurs="0"/>
                        <xs:element name="price" type="CurrencyType" minOccurs="0">
                                <xs:annotation>
                                        <xs:documentation>Price of the whole order; mandatory unless the provider uses
quota concept or products are free of charge.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                        <xs:element name="orderItemGroupPrice" type="OrderItemGroupPrice" maxOccurs="unbounded"/>
                        <xs:element ref="contractInformation" minOccurs="0"/>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="OrderItemGroupPrice">
                <xs:sequence>
                        <xs:element name="provider" type="ProviderType"/>
                        <xs:element name="quotationId" type="QuotationIdType" minOccurs="0"/>
                        <xs:element name="validityTime" type="xs:dateTime" minOccurs="0"/>
                        <xs:element name="price" type="CurrencyType">
                                <xs:annotation>
                                        <xs:documentation>Price of the whole order item gruop; mandatory unless the
provider uses quota concept or products are free of charge.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                        <xs:element name="balance" type="CurrencyType" minOccurs="0"/>
                        <xs:element name="orderItemPrice" type="OrderItemPrice" maxOccurs="unbounded"/>
                        <xs:element ref="contractInformation" minOccurs="0"/>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="OrderItemPrice">
                <xs:sequence>
                        <xs:element ref="itemId">
                                <xs:annotation>
                                        <xs:documentation>string identifying the order item within the whole
order.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                        <xs:element ref="orderItemId"/>
                        <xs:element name="price" type="CurrencyType" minOccurs="0">
                                <xs:annotation>
                                        <xs:documentation>Price of the item; is optional if the price at group level is provided;
not supported in case the provider uses quota concept or products are free of charge.</xs:documentation>
                                </xs:annotation>
                        </xs:element>
                        <xs:element ref="contractInformation" minOccurs="0"/>
```

```
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="CurrencyType">
            <xs:sequence>
                <xs:element name="value" type="xs:double"/>
                <xs:element name="currency">
                    <xs:annotation>
                        <xs:documentation>Currency including ISO 4217 (e.g.: EUR, USD (US Dollar), CAD (Canada Dollar), AUD (Australia Dollar), GBP (United Kindom Pounds), etc.) and also special values for representing quota.</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="10"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ProviderType">
            <xs:sequence>
                <xs:element name="serviceName">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="40"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="organization">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="40"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:simpleType name="QuotationIdType">
            <xs:restriction base="xs:anyURI"/>
        </xs:simpleType>
        <!-- ========================================================================= -->
        <!--=============   DescribeResultAccess Definitions   ========================-->
        <!-- ========================================================================= -->
        <xs:complexType name="DescribeResultAccessRequestType">
            <xs:complexContent>
                <xs:extension base="OrderRequestBaseType">
                    <xs:sequence>
                        <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                        <xs:element name="userInformation" type="UserInformation"/>
                        <xs:element ref="orderId"/>
                        <xs:choice>
                            <xs:element name="allReady" type="xs:boolean"/>
                            <xs:element name="nextReady" type="xs:boolean"/>
                        </xs:choice>
                    </xs:sequence>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="DescribeResultAccessResponseType">
            <xs:complexContent>
                <xs:extension base="OrderResponseBaseType">
                    <xs:sequence>
                        <xs:element name="URLs" type="ItemURLType" maxOccurs="unbounded"/>
                    </xs:sequence>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
```

```
<!-- ========================================================================== -->
<!--Generic Definitions-->
<!-- ========================================================================== -->
<xs:complexType name="UserInformation">
	<xs:sequence>
		<xs:element name="userId">
			<xs:simpleType>
				<xs:restriction base="xs:string">
					<xs:minLength value="1"/>
					<xs:maxLength value="20"/>
				</xs:restriction>
			</xs:simpleType>
		</xs:element>
	</xs:sequence>
</xs:complexType>
<xs:simpleType name="EnumStatusType">
	<xs:restriction base="xs:string">
		<xs:enumeration value="BeingEstimated"/>
		<xs:enumeration value="Estimated"/>
		<xs:enumeration value="Cancelled"/>
		<xs:enumeration value="Completed"/>
	</xs:restriction>
</xs:simpleType>
<xs:complexType name="StatusType">
	<xs:sequence>
		<xs:element name="status" type="EnumStatusType"/>
		<xs:element name="additionalStatusInfo" minOccurs="0">
			<xs:simpleType>
				<xs:restriction base="xs:string">
					<xs:minLength value="1"/>
					<xs:maxLength value="255"/>
				</xs:restriction>
			</xs:simpleType>
		</xs:element>
		<xs:element name="missionSpecificStatusInfo" minOccurs="0">
			<xs:simpleType>
				<xs:restriction base="xs:string">
					<xs:maxLength value="255"/>
				</xs:restriction>
			</xs:simpleType>
		</xs:element>
	</xs:sequence>
</xs:complexType>
<xs:complexType name="SceneSelectionType">
	<xs:sequence>
		<xs:element name="sceneType">
			<xs:simpleType>
				<xs:restriction base="xs:string">
					<xs:maxLength value="20"/>
				</xs:restriction>
			</xs:simpleType>
		</xs:element>
		<xs:element name="sceneCoordinates">
			<xs:complexType>
				<xs:choice>
					<xs:element ref="gml:Point"/>
					<xs:element ref="gml:Polygon"/>
					<xs:element ref="gml:Rectangle"/>
				</xs:choice>
			</xs:complexType>
		</xs:element>
		<xs:element name="albumExtract" minOccurs="0">
			<xs:annotation>
				<xs:documentation>source data extract defined by its bounding box with album
catalog coordinates (impossible for mosaic or cropping)</xs:documentation>
			</xs:annotation>
			<xs:complexType>
```

```
                                        <xs:sequence>
                                                <xs:element name="firstRow" type="xs:int"/>
                                                <xs:element name="nbRow" type="xs:int"/>
                                                <xs:element name="firstCol" type="xs:int"/>
                                                <xs:element name="nbCol" type="xs:int"/>
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="temporalSelection" minOccurs="0">
                                <xs:complexType>
                                        <xs:sequence>
                                                <xs:element name="startDateTime" type="xs:dateTime"/>
                                                <xs:element name="endDateTime" type="xs:dateTime"/>
                                        </xs:sequence>
                                </xs:complexType>
                        </xs:element>
                        <xs:element name="scenePosition" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="40"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                        <xs:element name="sceneSize" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="40"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="DeliveryInformationType">
                <xs:sequence>
                        <xs:element name="mail" type="DeliveryAddressType" minOccurs="0"/>
                        <xs:element name="e-mail" minOccurs="0">
                                <xs:annotation>
                                        <xs:documentation>E-mail address of the issuer of the request</xs:documentation>
                                </xs:annotation>
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="40"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                        <xs:element name="receiverAddress" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:maxLength value="20"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                </xs:sequence>
        </xs:complexType>
        <xs:complexType name="DeliveryAddressType">
                <xs:sequence>
                        <xs:element name="recipient" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
                                                <xs:minLength value="1"/>
                                                <xs:maxLength value="40"/>
                                        </xs:restriction>
                                </xs:simpleType>
                        </xs:element>
                        <xs:element name="companyRef" minOccurs="0">
                                <xs:simpleType>
                                        <xs:restriction base="xs:string">
```

```
                                        <xs:minLength value="1"/>
                                        <xs:maxLength value="40"/>
                                    </xs:restriction>
                                </xs:simpleType>
                            </xs:element>
                            <xs:element name="postalAddress" minOccurs="0">
                                <xs:complexType>
                                    <xs:sequence>
                                        <xs:element name="streetAddress">
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="40"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="city">
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="40"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="state">
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="40"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="postalCode">
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="12"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="country">
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="40"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                        <xs:element name="postBox">
                                            <xs:annotation>
                                                <xs:documentation>only number part, only digits
allowed</xs:documentation>
                                            </xs:annotation>
                                            <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                    <xs:maxLength value="12"/>
                                                </xs:restriction>
                                            </xs:simpleType>
                                        </xs:element>
                                    </xs:sequence>
                                </xs:complexType>
                            </xs:element>
                            <xs:element name="telNumber" minOccurs="0">
                                <xs:annotation>
                                    <xs:documentation>including country code, prefix, without special sign or
intermediate blanks</xs:documentation>
                                </xs:annotation>
                                <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                        <xs:minLength value="1"/>
                                        <xs:maxLength value="18"/>
                                    </xs:restriction>
```

```
                                        </xs:simpleType>
                                </xs:element>
                                <xs:element name="faxNumber" minOccurs="0">
                                        <xs:annotation>
                                                <xs:documentation>including country code, prefix, without special sign or
intermediate blanks</xs:documentation>
                                        </xs:annotation>
                                        <xs:simpleType>
                                                <xs:restriction base="xs:string">
                                                        <xs:maxLength value="18"/>
                                                        <xs:minLength value="1"/>
                                                </xs:restriction>
                                        </xs:simpleType>
                                </xs:element>
                        </xs:sequence>
                </xs:complexType>
                <xs:complexType name="CancelRequestType">
                        <xs:complexContent>
                                <xs:extension base="OrderRequestBaseType">
                                        <xs:sequence>
                                                <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                                                <xs:element ref="orderId"/>
                                                <xs:element name="userInformation" type="UserInformation"/>
                                                <xs:element ref="statusNotification"/>
                                        </xs:sequence>
                                </xs:extension>
                        </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="CancelRequestAckType">
                        <xs:complexContent>
                                <xs:extension base="OrderResponseBaseType"/>
                        </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="StatusNotificationType">
                        <xs:complexContent>
                                <xs:extension base="OrderRequestBaseType">
                                        <xs:sequence>
                                                <xs:element name="timeStamp" type="xs:dateTime" minOccurs="0"/>
                                                <xs:element ref="orderMonitorSpecification"/>
                                        </xs:sequence>
                                </xs:extension>
                        </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="StatusNotificationAckType">
                        <xs:complexContent>
                                <xs:extension base="OrderResponseBaseType"/>
                        </xs:complexContent>
                </xs:complexType>
                <xs:complexType name="ItemURLType">
                        <xs:sequence>
                                <xs:element ref="itemId"/>
                                <xs:element name="url" type="xs:anyURI"/>
                                <xs:element name="expirationDate" type="xs:dateTime" minOccurs="0"/>
                        </xs:sequence>
                </xs:complexType>
                <!-- ========================================================================== -->
                <!--========================== Simple Types-->
                <!-- ========================================================================== -->
                <xs:simpleType name="EnumPackagingType">
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="zip"/>
                                <xs:enumeration value="tar"/>
                                <xs:enumeration value="tgz"/>
                        </xs:restriction>
                </xs:simpleType>
                <xs:simpleType name="DateTimeTypes">
                        <xs:union memberTypes="xs:date xs:dateTime"/>
```

```
	</xs:simpleType>
	<xs:simpleType name="OrderResponseStatusType">
		<xs:restriction base="xs:string">
			<xs:enumeration value="success"/>
			<xs:enumeration value="partial"/>
			<xs:enumeration value="failure"/>
		</xs:restriction>
	</xs:simpleType>
	<xs:simpleType name="PresentationType">
		<xs:restriction base="xs:string">
			<xs:enumeration value="brief"/>
			<xs:enumeration value="full"/>
		</xs:restriction>
	</xs:simpleType>
	<!-- ========================================================================== -->
	<!-- ========================================================================== -->
	<!--Types & Elements taken from hma.xsd-->
	<!-- ========================================================================== -->
	<!-- ========================================================================== -->
	<xs:complexType name="CodeWithAuthorityType">
		<xs:simpleContent>
			<xs:extension base="xs:string">
				<xs:attribute name="codeSpace" type="xs:anyURI" use="required"/>
			</xs:extension>
		</xs:simpleContent>
	</xs:complexType>
	<xs:element name="identifier" type="CodeWithAuthorityType"/>
	<xs:element name="itemId">
		<xs:annotation>
			<xs:documentation>string identifying the order item within the order.</xs:documentation>
		</xs:annotation>
		<xs:simpleType>
			<xs:restriction base="xs:string">
				<xs:minLength value="1"/>
				<xs:maxLength value="80"/>
			</xs:restriction>
		</xs:simpleType>
	</xs:element>
	<xs:element name="paymentMethod">
		<xs:annotation>
			<xs:documentation>Examples:, invoice, prepay (to be indicated for free products), deposit account, credit
card, credit card previously supplied</xs:documentation>
		</xs:annotation>
		<xs:simpleType>
			<xs:restriction base="xs:string">
				<xs:minLength value="1"/>
				<xs:maxLength value="40"/>
			</xs:restriction>
		</xs:simpleType>
	</xs:element>
	<xs:element name="contractInformation">
		<xs:simpleType>
			<xs:restriction base="xs:string">
				<xs:maxLength value="1024"/>
			</xs:restriction>
		</xs:simpleType>
	</xs:element>
</xs:schema>
```

APPENDIX B WSDL Specification (Informative)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--:  Order.wsdl  Type:  XML instance of W3C WSDL 1.1 Schema  :  07 May 2007:  WSDL file for HMA Order service  :
Order.xsd  :  Marchionni Daniele  :  V1.2
-->
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://earth.esa.int/hma/ordering" xmlns:ns1="http://www.w3.org/2001/XMLSchema"
xmlns:wsa="http://www.w3.org/2005/08/addressing" xmlns:ns="http://www.isotc211.org/2005/gco"
xmlns:ns2="http://www.isotc211.org/2005/gmd" xmlns:ns3="http://www.isotc211.org/2005/gsr"
xmlns:ns4="http://www.isotc211.org/2005/gss" xmlns:ns5="http://www.isotc211.org/2005/gts" xmlns:ns6="http://www.opengis.net/gml"
xmlns:ns7="http://www.opengis.net/ows" xmlns:ns8="http://www.opengis.net/sps/0" xmlns:ns9="http://www.opengis.net/swe/0.0"
xmlns:ns10="http://www.opengis.net/swe/st/0" targetNamespace="http://earth.esa.int/hma/ordering">
        <types>
                <schema attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://schemas.xmlsoap.org/wsdl/" xmlns="http://www.w3.org/2001/XMLSchema">
                        <import namespace="http://earth.esa.int/hma/ordering" schemaLocation="Order.xsd"/>
                        <import namespace="http://www.w3.org/2005/08/addressing" schemaLocation="..\ws-addressing\ws-
addr.xsd"/>
                </schema>
        </types>
        <message name="GetCapabilitiesRequest">
                <part name="parameter" element="tns:GetCapabilities"/>
        </message>
        <message name="GetCapabilitiesResponse">
                <part name="parameter" element="tns:Capabilities"/>
        </message>
        <message name="getOptionsRequest">
                <part name="GetOptionsRequestParameter" element="tns:GetOptions"/>
        </message>
        <message name="getOptionsResponse">
                <part name="GetOptionsResponseParameter" element="tns:GetOptionsResponse"/>
        </message>
        <message name="getQuotationRequest">
                <part name="GetQuotationRequestParameter" element="tns:GetQuotation"/>
        </message>
        <message name="getQuotationAck">
                <part name="GetQuotationAckParameter" element="tns:GetQuotationAck"/>
        </message>
        <message name="getQuotationResponse">
                <part name="GetQuotationResponseParameter" element="tns:GetQuotationResponse"/>
        </message>
        <message name="getQuotationResponseAck">
                <part name="GetQuotationResponseAckParameter" element="tns:GetQuotationResponseAck"/>
        </message>
        <message name="submitRequest">
                <part name="SubmitRequestParameter" element="tns:Submit"/>
        </message>
        <message name="submitAck">
                <part name="SubmitAckParameter" element="tns:SubmitAck"/>
        </message>
        <message name="submitResponse">
                <part name="SubmitResponseParameter" element="tns:SubmitResponse"/>
        </message>
        <message name="submitResponseAck">
                <part name="SubmitResponseAckParameter" element="tns:SubmitResponseAck"/>
        </message>
        <message name="getStatusRequest">
                <part name="GetStatusRequestParameter" element="tns:GetStatus"/>
        </message>
        <message name="getStatusResponse">
                <part name="GetStatusResponseParameter" element="tns:GetStatusResponse"/>
        </message>
        <message name="cancelRequest">
                <part name="CancelRequestParameter" element="tns:Cancel"/>
        </message>
```

```
<message name="cancelAck">
        <part name="CancelAckParameter" element="tns:CancelAck"/>
</message>
<message name="cancelResponse">
        <part name="CancelResponseParameter" element="tns:CancelResponse"/>
</message>
<message name="cancelResponseAck">
        <part name="CancelResponseAckParameter" element="tns:CancelResponseAck"/>
</message>
<message name="describeResultAccess">
        <part name="DescribeResultAccessParameter" element="tns:DescribeResultAccess"/>
</message>
<message name="describeResultAccessResponse">
        <part name="DescribeResultAccessResponseParameter" element="tns:DescribeResultAccessResponse"/>
</message>
<message name="StartHeader">
        <part name="MessageID" element="wsa:MessageID"/>
        <part name="ReplyTo" element="wsa:ReplyTo"/>
</message>
<message name="ContinueHeader">
        <part name="RelatesTo" element="wsa:RelatesTo"/>
</message>
<portType name="SOAPport">
        <operation name="GetCapabilities">
                <input message="tns:GetCapabilitiesRequest"/>
                <output message="tns:GetCapabilitiesResponse"/>
        </operation>
        <operation name="GetOptions">
                <input message="tns:getOptionsRequest"/>
                <output message="tns:getOptionsResponse"/>
        </operation>
        <operation name="GetQuotation">
                <input message="tns:getQuotationRequest"/>
                <output message="tns:getQuotationAck"/>
        </operation>
        <operation name="GetQuotationResponse">
                <input message="tns:getQuotationResponse"/>
                <output message="tns:getQuotationResponseAck"/>
        </operation>
        <operation name="Submit">
                <input message="tns:submitRequest"/>
                <output message="tns:submitAck"/>
        </operation>
        <operation name="SubmitResponse">
                <input message="tns:submitResponse"/>
                <output message="tns:submitResponseAck"/>
        </operation>
        <operation name="GetStatus">
                <input message="tns:getStatusRequest"/>
                <output message="tns:getStatusResponse"/>
        </operation>
        <operation name="Cancel">
                <input message="tns:cancelRequest"/>
                <output message="tns:cancelAck"/>
        </operation>
        <operation name="CancelResponse">
                <input message="tns:cancelResponse"/>
                <output message="tns:cancelResponseAck"/>
        </operation>
        <operation name="DescribeResultAccess">
                <input message="tns:describeResultAccess"/>
                <output message="tns:describeResultAccessResponse"/>
        </operation>
</portType>
<binding name="HMA_OrderingBinding" type="tns:SOAPport">
        <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
        <operation name="GetCapabilities">
```

```
            <soap:operation soapAction="GetCapabilities"/>
            <input>
                  <soap:body use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="GetOptions">
            <soap:operation soapAction="GetOptions"/>
            <input>
                  <soap:body use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="GetQuotation">
            <soap:operation soapAction="GetQuotation"/>
            <input>
                  <soap:body use="literal"/>
                  <soap:header message="StartHeader" part="ReplyTo" use="literal"/>
                  <soap:header message="StartHeader" part="MessageID" use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="GetQuotationResponse">
            <soap:operation soapAction="GetQuotation"/>
            <input>
                  <soap:body use="literal"/>
                  <soap:header message="ContinueHeader" part="RelatesTo" use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="Submit">
            <soap:operation soapAction="Submit"/>
            <input>
                  <soap:body use="literal"/>
                  <soap:header message="StartHeader" part="ReplyTo" use="literal"/>
                  <soap:header message="StartHeader" part="MessageID" use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="SubmitResponse">
            <soap:operation soapAction="SubmitResponse"/>
            <input>
                  <soap:body use="literal"/>
                  <soap:header message="ContinueHeader" part="RelatesTo" use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
</operation>
<operation name="GetStatus">
            <soap:operation soapAction="GetStatus"/>
            <input>
                  <soap:body use="literal"/>
            </input>
            <output>
                  <soap:body use="literal"/>
            </output>
```

```
		</operation>
		<operation name="Cancel">
			<soap:operation soapAction="Cancel"/>
			<input>
				<soap:body use="literal"/>
				<soap:header message="StartHeader" part="ReplyTo" use="literal"/>
				<soap:header message="StartHeader" part="MessageID" use="literal"/>
			</input>
			<output>
				<soap:body use="literal"/>
			</output>
		</operation>
		<operation name="CancelResponse">
			<soap:operation soapAction="CancelResponse"/>
			<input>
				<soap:body use="literal"/>
				<soap:header message="ContinueHeader" part="RelatesTo" use="literal"/>
			</input>
			<output>
				<soap:body use="literal"/>
			</output>
		</operation>
		<operation name="DescribeResultAccess">
			<soap:operation soapAction="DescribeResultAccess"/>
			<input>
				<soap:body use="literal"/>
			</input>
			<output>
				<soap:body use="literal"/>
			</output>
		</operation>
	</binding>
	<service name="HMA_OrderingService">
		<port name="HMA_OrderingServicePort" binding="tns:HMA_OrderingBinding">
			<soap:address location="http://earth.esa.int/"/>
		</port>
	</service>
	<!-- Modified import schema in order to define this WSDL as  WS-I Basic Profile compliant -->
</definitions>
```

APPENDIX C Examples

C.1 GetCapabilities

C.1.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:m0="http://www.opengis.net/ows">
        <SOAP-ENV:Body>
                <GetCapabilities xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" updateSequence=""
service="OS">
                        <m0:AcceptVersions>
                                <m0:Version>1.0.0</m0:Version>
                        </m0:AcceptVersions>
                </GetCapabilities>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.1.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:m0="http://www.opengeospatial.net/ows">
        <SOAP-ENV:Body>
                <Capabilities xmlns:ows="http://www.opengis.net/ows" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" version="0.00.00">
                        <ows:ServiceIdentification>
                                <ows:Title>ESA Order Service</ows:Title>
                                <ows:Abstract>Service for ordering Earth observation products</ows:Abstract>
                                <ows:Keywords>
                                        <ows:Keyword>OS</ows:Keyword>
                                        <ows:Type codeSpace="http://www.xmlspy.com">String</ows:Type>
                                </ows:Keywords>
                                <ows:ServiceType codeSpace="http://www.xmlspy.com">OGC:OS</ows:ServiceType>
                                <ows:ServiceTypeVersion>0.01.00</ows:ServiceTypeVersion>
                                <ows:Fees>NONE</ows:Fees>
                                <ows:AccessConstraints>NONE</ows:AccessConstraints>
                        </ows:ServiceIdentification>
                        <ows:ServiceProvider>
                                <ows:ProviderName>ESA EECF</ows:ProviderName>
                                <ows:ProviderSite/>
                                <ows:ServiceContact>
                                        <ows:IndividualName>John Smith</ows:IndividualName>
                                        <ows:PositionName>EO Help Desk Operator</ows:PositionName>
                                        <ows:ContactInfo>
                                                <ows:Phone>
                                                        <ows:Voice>+39 06 90 180 999</ows:Voice>
                                                </ows:Phone>
                                        </ows:ContactInfo>
                                        <ows:Role codeSpace="http://www.xmlspy.com">String</ows:Role>
                                </ows:ServiceContact>
                        </ows:ServiceProvider>
                        <ows:OperationsMetadata>
                                <ows:Operation name="GetCapabilities">
                                        <ows:DCP>
                                                <ows:HTTP>
                                                        <ows:Post xlink:href="http://earth.esa.int"/>
```

```
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="GetOptions">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="GetQuotation">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="Submit">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="GetStatus">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="Cancel">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                                <ows:Operation name="DescribeResultAccess">
                                    <ows:DCP>
                                        <ows:HTTP>
                                            <ows:Post xlink:href="http://earth.esa.int"/>
                                        </ows:HTTP>
                                    </ows:DCP>
                                </ows:Operation>
                            </ows:OperationsMetadata>
                            <Contents>
                                <GetQuotationCapabilities asynchronous="true" monitoring="false" off-line="false"
supported="true" synchronous="true"/>
                                <FutureProductsOrdering supported="true" SPS_URL="http://hma.esa.int/programming"/>
                                <SupportedCollections>
                                    <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                    <                >ESA.EECF.ENVISAT_ASA_IMx_xF</                >
                                </SupportedCollections>
                            </Contents>
                        </Capabilities>
                    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.2 GetOptions

C.2.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <GetOptions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS" version="1.2.0">
                        <userInformation>
                                <userId>itma0001</userId>
                        </userInformation>
                        <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                </GetOptions>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.2.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <GetOptionsResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xmlns:sps="http://www.opengis.net/sps/0" xmlns:swe="http://www.opengis.net/swe/0.0"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                        <productOrderOptions>
                                <productOrderOptionsId>Level 1,Product PRI (ASA_IMP)</productOrderOptionsId>
                                <options parameterID="processingLevel" use="required" updateable="false">
                                        <sps:Description>Product Level.</sps:Description>
                                        <sps:definition>
                                                <sps:commonData>
                                                        <swe:Category>
                                                                <                >
                                                                        <swe:AllowedTokens>

        <swe:valueList>1B</swe:valueList>
                                                                        </swe:AllowedTokens>
                                                                </swe:constraint>
                                                        </swe:Category>
                                                </                >
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                </options>
                                <options parameterID="productType" use="required" updateable="false">
                                        <sps:Description>Product type.</sps:Description>
                                        <sps:definition>
                                                <sps:commonData>
                                                        <swe:Category>
                                                                <swe:constraint>
                                                                        <swe:AllowedTokens>

        <swe:valueList>ASA_IMP_1P</swe:valueList>
                                                                        </swe:AllowedTokens>
                                                                </swe:constraint>
                                                        </swe:Category>
                                                </sps:commonData>
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                </options>
                                <options parameterID="qualityOfService" use="required" updateable="false">
                                        <sps:Description>.</sps:Description>
                                        <sps:definition>
```

```
                                                <sps:commonData>
                                                        <swe:Category>
                                                                <swe:constraint>
                                                                        <swe:AllowedTokens>
                                                                                <swe:valueList>STANDARD NRT
RUSH</swe:valueList>
                                                                        </swe:AllowedTokens>
                                                                </swe:constraint>
                                                        </swe:Category>
                                                </sps:commonData>
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                </options>
                                <!-- ================================================================ -->
                                <!-- Example of complex option (suggested by Eumetsat AR#24) -->
                                <!-- ================================================================ -->
                                <options parameterID="spectralBandColorComposition" use="required" updateable="false">
                                        <sps:Description>A user can pick out of 12 bands 3 bands. A color can be assigned
to a band (R,G,B). This is to allow a user to form a composite colored image</sps:Description>
                                        <sps:definition>
                                                <sps:commonData>
                                                        <swe:DataRecord>
                                                                <swe:field name="RedBand">
                                                                        <swe:Category>
                                                                                <swe:constraint>
                                                                                        <swe:AllowedTokens>

        <swe:valueList>band1 band2 band3 band4 band5 band6 band7 band8 band9 band10 band11 band12</swe:valueList>
                                                                                        </swe:AllowedTokens>
                                                                                </swe:constraint>
                                                                        </swe:Category>
                                                                </swe:field>
                                                                <swe:field name="GreenBand">
                                                                        <swe:Category>
                                                                                <swe:constraint>
                                                                                        <swe:AllowedTokens>

        <swe:valueList>band1 band2 band3 band4 band5 band6 band7 band8 band9 band10 band11 band12</swe:valueList>
                                                                                        </swe:AllowedTokens>
                                                                                </swe:constraint>
                                                                        </swe:Category>
                                                                </swe:field>
                                                                <swe:field name="BlueBand">
                                                                        <swe:Category>
                                                                                <swe:constraint>
                                                                                        <swe:AllowedTokens>

        <swe:valueList>band1 band2 band3 band4 band5 band6 band7 band8 band9 band10 band11 band12</swe:valueList>
                                                                                        </swe:AllowedTokens>
                                                                                </swe:constraint>
                                                                        </swe:Category>
                                                                </swe:field>
                                                        </swe:DataRecord>
                                                </                      >
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                </options>
                                <productDeliveryOptions>
                                        <deliveryMethod>mail</deliveryMethod>
                                        <packageMedium>CD-ROM</packageMedium>
                                </productDeliveryOptions>

        <orderOptionInfoURL>http://www.provider.com/envisat/orderoptions.html</orderOptionInfoURL>
                                <paymentOptions>
                                        <paymentMethod>quota</paymentMethod>
                                </paymentOptions>
```

```
                                        <sceneSelectionOption>
                                                <sceneType>Floating</sceneType>
                                        </sceneSelectionOption>
                                </productOrderOptions>
                                <productOrderOptions>
                                        <productOrderOptionsId>Level 1,Product GEC (ASA_IMG)</productOrderOptionsId>
                                        <options parameterID="processingLevel" use="required" updateable="false">
                                                <sps:Description>Product Level.</sps:Description>
                                                <sps:definition>
                                                        <sps:commonData>
                                                                <swe:Category>
                                                                        <swe:constraint>
                                                                                <swe:AllowedTokens>

        <swe:valueList>1B</swe:valueList>
                                                                                </swe:AllowedTokens>
                                                                        </swe:constraint>
                                                                </swe:Category>
                                                        </sps:commonData>
                                                </sps:definition>
                                                <sps:cardinality>1</sps:cardinality>
                                                <grouping>Processing Option</grouping>
                                        </options>
                                        <options parameterID="productType" use="required" updateable="false">
                                                <sps:Description>Product type.</sps:Description>
                                                <sps:definition>
                                                        <sps:commonData>
                                                                <swe:Category>
                                                                        <swe:constraint>
                                                                                <swe:AllowedTokens>

        <swe:valueList>ASA_IMG_1P</swe:valueList>
                                                                                </swe:AllowedTokens>
                                                                        </swe:constraint>
                                                                </swe:Category>
                                                        </sps:commonData>
                                                </sps:definition>
                                                <sps:cardinality>1</sps:cardinality>
                                                <           >Processing Option</           >
                                        </options>
                                        <options parameterID="qualityOfService" use="required" updateable="false">
                                                <sps:Description>.</sps:Description>
                                                <sps:definition>
                                                        <sps:commonData>
                                                                <                >
                                                                        <swe:constraint>
                                                                                <swe:AllowedTokens>
                                                                                        <swe:valueList>STANDARD NRT
RUSH</swe:valueList>
                                                                                </swe:AllowedTokens>
                                                                        </swe:constraint>
                                                                </                >
                                                        </sps:commonData>
                                                </sps:definition>
                                                <sps:cardinality>1</sps:cardinality>
                                                <grouping>Processing Option</grouping>
                                        </options>
                                        <                        >
                                                <deliveryMethod>mail</deliveryMethod>
                                                <packageMedium>CD-ROM</packageMedium>
                                        </productDeliveryOptions>

        <orderOptionInfoURL>http://www.provider.com/envisat/orderoptions.html</orderOptionInfoURL>
                                        <paymentOptions>
                                                <paymentMethod>quota</paymentMethod>
                                        </paymentOptions>
                                        <sceneSelectionOption>
```

```
                                        <sceneType>Floating</sceneType>
                                    </sceneSelectionOption>
                                </productOrderOptions>
                                <productOrderOptions>
                                    <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
                                    <options parameterID="processingLevel" use="required" updateable="false">
                                        <sps:Description>Product Level.</sps:Description>
                                        <sps:definition>
                                            <sps:commonData>
                                                <swe:Category>
                                                    <swe:constraint>
                                                        <swe:AllowedTokens>

        <swe:valueList>1B</swe:valueList>
                                                        </swe:AllowedTokens>
                                                    </swe:constraint>
                                                </swe:Category>
                                            </sps:commonData>
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                    </options>
                                    <options parameterID="productType" use="required" updateable="false">
                                        <sps:Description>Product type.</sps:Description>
                                        <sps:definition>
                                            <sps:commonData>
                                                <swe:Category>
                                                    <swe:constraint>
                                                        <swe:AllowedTokens>

        <swe:valueList>ASA_IMS_1P</swe:valueList>
                                                        </swe:AllowedTokens>
                                                    </swe:constraint>
                                                </swe:Category>
                                            </sps:commonData>
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                    </options>
                                    <options parameterID="qualityOfService" use="required" updateable="false">
                                        <sps:Description>.</sps:Description>
                                        <sps:definition>
                                            <sps:commonData>
                                                <swe:Category>
                                                    <swe:constraint>
                                                        <swe:AllowedTokens>
                                                            <swe:valueList>STANDARD NRT
RUSH</swe:valueList>
                                                        </swe:AllowedTokens>
                                                    </swe:constraint>
                                                </swe:Category>
                                            </sps:commonData>
                                        </sps:definition>
                                        <sps:cardinality>1</sps:cardinality>
                                        <grouping>Processing Option</grouping>
                                    </options>
                                    <productDeliveryOptions>
                                        <deliveryMethod>mail</deliveryMethod>
                                        <packageMedium>CD-ROM</packageMedium>
                                    </productDeliveryOptions>

        <orderOptionInfoURL>http://www.provider.com/envisat/orderoptions.html</orderOptionInfoURL>
                                    <paymentOptions>
                                        <paymentMethod>quota</paymentMethod>
                                    </paymentOptions>
                                    <sceneSelectionOption>
                                        <sceneType>Floating</sceneType>
```

```
                    </sceneSelectionOption>
                </productOrderOptions>
                <productOrderOptions>
                    <productOrderOptionsId>Level 1,Product MRI (ASA_IMM)</productOrderOptionsId>
                    <options parameterID="processingLevel" use="required" updateable="false">
                        <sps:Description>Product Level.</sps:Description>
                        <sps:definition>
                            <sps:commonData>
                                <swe:Category>
                                    <swe:constraint>
                                        <swe:AllowedTokens>

        <swe:valueList>1B</swe:valueList>
                                        </swe:AllowedTokens>
                                    </swe:constraint>
                                </swe:Category>
                            </sps:commonData>
                        </sps:definition>
                        <sps:cardinality>1</sps:cardinality>
                        <grouping>Processing Option</grouping>
                    </options>
                    <options parameterID="productType" use="required" updateable="false">
                        <sps:Description>Product type.</sps:Description>
                        <sps:definition>
                            <sps:commonData>
                                <swe:Category>
                                    <swe:constraint>
                                        <                    >

        <swe:valueList>ASA_IMM_1P</swe:valueList>
                                        </swe:AllowedTokens>
                                    </swe:constraint>
                                </swe:Category>
                            </sps:commonData>
                        </                >
                        <sps:cardinality>1</sps:cardinality>
                        <grouping>Processing Option</grouping>
                    </options>
                    <options parameterID="qualityOfService" use="required" updateable="false">
                        <sps:Description>.</sps:Description>
                        <                >
                            <sps:commonData>
                                <swe:Category>
                                    <swe:constraint>
                                        <swe:AllowedTokens>
                                            <swe:valueList>STANDARD NRT
RUSH</swe:valueList>
                                        </swe:AllowedTokens>
                                    </swe:constraint>
                                </swe:Category>
                            </sps:commonData>
                        </sps:definition>
                        <sps:cardinality>1</sps:cardinality>
                        <grouping>Processing Option</grouping>
                    </options>
                    <productDeliveryOptions>
                        <deliveryMethod>mail</deliveryMethod>
                        <packageMedium>CD-ROM</packageMedium>
                    </productDeliveryOptions>

        <orderOptionInfoURL>http://www.provider.com/envisat/orderoptions.html</orderOptionInfoURL>
                    <paymentOptions>
                        <paymentMethod>quota</paymentMethod>
                    </paymentOptions>
                    <sceneSelectionOption>
                        <sceneType>Floating</sceneType>
                    </sceneSelectionOption>
```

```
                    </productOrderOptions>
                    <productOrderOptions>
                        <productOrderOptionsId>Level 0</productOrderOptionsId>
                        <options parameterID="processingLevel" use="required" updateable="false">
                            <sps:Description>Product Level.</sps:Description>
                            <sps:definition>
                                <sps:commonData>
                                    <swe:Category>
                                        <swe:constraint>
                                            <swe:AllowedTokens>
                                                <swe:valueList>0</swe:valueList>
                                            </swe:AllowedTokens>
                                        </swe:constraint>
                                    </swe:Category>
                                </sps:commonData>
                            </sps:definition>
                            <sps:cardinality>1</sps:cardinality>
                            <grouping>Processing Option</grouping>
                        </options>
                        <options parameterID="productType" use="required" updateable="false">
                            <                    >Product type.</                    >
                            <sps:definition>
                                <sps:commonData>
                                    <swe:Category>
                                        <swe:constraint>
                                            <swe:AllowedTokens>

        <swe:valueList>ASA_IM__0P</swe:valueList>
                                            </swe:AllowedTokens>
                                        </swe:constraint>
                                    </swe:Category>
                                </sps:commonData>
                            </sps:definition>
                            <sps:cardinality>1</sps:cardinality>
                            <grouping>Processing Option</grouping>
                        </options>
                        <options parameterID="qualityOfService" use="required" updateable="false">
                            <sps:Description>.</sps:Description>
                            <sps:definition>
                                <sps:commonData>
                                    <swe:Category>
                                        <swe:constraint>
                                            <swe:AllowedTokens>
                                                <swe:valueList>STANDARD NRT
RUSH</swe:valueList>
                                            </swe:AllowedTokens>
                                        </swe:constraint>
                                    </swe:Category>
                                </sps:commonData>
                            </sps:definition>
                            <sps:cardinality>1</sps:cardinality>
                            <grouping>Processing Option</grouping>
                        </options>
                        <productDeliveryOptions>
                            <deliveryMethod>mail</deliveryMethod>
                            <packageMedium>CD-ROM</packageMedium>
                        </productDeliveryOptions>

        <orderOptionInfoURL>http://www.provider.com/envisat/orderoptions.html</orderOptionInfoURL>
                        <paymentOptions>
                            <paymentMethod>quota</paymentMethod>
                        </paymentOptions>
                        <                    >
                            <sceneType>Floating</sceneType>
                        </sceneSelectionOption>
                    </productOrderOptions>
                </GetOptionsResponse>
```

```
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.3 GetQuotation

C.3.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sps="http://www.opengis.net/sps/0"
xmlns:swe="http://www.opengis.net/swe/0" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <GetQuotation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS" version="1.2.0">
                        <userInformation>
                                <userId>itma0001</userId>
                        </userInformation>
                        <productOrderSpecification>
                                <orderReference>example_0001</orderReference>
                                <orderRemark>example</orderRemark>
                                <deliveryInformation>
                                        <mail>
                                                <recipient>Mr. John Smith</recipient>
                                                <          >DTMT</          >
                                                <postalAddress>
                                                        <streetAddress>Esrin Esa No. 1</streetAddress>
                                                        <city>Frascati</city>
                                                        <state>-</state>
                                                        <postalCode>00100</postalCode>
                                                        <       >IT</       >
                                                        <postBox>-</postBox>
                                                </postalAddress>
                                                <telNumber>00390694180999</telNumber>
                                        </mail>
                                </deliveryInformation>
                                <        >
                                        <itemId>item_0001</itemId>
                                        <orderItemRemark>First product</orderItemRemark>
                                        <options>
                                                <sps:Parameter parameterID="processingLevel">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>1B</swe:value>
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
                                        </options>
                                        <options>
                                                <sps:Parameter parameterID="productType">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>ASA_IMS_1P</swe:value>
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
                                        </options>
                                        <options>
                                                <sps:Parameter parameterID="qualityOfService">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>STANDARD</swe:value>
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
```

```
                                        </options>
                                        <deliveryMethod>mail</deliveryMethod>
                                        <packageMedium>CD-ROM</packageMedium>
                                        <payment>
                                                <paymentMethod>quota</paymentMethod>
                                                <orderAccount>project_10000</orderAccount>
                                        </payment>
                                        <productId>
                                                <identifier codeSpace="40282510510201144131I.3578391">EN1-
05121921114570-3322.XI</identifier>
                                                <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                        </productId>
                                        <sceneSelection>
                                                <sceneType>Floating Scene</sceneType>
                                                <sceneCoordinates>
                                                        <gml:Point srsName="EPSG:4326"
gml:id="DS_2044263010822">
                                                                <gml:pos>2.374167 43.190833</gml:pos>
                                                        </gml:Point>
                                                </sceneCoordinates>
                                                <temporalSelection>
                                                        <startDateTime>2005-12-19T21:11:52.42</startDateTime>
                                                        <endDateTime>2005-12-19T21:12:07.51</endDateTime>
                                                </temporalSelection>
                                                <scenePosition>frame 920</scenePosition>
                                        </sceneSelection>
                                </orderItem>
                        </productOrderSpecification>
                </GetQuotation>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.3.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:sps="http://www.opengis.net/sps/0" xmlns:swe="http://www.opengis.net/swe/0"
xmlns:gml="http://www.opengis.net/gml">
        <SOAP-ENV:Body>
                <GetQuotationAck xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                        <quotation>
                                <quotationId>urn:ESA:EECF:quotationId_0001</quotationId>
                                <validityTime>2007-05-01T00:00:00.00Z</validityTime>
                                <price>
                                        <value>15</value>
                                        <currency>QUOTA</currency>
                                </price>
                                <orderItemGroupPrice>
                                        <          >
                                                <serviceName>ESA_ORDER_SERVICE</serviceName>
                                                <organization>ESA</organization>
                                        </provider>
                                        <price>
                                                <value>15</value>
                                                <currency>QUOTA</currency>
                                        </price>
                                        <balance>
                                                <value>20</value>
                                                <currency>QUOTA</currency>
                                        </balance>
                                        <orderItemPrice>
                                                <itemId>item_0001</itemId>
```

```
                                                    <productId>
                                                        <identifier
codeSpace="4028251051020114413l.3578391">EN1-05121921114570-3322.XI</identifier>
                                                        <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                                    </productId>
                                                </orderItemPrice>
                                            </orderItemGroupPrice>
                                        </quotation>
                                    </GetQuotationAck>
                            </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.4 Submit

C.4.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sps="http://www.opengis.net/sps/0"
xmlns:swe="http://www.opengis.net/swe/0" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
            <SOAP-ENV:Header>
                        <m:ReplyTo xmlns:m="http://www.w3.org/2005/08/addressing">
                                    <m:Address>http://order_service_client.it</m:Address>
                        </m:ReplyTo>
                        <m:MessageID xmlns:m="http://www.w3.org/2005/08/addressing">000234359776845494</m:MessageID>
            </                    >
            <SOAP-ENV:Body>
                        <Submit xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS" version="1.2.0">
                                    <userInformation>
                                                <userId>itma0001</userId>
                                    </userInformation>
                                    <                          >
                                                <orderReference>example_0001</orderReference>
                                                <orderRemark>example</orderRemark>
                                                <deliveryInformation>
                                                            <mail>
                                                                        <recipient>Mr. John Smith</recipient>
                                                                        <companyRef>DTMT</companyRef>
                                                                        <postalAddress>
                                                                                    <streetAddress>Esrin Esa No. 1</streetAddress>
                                                                                    <city>Frascati</city>
                                                                                    <state>-</state>
                                                                                    <                >00100</                >
                                                                                    <country>IT</country>
                                                                                    <postBox>-</postBox>
                                                                        </postalAddress>
                                                                        <telNumber>00390694180999</telNumber>
                                                            </mail>
                                                </deliveryInformation>
                                                <orderItem>
                                                            <itemId>item_0001</itemId>
                                                            <orderItemRemark>First product</orderItemRemark>
                                                            <options>
                                                                        <sps:Parameter parameterID="processingLevel">
                                                                                    <sps:value>
                                                                                                <swe:Category>
                                                                                                            <swe:value>1B</swe:value>
                                                                                                </swe:Category>
                                                                                    </                >
                                                                        </sps:Parameter>
                                                            </options>
                                                            <options>
                                                                        <                    parameterID="productType">
```

```
                                                <sps:value>
                                                        <swe:Category>
                                                                <swe:value>ASA_IMS_1P</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                        </sps:Parameter>
                                </options>
                                <options>
                                        <sps:Parameter parameterID="qualityOfService">
                                                <sps:value>
                                                        <swe:Category>
                                                                <swe:value>STANDARD</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                        </sps:Parameter>
                                </options>
                                <deliveryMethod>mail</deliveryMethod>
                                <packageMedium>CD-ROM</packageMedium>
                                <payment>
                                        <paymentMethod>quota</paymentMethod>
                                        <orderAccount>project_10000</orderAccount>
                                </payment>
                                <productId>
                                        <identifier codeSpace="40282510510201144131I.3578391">EN1-
05121921114570-3322.XI</identifier>
                                        <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                </productId>
                                <sceneSelection>
                                        <sceneType>Floating Scene</sceneType>
                                        <sceneCoordinates>
                                                <gml:Point srsName="EPSG:4326"
gml:id="DS_2044263010822">
                                                        <gml:pos>2.374167 43.190833</gml:pos>
                                                </gml:Point>
                                        </sceneCoordinates>
                                        <temporalSelection>
                                                <startDateTime>2005-12-19T21:11:52.42</startDateTime>
                                                <endDateTime>2005-12-19T21:12:07.51</endDateTime>
                                        </temporalSelection>
                                        <scenePosition>frame 920</scenePosition>
                                </sceneSelection>
                        </orderItem>
                </productOrderSpecification>
                <statusNotification>Final</statusNotification>
        </Submit>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.4.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <SOAP-ENV:Body>
        <SubmitAck xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                <status>success</status>
                <orderId>urn:ESA:EECF:order_id_0001</orderId>
                <orderReference>example_0001</orderReference>
        </SubmitAck>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.5 Submit Response

C.5.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sps="http://www.opengis.net/sps/0"
xmlns:swe="http://www.opengis.net/swe/0" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Header>
                <m:RelatesTo xmlns:m="http://www.w3.org/2005/08/addressing"
RelationshipType="http://www.w3.org/2005/08/addressing/reply">0002343597768454 94</m:RelatesTo>
        </SOAP-ENV:Header>
        <SOAP-ENV:Body>
                <SubmitResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS"
version="1.2.0">
                        <timeStamp>2006-11-18T21:08:00.000</timeStamp>
                        <productOrderMonitorSpecification>
                                <orderReference>example_0001</orderReference>
                                <orderRemark>example</orderRemark>
                                <deliveryInformation>
                                        <mail>
                                                <recipient>Mr. John Smith</recipient>
                                                <companyRef>DTMT</companyRef>
                                                <postalAddress>
                                                        <streetAddress>Esrin Esa No. 1</streetAddress>
                                                        <city>Frascati</city>
                                                        <state>-</state>
                                                        <postalCode>00100</postalCode>
                                                        <country>IT</country>
                                                        <postBox>-</postBox>
                                                </postalAddress>
                                                <telNumber>00390694180999</telNumber>
                                        </mail>
                                </deliveryInformation>
                                <orderId>123456-001</orderId>
                                <orderStatusInfo>
                                        <status>Completed</status>
                                        <additionalStatusInfo>The order is accomplished</additionalStatusInfo>
                                </orderStatusInfo>
                                <orderItem>
                                        <itemId>item_0001</itemId>
                                        <orderItemRemark>First product</orderItemRemark>
                                        <options>
                                                <sps:Parameter parameterID="processingLevel">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>1B</swe:value>
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
                                        </options>
                                        <options>
                                                <sps:Parameter parameterID="productType">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>ASA_IMS_1P</swe:value>
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
                                        </options>
                                        <options>
                                                <sps:Parameter parameterID="qualityOfService">
                                                        <sps:value>
                                                                <swe:Category>
                                                                        <swe:value>STANDARD</swe:value>
```

```
                                                                </swe:Category>
                                                        </sps:value>
                                                </sps:Parameter>
                                        </options>
                                        <deliveryMethod>mail</deliveryMethod>
                                        <packageMedium>CD-ROM</packageMedium>
                                        <payment>
                                                <paymentMethod>quota</paymentMethod>
                                                <orderAccount>project_10000</orderAccount>
                                        </payment>
                                        <orderItemStatusInfo>
                                                <status>Completed</status>
                                        </orderItemStatusInfo>
                                        <productId>
                                                <identifier codeSpace="40282510510201144131I.3578391">EN1-
05121921114570-3322.XI</identifier>
                                                <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                        </productId>
                                        <sceneSelection>
                                                <sceneType>Floating Scene</sceneType>
                                                <sceneCoordinates>
                                                        <gml:Point srsName="EPSG:4326"
gml:id="DS_2044263010822">
                                                                <gml:pos>2.374167 43.190833</gml:pos>
                                                        </gml:Point>
                                                </sceneCoordinates>
                                                <temporalSelection>
                                                        <startDateTime>2005-12-19T21:11:52.42</startDateTime>
                                                        <endDateTime>2005-12-19T21:12:07.51</endDateTime>
                                                </temporalSelection>
                                                <scenePosition>frame 920</scenePosition>
                                        </sceneSelection>
                                </orderItem>
                        </productOrderMonitorSpecification>
                </SubmitResponse>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.5.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <SubmitResponseAck xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                </SubmitResponseAck>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.6 Cancel

C.6.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Header>
                <m:ReplyTo xmlns:m="http://www.w3.org/2005/08/addressing">
                        <m:Address>http://order_service_client.it</m:Address>
                </m:ReplyTo>
```

```
                <m:MessageID xmlns:m="http://www.w3.org/2005/08/addressing">000234359776845600</m:MessageID>
        </SOAP-ENV:Header>
        <SOAP-ENV:Body>
                <Cancel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS" version="1.2.0">
                        <orderId>urn:ESA:EECF:order_id_0001</orderId>
                        <userInformation>
                                <userId>itma0001</userId>
                        </userInformation>
                        <statusNotification>Final</statusNotification>
                </Cancel>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.6.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <CancelAck xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://earth.esa.int/hma/ordering"
xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                </CancelAck>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.7 CancelResponse

C.7.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sps="http://www.opengis.net/sps/0"
xmlns:swe="http://www.opengis.net/swe/0" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Header>
                <m:RelatesTo xmlns:m="http://www.w3.org/2005/08/addressing"
RelationshipType="http://www.w3.org/2005/08/addressing/reply">000234359776845600</m:RelatesTo>
        </SOAP-ENV:Header>
        <SOAP-ENV:Body>
                <CancelResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS"
version="1.2.0">
                        <timeStamp>2006-11-18T21:08:00.000</timeStamp>
                        <                                   >
                                <orderReference>example_0001</orderReference>
                                <orderRemark>example</orderRemark>
                                <deliveryInformation>
                                        <mail>
                                                <recipient>Mr. John Smith</recipient>
                                                <companyRef>DTMT</companyRef>

                                                        <streetAddress>Esrin Esa No. 1</streetAddress>
                                                        <city>Frascati</city>
                                                        <state>-</state>
                                                        <postalCode>00100</postalCode>
                                                        <country>IT</country>
                                                        <postBox>-</postBox>
                                                </postalAddress>
                                                <telNumber>00390694180999</telNumber>

                                </deliveryInformation>
```

```
                                    <orderId>123456-001</orderId>
                                    <orderStatusInfo>
                                        <status>Cancelled</status>

                                    </orderStatusInfo>
                                    <orderItem>

                                        <orderItemRemark>First product</orderItemRemark>
                                        <options>
                                            <sps:Parameter parameterID="processingLevel">
                                                <sps:value>

                                                                <swe:value>1B</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                            </sps:Parameter>
                                        </options>
                                        <options>
                                            <sps:Parameter parameterID="productType">
                                                <sps:value>
                                                        <swe:Category>

                                                        </swe:Category>
                                                </sps:value>
                                            </sps:Parameter>
                                        </options>
                                        <options>
                                            <sps:Parameter parameterID="qualityOfService">
                                                <sps:value>
                                                        <swe:Category>
                                                                <swe:value>STANDARD</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                            </sps:Parameter>
                                        </options>
                                        <deliveryMethod>mail</deliveryMethod>
                                        <packageMedium>CD-ROM</packageMedium>
                                        <payment>
                                            <paymentMethod>quota</paymentMethod>
                                            <orderAccount>project_10000</orderAccount>
                                        </payment>
                                        <orderItemStatusInfo>
                                            <status>Cancelled</status>
                                        </orderItemStatusInfo>
                                        <productId>
                                            <                    ="4028251051020114413l.3578391">EN1-
05121921114570-3322.Xl</        >
                                            <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                        </productId>
                                        <                >

                                            <sceneCoordinates>
                                                <gml:Point srsName="EPSG:4326"
gml:id="DS_2044263010822">
                                                        <gml:pos>2.374167 43.190833</gml:pos>
                                                </        >

                                            <temporalSelection>
                                                <              >2005-12-19T21:11:52.42</              >

                                            </temporalSelection>
                                            <scenePosition>frame 920</scenePosition>
                                        </sceneSelection>
                                    </        >

                            </CancelResponse>
                    </                >
```

```
</SOAP-ENV:Envelope>
```

C.7.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <                    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                </CancelResponseAck>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.8 GetStatus

C.8.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>

xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS" version="1.2.0">
                        <orderId>urn:ESA:EECF:order_id_0001</orderId>
                        <          >full</          >

                                <userId>itma0001</userId>
                        </userInformation>
                </GetStatus>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.8.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sps="http://www.opengis.net/sps/0"
xmlns:swe="http://www.opengis.net/swe/0" xmlns:gml="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <GetStatusResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                        <productOrderMonitorSpecification>
                                <orderReference>example_0001</orderReference>
                                <orderRemark>example</orderRemark>
                                <deliveryInformation>
                                        <mail>
                                                <recipient>Mr. John Smith</recipient>
                                                <          >DTMT</          >

                                                        <streetAddress>Esrin Esa No. 1</streetAddress>
                                                        <city>Frascati</city>
                                                        <state>-</state>
                                                        <postalCode>00100</postalCode>
                                                        <country>IT</country>
```

```
                                        </postalAddress>
                                        <telNumber>00390694180999</telNumber>
                                </mail>
                        </deliveryInformation>

                        <orderStatusInfo>
                                <status>Completed</status>
                                <additionalStatusInfo>The order is accomplished</additionalStatusInfo>
                        </orderStatusInfo>

                                <itemId>item_0001</itemId>
                                <orderItemRemark>First product</orderItemRemark>
                                <options>
                                        <sps:Parameter parameterID="processingLevel">
                                                <          >
                                                        <swe:Category>
                                                                <swe:value>1B</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                        </sps:Parameter>
                                </options>
                                <options>
                                        <sps:Parameter parameterID="productType">
                                                <sps:value>
                                                        <swe:Category>
                                                                <          >ASA_IMS_1P</          >
                                                        </          >

                                        </sps:Parameter>
                                </       >

                                        <sps:Parameter parameterID="qualityOfService">
                                                <sps:value>

                                                                <swe:value>STANDARD</swe:value>
                                                        </swe:Category>
                                                </sps:value>
                                                </          >
                                </options>
                                <          >mail</          >
                                <packageMedium>CD-ROM</packageMedium>
                                <payment>
                                        <paymentMethod>quota</paymentMethod>
                                        <orderAccount>project_10000</orderAccount>
                                </payment>
                                <orderItemStatusInfo>
                                        <status>Completed</status>
                                </orderItemStatusInfo>
                                <productId>
                                        <identifier codeSpace="40282510510201144131I.3578391">EN1-
05121921114570-3322.XI</identifier>
                                        <collectionId>ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
                                </productId>
                                <sceneSelection>
                                        <sceneType>Floating Scene</sceneType>
                                        <sceneCoordinates>
                                                <          srsName="EPSG:4326"
gml:id="DS_2044263010822">
                                                        <gml:pos>2.374167 43.190833</gml:pos>
                                                </gml:Point>
                                        </sceneCoordinates>
                                        <temporalSelection>
                                                <startDateTime>2005-12-19T21:11:52.42</startDateTime>
                                                <endDateTime>2005-12-19T21:12:07.51</endDateTime>
                                        </temporalSelection>
                                        <scenePosition>frame 920</scenePosition>
                                </sceneSelection>
```

```
                                        </orderItem>
                                </productOrderMonitorSpecification>
                        </GetStatusResponse>
                </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.9 DescribeResultAccess

C.9.1 Request

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <DescribeResultAccess xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd" service="OS"
version="1.2.0">
                        <userInformation>
                                <userId>itma0001</userId>
                        </userInformation>
                        <orderId>urn:ESA:EECF:order_id_0001</orderId>
                        <allReady>true</allReady>
                </DescribeResultAccess>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

C.9.2 Response

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
        <SOAP-ENV:Body>
                <DescribeResultAccessResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://earth.esa.int/hma/ordering" xsi:schemaLocation="http://earth.esa.int/hma/ordering ..\Order.xsd">
                        <status>success</status>
                        <URLs>
                                <itemId>item_0001</itemId>
                                <url>ftp://user:online@eoaserver:2121/0c88028bf3aa6a6a143ed846f2be1ea4</url>
                        </URLs>
                        <URLs>
                                <        >item_0002</        >
                                <url>ftp://user:online@eoaserver:2121/0c88028bf3aa6a6a143ed846f2be1ea5</url>
                        </URLs>
                        <URLs>
                                <itemId>item_0003</itemId>
                                <url>ftp://user:online@eoaserver:2121/0c88028bf3aa6a6a143ed846f2be1ea6</url>
                        </URLs>
                </DescribeResultAccessResponse>
        </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```