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OGC RESTful Encoding of Ordering Services Framework For Earth Observation Products

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i. Abstract

This OGC Best Practices document specifies the interfaces, bindings, requirements, conformance classes that enable complete workflows for ordering Earth Observation (EO) data products. In fact it provides the interfaces for supporting the following EO Product ordering scenarios:

- Ordering products from EO Catalogues
- Subscribing to automatic delivery of EO products
- Bulk EO Product orders

The EO products orders can be delivered on file via different online protocols (e.g. ftp, sftp, ftps, etc.).

The ordered items can be customized in detail, one by one or altogether, via the processing options and scene selection options. These options are dynamically discovered and set from the clients by calling appropriate methods of Ordering Services resources. This specification includes a comprehensive list of processing options (Table 7-25) and scene selection options (Table 7-26) derived from the parent specification OGC 06-141r6 which gathered inputs from several Satellite Agencies and Operators:

- ESA
- EUMETSAT
- CNES
- DLR
- CSA
- SPOT Image

In case these already identified options are not sufficient for the specific mission, they can be extended following the SWE Common 2.0 framework. In Annex A, B, C there are possible examples for new ESA Sentinel missions.

This document is based on the standard:

OGC 06-141r6 Ordering Services Framework for Earth Observation Products
Interface Standard V1.0.0

That was initially produced during the ESA HMA (Heterogeneous Missions Accessibility) initiative [OR1] and related projects.

With respect to the parent specification this Best Practice document proposes the following changes:

- Replaces SOAP with REST for service encoding. This affects not only the way the service is implemented, but also the way the standard is presented and described. In fact basing on REST implies that the service has to be described in terms of resources and methods applied on them while in SOAP services the description is

focusing on operations and in fact the OGC 06-141r6 is structured in Web Service operations.

- Usage of OpenSearch Description Documents as alternate method for describing Ordering Options (§7.3.2.2). This specification uses the order options model already described in the OGC 06-141r6 standard, with some minor updates, that is now referred as “Canonical XML format”, but defines also an additional method for describing order options within Open Search Description Documents. Actually this part of the specification can be considered as an Open Search extension for order options. This part of the specification is meant to be used when the EO products can be directly downloaded after a catalogue interaction with possible application of some order options (§6.3.3).
- Simplification of the interfaces focusing on a sub-set of the scenarios supported by the parent specification: no future products orders supported, no orders on media.

ii. Keywords

The following are keywords to be used by search engines and document catalogues.

ogcdoc, OGC document, best practice, oseo, rest, eo, opensearch, order

iii. Preface

This OGC Best Practices document specifies the interfaces for issuing EO products orders in different flavors (e.g. Order from Catalogue, Subscription, etc.) and with a lot of flexibility (order options, scene selection options).

Due to the number of supported ordering scenarios, covering different and also alternative needs, then a number of Requirements Classes have been defined collecting the specific requirements a conformant implementation has to comply with. In parallel a number of Conformance Classes have been defined regrouping all tests a server has to pass for claiming the compliance with the corresponding Requirement Class. A server can comply with some Requirement Classes, it is not required to implement all classes.

Implementers shall be aware that:

- Not all scenarios (Requirement Classes) shall be implemented, but only the Core one plus the others that are necessary for their use cases (see §2). However a server has to specify the supported Conformance Classes as evidence of the provided functionality.
- If order options are supported, then the implementation has to use a sub-set of the already identified ones unless they are not fitting with their needs; in that case an application profile listing the new ones, to be modeled with SWE Common 2.0, has to be defined and implemented.
- The standard has “extension” points that allow to add XML elements in the EO Product order payload. These elements are not necessary for the basic

functionality of the specification, but can be used for accommodating implementation specific needs and then allowing the definition of “extensions”.

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 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 standard set forth in this document, and to provide supporting documentation.

iv. **Submitting organizations**

The following organizations submitted this Document to the Open Geospatial Consortium (OGC):

- ESA – European Space Agency
- Telespazio

v. **Submitters**

All questions regarding this submission should be directed to the editor or the submitters:

Name	Affiliation
Daniele Marchionni	Telespazio

1. Scope

The scope of this Best Practice document is to describe the interfaces for issuing orders for Earth Observation Products. It allows preparing different types of orders:

- Order by precisely identified items: the items to be ordered are identified via a search against a companion EO Catalogue (not part of this specification), then an order can be built specifying the product identifiers returned by the catalogue.
- Bulk Orders: the items to be ordered are specified via filter expression rather than specifying the items one by one as at step before. This filter expression is defined via ad hoc order options.
- Product Subscription: similar to bulk orders, but there is also the periodicity: products are delivered several times, whenever they match the subscription parameters.

The ordered items are delivered online to the users via direct download of ordered items. No media delivery is included in this ordering specification.

This specification allows a fine grained customization of ordered items by supporting flexible Order Options. Order Options are basically modeled via SWE Common 2.0 framework, which allows a flexible declaration of the different parameters (e.g. specifying the possible type, allowed values, default values and allowing also the structuring of options in arrays, structures, choices, etc.) and then a simple setting of values once the order is prepared. More precisely this specification allows to specify:

- processing options e.g.: processing level, format, band selections, polarization selection, etc.
- delivery options e.g.: protocol
- scene selection options e.g.: ordered items can be sub-set according to the used needs.

Order Options are declared and set in two different formats:

- “Order Options in Canonical XML format” (§7.3.2.1): it is the format defined in the parent Standard OGC 06-141r6, represented by the `oseo:OrderOptions` element, which is a complex structure regrouping order, delivery and scene selection options defined via SWE Common.
- “Order Options in Open Search Description Document format” (§7.3.2.2): order options are declared in the OpenSearch Template URL similarly to the other query parameters, but an order option element in “Canonical XML format” is embedded as foreign mark-up in the Open Search Description Document in order to provide the information that a simple template parameter is not able to describe e.g. type, allowed values, default values etc.

This specification uses REST for defining its service interface: actually it is the re-engineering of the standard:

OGC 06-141r6 Ordering Services Framework for Earth Observation Products
Interface Standard V1.0.0

for replacing SOAP with REST. Additionally to REST replacement of SOAP, further modifications have been done:

- Removed order of products derived from a programming request. This document focuses only on products from archive.
- Removed support for order quotation, function very rarely used from operational implementations of OSEO specification.
- Removed support for asynchronous notifications: in fact this document focuses on Web Applications in general and on REST approach in particular, while the asynchronous message exchange is more a SOAP Web Service Oriented function.
- Simplified delivery mechanism: only direct download from URL (HTTP GET) is supported: delivery via media and via FTP no longer supported.

The REST encoding affected also the way the document is presented. In fact according to REST philosophy, the service is described in term of Resources and Methods applied on them rather than in terms of operations as the parent specification did. From Resource perspective, this Best Practice document defines the following resources:

- Capabilities (§7.2), which is the resource document returning description of the service.
- Order Options (§7.3), which is the resource describing the options for preparing an order for a specified item.
- Order (§7.4), which is an EO Product order created on the server.
- Ordered Product (§7.5), which are the products to be delivered to the users as result of the Order creation (submission).

For each resource, the document specifies:

- The definition, via XML schema, of the various items composing the resource.
- The HTTP Methods available (according to the REST – Uniform Interface concept) e.g. GET, POST, DELETE.
- The HTTP URLs for accessing to the resource.
- And the connections with the other resources (according to the REST – Connectdness concept).

The section §6 provides a more detailed description of the REST approach for this specification and the mapping with the parent Standard document.

Due to the flexibility of the protocol, several conformance classes have been defined, each addressing a specific use case. A compliant implementation does not have to comply with all of them, but with at least Core class and optionally with the other ones.

2. Conformance

This Best Practice document defines the interfaces and the requirements for implementing a server supporting the ordering of Earth Observation Products.

Because Earth Observation Products can be ordered in different ways through the preparation and submission of different types of orders:

- Product Order: order listing the different EO products by providing their identifier and options;
- Subscription Order: order specifying the periodical delivery of loosely defined products.

Therefore different Requirement Classes have been defined specifying the requirements for implementing the ordering process for each of the identified order types. Moreover additional classes have been considered for defining optional functions that might be implemented by servers having extended functionality.

The complete list of Requirements Classes is listed below:

- **Core**, which specifies the minimum behaviour that all ROSEO servers shall implement. It includes the support of ordering of precisely identified Earth Observation Products.
- **SceneSelection**, which specifies the additional requirements a ROSEO server has to comply for supporting scene selection.
- **SubscriptionOrder**, which specifies the additional requirements a ROSEO server shall implement for supporting subscription orders.

The following diagram shows the relationships between the defined Requirement Classes.

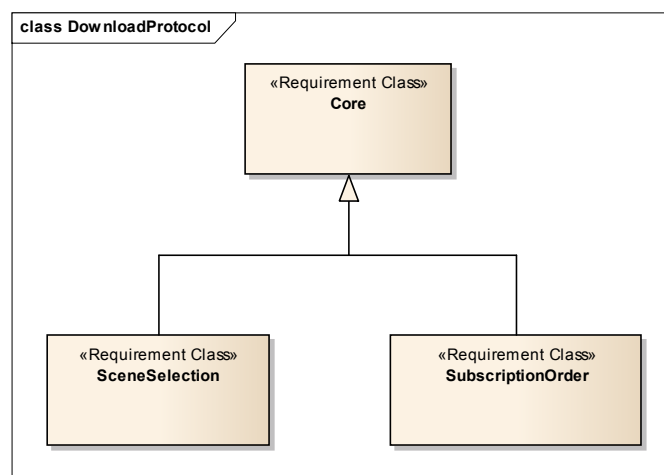


Figure 2-1: ROSEO Requirement Classes.

The inheritance relationship between the different classes represents the inheritance of all requirements from the super class. E.g.: SceneSelection class defines its specific requirements and includes also the requirements defined in the Core class, hence a Server claiming the compliance with SceneSelection class has to comply with SceneSelection plus Core class requirements.

The following table reports:

- The Requirement Class name
- the URI
- the dependency with other requirements classes.

Requirement Class	Requirement Class URI	Dependency
Core	http://www.opengis.net/spec/ROSEO/1.0/req/Core	
SceneSelection	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection	Core
SubscriptionOrder	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder	Core

Table 2-1: ROSEO Requirement Classes.

The root path of all Requirements and conformance test URIs defined in this document is:

<http://www.opengis.net/spec/ROSEO/1.0/>

Conformance with this Best Practice document shall be checked using all the relevant tests specified in Annex A: Conformance Class Abstract Test Suite (Normative) of this document. The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site¹.

In order to conform to this OGCTM interface standard, a software implementation shall choose to implement at least Core class and optionally the other classes.

A server that complies only with Core is a server supporting ordering of precisely identified products.

All requirements-classes and conformance-classes described in this document are owned by the standard(s) identified.

¹ www.opengeospatial.org/cite

3. References

The following normative documents contain provisions that, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

- [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] OWS Common Implementation Specification, May 2005 OGC 05-008c1
- [NR7] OpenGIS® Web Services Common Specification OGC 06-121r9
- [NR8] Ordering Services Framework for Earth Observation Products Interface Standard OGC 06-141r6
- [NR9] The Extensible Markup Language (XML), World Wide Web Consortium,
<http://www.w3.org/TR/1998/REC-xml-19980210>
- [NR10] New OGC Document Template Draft OGC 10-176r4
- [NR11] Guidance to Editors and Authors of OGC Documents that use the OGC Standards document template OGC 10-177r3
- [NR12] Policy Directives for Writing and Publishing OGC Standards: TC Decisions OGC 06-135r11
- [NR13] The Specification Model — A Standard for Modular specifications OGC 08-131r3
- [NR14] Unified Modeling Language (UML) Version 1.3, The Object Management Group (OMG): <http://www.omg.org/cgi-bin/doc?formal/00-03-01>

[NR15] OASIS searchRetrieve: Part 4. APD Binding for OpenSearch Version 1.0
<http://docs.oasis-open.org/search-ws/searchRetrieve/v1.0/os/part4-opensearch/searchRetrieve-v1.0-os-part4-opensearch.html>

[NR16] JSON (JavaScript Object Notation) <http://www.json.org/>

Other references:

[OR1] Heterogeneous Missions Accessibility – Design Methodology, Architecture and Use of Geospatial Standards for the Ground Segment Support of Earth Observation missions ESA TM-21
http://www.esa.int/About_Us/ESA_Publications/ESA_TM-21_Heterogeneous_Missions_Accessibility

4. Terms and Definitions

This document uses the terms defined in Sub-clause 5.3 of [OGC 06-121r8], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this standard.

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

4.1

dataset series (dataset collection)

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.

4.2

EO Product

Data product, typically stored on computer file, generated by sensors carried by Earth Observation Satellites.

4.3

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.

4.4

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]

4.5

procedure oriented architectural style

platform-independent design approach that is focused on operations, their parameters and their results, that can be defined in an abstract level specification. Concrete platform dependent specifications can be derived from the abstract level, allowing, for example, KVP or SOAP messaging.

4.6

product order

Ordering request, issued via this specification, asking the processing and delivery of precisely identified EO Products.

4.7**resource oriented architectural style**

platform-independent design approach that is focused on resources, representations and actions, that can be defined in an abstract level specification. Concrete platform dependent specifications can be derived from the abstract level, allowing, for example, a RESTful architecture.

4.8**subscription**

ordering request, issued via this specification, allowing the client to adhere to the periodical delivery of products processed and delivered according to predefined rules.

4.9**URL component**

text contained after the context path between two forward slashes “/”, that are not placed between two matching parentheses “(...)”, and before any question mark character “?”

4.10**URL component key**

text contained in an URL component that comes before an opening parenthesis “(“

4.11**URL component value**

text contained in an URL component that is enclosed between the first opening parenthesis “(“ and the last closing parenthesis “)” in the → component

Example In the `http://example.org/component1/componentKey(componentValue)`, components are as follows:

Context Path: `http://example.org/`

URL Components: `component1, componentKey(componentValue)`

URL Component Keys: `component1, componentKey`

URL Component Values: `componentValue`

5. Conventions

This sections provides details and examples for any conventions used in the document. Examples of conventions are symbols, abbreviations, use of XML schema, or special notes regarding how to read the document.

5.1 Abbreviated terms

Acronym	Definition
ANX	Ascending Node Crossing
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
DCP	Distributed Computing Platform
DDS	Data Dissemination Service
DNX	Descending Node Crossing
EO	Earth Observation
HMA	Heterogeneous Missions Accessibility
HTTP	Hyper Text Transport Protocol
ISO	International Organisation for Standardisation
JSON	JavaScript Object Notation
OGC	Open GIS Consortium
OSDD	Open Search Description Document
OSEO	Ordering Services Framework for Earth Observation Products

Acronym	Definition
ROSEO	RESTful Encoding of Ordering Services Framework for Earth Observation Products
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SWG	Standard Working Group
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 Introduction

Some diagrams that appear in this document are presented using the Unified Modeling Language (UML) diagrams:

- Class Diagrams

Class diagrams show the static structure of the model, in particular, the things that exist (such as classes and types), their internal structure, and their relationships to other things. Class diagrams do not show temporal information, although they may contain occurrences of things that have or describe temporal behavior.

- Sequence Diagrams

A sequence diagram shows an interaction arranged in time sequence. In particular, it shows the objects participating in the interaction by their “lifelines” and the messages that they exchange arranged in time sequence. It does not show the associations among the objects.

5.2.2 UML Class Diagrams

A class diagram is a picture providing generic descriptions of possible systems. Class diagrams and object diagrams are alternate representations of object models. Class diagrams contain classes and object diagrams contain objects, but it is possible to mix classes and objects when dealing with various kinds of metadata, so the separation is not rigid. Class diagrams contain icons representing classes, interfaces, and their relationships. In particular, class diagrams contain:

- Logical Packages

Packages purpose is to partition the logical model of a system. They are clusters of highly related classes that are themselves cohesive, but are loosely coupled with other such clusters. You can use packages to group classes, interfaces, and other packages.

- Classes

A class captures the common structure and common behavior of a set of objects. A class is an abstraction of real-world items. When these items exist in the real world, they are instances of the class, and referred to as objects.

- Interfaces

An interface specifies the externally visible operations of a class and/or component, and has no implementation of its own. An interface typically specifies only a limited part of the behavior of a class or component.

- Parameterized Classes

A parameterized class is a template for creating any number of instantiated classes that follow its format. It declares formal parameters. You can use other classes, types, and constant expressions as parameters. You cannot use the parameterized class itself as a parameter. You must instantiate a parameterized class before you can create its objects. In its simplest form, you can use parameterized classes to build container classes.

- Instantiated Classes

An instantiated class is a class formed from a parameterized class by supplying actual values for parameters. It is created by supplying actual values for the formal parameters of the parameterized class. This instantiation process forms a concrete class in the family of the parameterized class. The instantiated class should be put at the client end of an instantiate relationship (accessible through the Create Entry on the Tools menu) that points to the corresponding parameterized class.

- Association Relationships

An association represents a semantic connection between two classes, or between a class and an interface. Associations are bi-directional; they are the most general relationship and also the most semantically weak.

□ Aggregate Relationship

The aggregate relationship is used for showing a whole and part relationship between two classes.

The class at the client end of the aggregate relationship is sometimes called the aggregate class. An instance of the aggregate class is an aggregate object. The class at the supplier end of the aggregate relationship is the part whose instances are contained or owned by the aggregate object. The aggregate relationship is used for showing that the aggregate object is physically constructed from other objects or that it logically contains another object. The aggregate object has ownership of its parts.

□ Generalize/Inherits Relationships

A generalize relationship between classes shows that the subclass shares the structure or behavior defined in one or more super-classes. Use a generalize relationship to show an "is- a" relationship between classes.

□ Instantiates Relationships

An instantiates relationship represents the act of substituting actual values for the parameters of a parameterized class or parameterized class utility to create a specialized version of the more general item. In most cases, you will also draw a uses relationship between the instantiated class and another concrete class that is used as an actual parameter.

□ Dependency Relationships

Draw a dependency relationship between two classes, or between a class and an interface, to show that the client class depends on the supplier class/interface to provide certain services, such as:

- The client class accesses a value (constant or variable) defined in the supplier class/interface.
- Operations of the client class invoke operations of the supplier class/interface.
- Operations of the client class have signatures whose return class or arguments are instances of the supplier class/interface.

The next picture shows the items just explained.

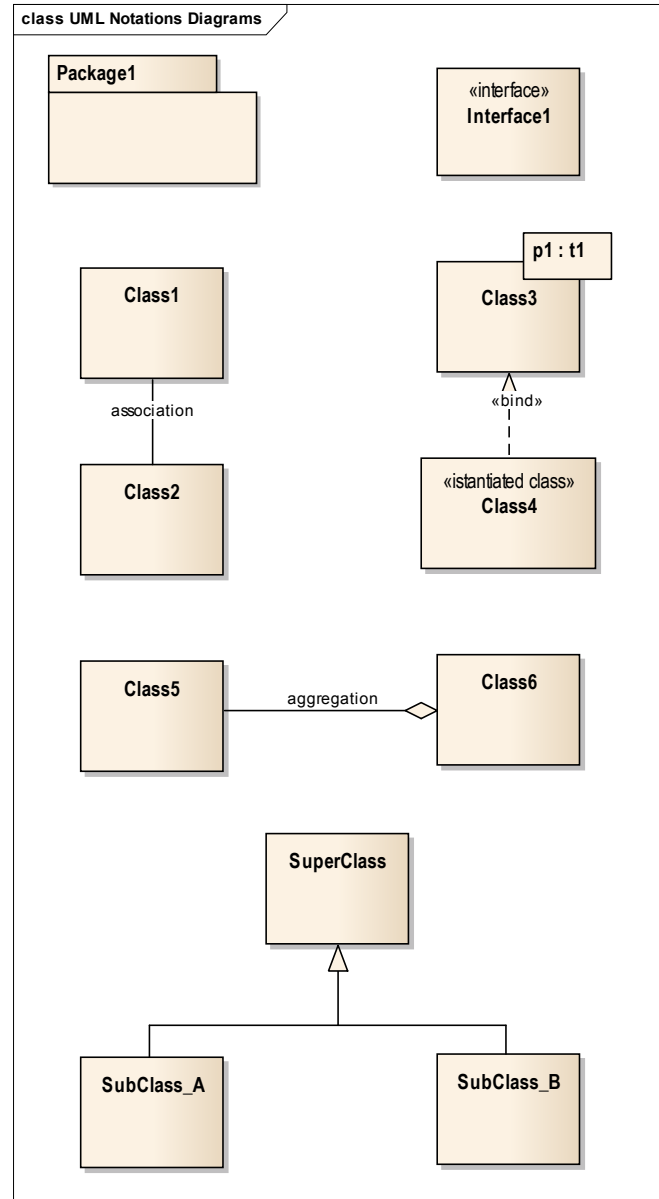


Figure 5-1: UML Class Diagram notations.

5.2.3 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 diagrams.

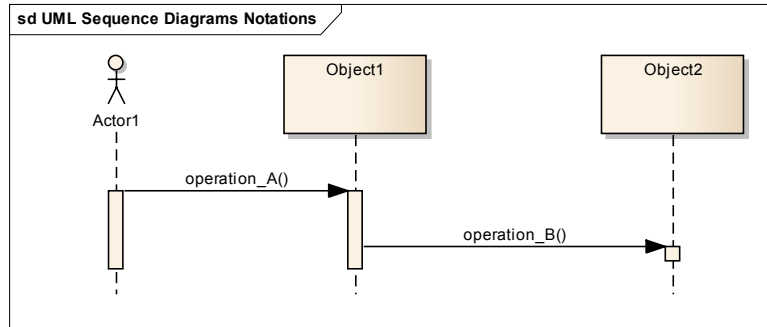


Figure 5-2: UML Sequence Diagram notiations.

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

5.3 XML notation

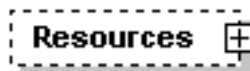
Most diagrams that appear in this specification are presented using an XML schema notation defined by the XMLSpy tool and described in this subclause.

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).

InternalNotes

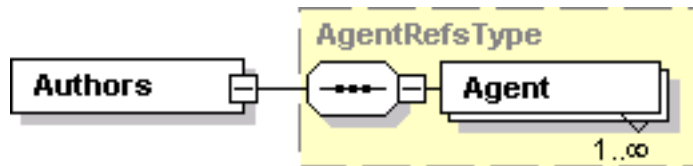
- A sequence of elements. The elements must appear exactly in the sequence in which they appear in the schema diagram.



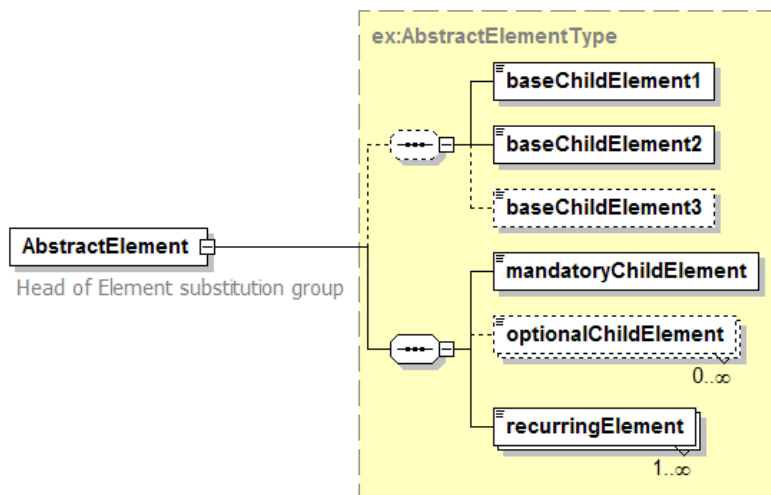
- A choice of elements. Only a single element from those in the choice may appear at this position.



- 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 Used parts of other documents

This document uses significant parts of documents:

Ordering Services Framework for Earth Observation Products Interface Standard
OGC 06-141r6

In fact this present document is a different encoding (based on REST) of that already existing standard.

To reduce the need to refer to that document, this document copies some of those parts with small modifications. To indicate those parts to readers of this document, it is used the reference [NR8].

5.5 Data dictionary tables

The XML data dictionary used to describe the parameters within this document is specified herein in a series of tables. The contents of the columns in these tables are described in Table 5-1.

Column title	Column contents
Names (left column)	<p>Name of the XML element to describe.</p> <p>The name uses the XML encoding capitalization specified in Subclause 11.6.2 of [OGC 05-008]. The name capitalization rules used are specified in Subclause 11.6.2 of [OGC 05-008]. Some names in the tables may appear to contain spaces, but no names contain spaces.</p>
Definition (second column)	<p>Specifies the definition of this element.</p>
Data type and value (third column)	<p>Normally contains two items:</p> <p>The mandatory first item is often the data type used for this parameter, using data types appropriate in the model, in which this parameter is a named attribute of a XML entity. Alternately, the first item can identify the data structure (or class) referenced by this association, and references a separate table used to specify the contents of that class (or data structure).</p> <p>The optional second item in the third column of each table should indicate the source of values for this parameter, the alternative values, or other value information, unless the values are quite clear from other listed information.</p>
Multiplicity and use (fourth column)	<p>Normally contains two items:</p> <p>The item specifies the multiplicity and optionality of this parameter in this data structure, either “One (mandatory)”, “One or more (mandatory)”, “Zero or one (optional)”, or “Zero or more (optional)”.</p> <p>If it needs to describe the multiplicity of an XML choice element, it needs to use the word “mandatory/choise” and “optional/choise”. The choice element infact provides an XML representation for describing a single selection from a set of element types where each selection item can be defined ‘mandatory’.</p>

Table 5-1: Contents of data dictionary tables.

When the data type used for a parameter, in the third column of such a table, is another complex type, all the values must be specified and listed, together with the meaning of each value. When this information is extensive, these values and meanings are specified in a separated table and a cross reference to it is put in the table.

6. RESTful Encoding of Ordering Services Framework For Earth Observation Products (ROSEO) Overview

As highlighted in the introduction sections, this document provides a simplified and RESTful encoding of the parent specification Ordering Services Framework For Earth Observation Products OGC 06-141r6.

This is a RESTful specification and as such is described in terms of resources. However, this Best Practice is derived from OGC 06-141r6, which is SOAP Web Service, and thus operations centric (“RPC style”). Both approaches have almost same functionality. Therefore, this best practice can be identically described from the two different point of view. This section summarizes this specification from both a Resource point of view and from RPC style point of view and explains how they relate to each other.

6.1 RPC view of ROSEO

ROSEO deals with the following information items:

- **Order options**, which describe the possible ways (order options description) for configuring / customizing the ordered items.

This specification supports order options at EO product level, describing the options available for each single product; and order options at collection level, describing the order options for all products belonging to a given collection.

- **Order**, which is the actual request submitted by the client listing all the ordered items including the chosen customizations (order options values).

This specification supports two types of orders:

- **Product Order**: order listing the different EO products by providing their identifier and options. The ordered EO products have been likely identified via a previous search from a Catalogue of EO products.
- **Subscription Order**: this order allows the periodical reception of products of interest on the areas of interest or to issue orders for bulk of products.

From RPC perspective, this specification is composed of the following operations:

- **GetCapabilities**, which allows a client to request and receive service metadata (or Capabilities) document that describes the abilities of the specific server implementation (see §7.2.3).
- **GetOptions**, which 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.).

See §7.3.3.

- **Submit**, which allows either submitting an order of products (from EO catalogue) or subscribing to a subscription (see §7.4.3).

This operation is “asynchronous” meaning that it starts the activation of the ordering process and returns a quick acknowledge reporting whether the submitted order has been accepted or not.

To verify whether the order has been successfully completed and to retrieve produced products, dedicated operations have to be called later on.

- **GetStatus**, which allows to retrieve either the status of submitted orders or the status of subscribed subscriptions (see §7.4.3).
- **DescribeResultAccess**, which allows accessing the ordered products ready for download (see §7.5.3).
- **Cancel** allows either to ask the cancellation of an already submitted order or to unsubscribe a subscription (see §7.4.3).

This operation is “asynchronous” meaning that it starts the activation of the cancellation process and returns a quick acknowledge reporting whether the cancellation request has been accepted or not. To understand whether the order has been actually cancelled, the GetStatus operation has to be called later on.

6.2 Resource View of ROSEO

From “Resource” perspective, this specification is composed of the following resources:

- **Service Metadata**: It describes the service capabilities, supported operations, supported collections, and other service capabilities (see §7.2).

The following HTTP methods are supported:

- GET : it returns the service metadata of the server.
- **Order Options**: it specifies all possible valid combinations of options for ordering a specific product, or for ordering products of a specified EO Product collection or for subscribing to a subscription (see §7.3).

The following HTTP methods are supported:

- GET /options/{eo:identifier}: it returns the order options possible for that product. Same as **GetOptions** in the RPC view.

eo:identifier is the identifier of a EO Product as specified in OGC 13-026.
eo refers to the following namespace:

<http://a9.com/-/opensearch/extensions/eo/1.0/>

- GET /options/{collection identifier}: it returns the order options possible for all products of that collection. Same as **GetOptions** in the RPC view.
- GET /options/{subscription identifier}: it returns the order options possible for subscribing to that subscription. Same as **GetOptions** in the RPC view.
- **Order**: it is an order submitted by the client. It includes the ordered products with the selected options in case of Product Orders, or a single subscription with the selected subscription options (see §7.4).

The following HTTP methods are supported:

- POST /order: it creates an order from the XML payload provided in the message body. The operation return the URL of the created order. Same as **Submit** in the RPC view.
- GET /order/{order identifier}: it returns the XML representation of the order with the specified identifier. Order status information are returned with order itself. Same as **GetStatus** in the RPC view.
- GET /order?{filter expression}: it returns the XML representation of the list of orders complying with the specified filter expression. Order status information are returned with order itself. Same as **GetStatus** in the RPC view.
- DELETE /order/{order identifier}: it triggers cancellation of the order having the specified identifier. Same as **Cancel** in the RPC view. For verifying whether the order has been actually cancelled, the GET method on the same identifier has to be called in order to check the current order status.
- **Order Item**: it is not a resource on its own, but it is a sub-element of an order: it is a single item ordered within a previously submitted order (see §7.4).

The following HTTP methods are supported:

- GET /order/{order identifier}/{order item identifier}: it returns the XML representation of the order item within the specified order. Order status information are returned with order itself. Similar to **GetStatus** in the RPC view, but it adds also the possibility to select the items within an order.
- **Ordered Product**: it is a single EO product delivered by an order. In case of Product Orders there is a 1:1 mapping between order item and EO Product; in case of subscription order, plenty of products in different time instants are delivered from a single order item (see §7.5).

The following HTTP methods are supported:

- GET /order/{order identifier}/file: it returns the list of all product download URLs delivered for that order. Similar to **DescribeResultAccess** in the RPC view.

- GET /order/{order identifier}/file?{filter expression}: it returns the list of all product download URLs delivered for that order since a specified date time. Similar to **DescribeResultAccess** in the RPC view.
- GET /order/{order identifier}/{order item identifier}/file: it returns the ordered product file.

6.3 Essential Use-cases

6.3.1 Ordering from catalogue of EO Products

The following figure shows the typical usage of the Ordering Service operations to order products from EO Catalogues:

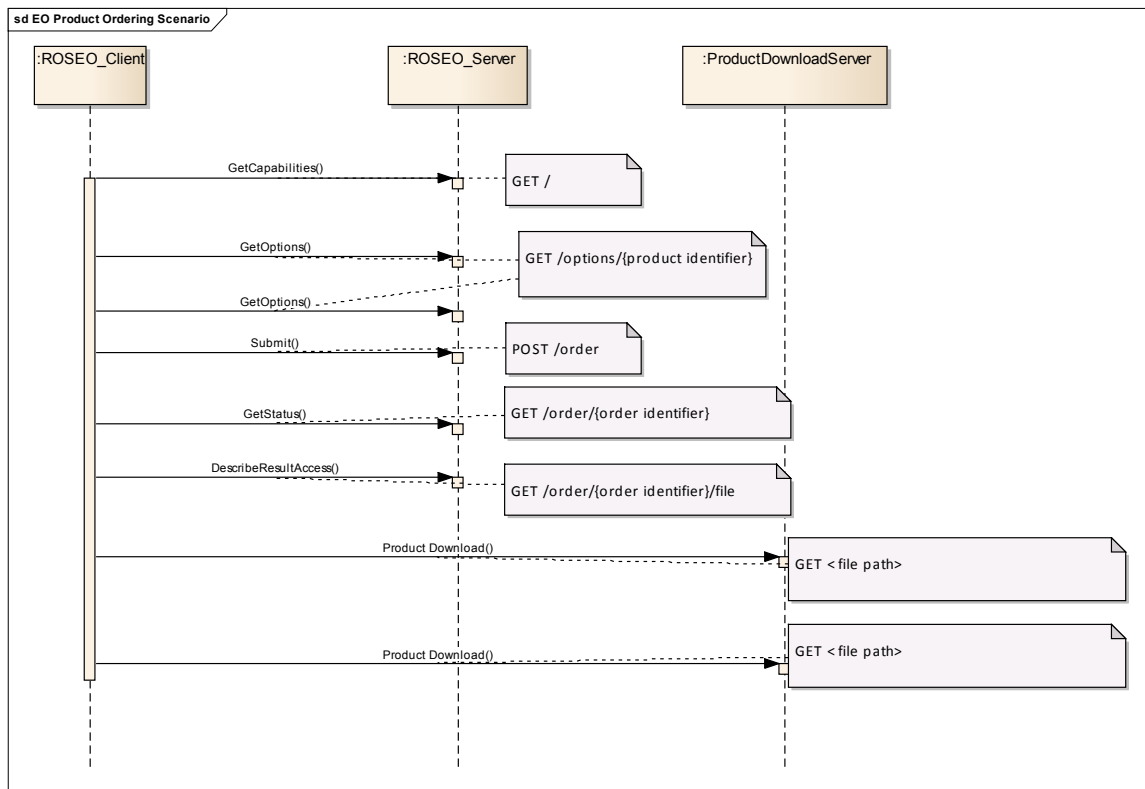


Figure 6-1: Ordering products from EO Catalogue Scenario.

In the scenario the following entities are specified:

- ROSEO_Client, which represents the user submitting requests to the Order Service;
- ROSEO_Server: it is the server implementing 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 or GET /**).
- The list of ordering options is retrieved for each product to be ordered (**GetOptions or GET /options/{eo:identifier}**).

eo:identifier is the identifier of a EO Product as specified in OGC 13-026.

eo refers to the following namespace:

<http://a9.com/-/opensearch/extensions/eo/1.0/>

- Then the order is prepared on the client side choosing the requested options for each of the products to order and it is submitted (**Submit or POST /order**). The Order Service returns back an acknowledgement and starts 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 or GET /order/{order identifier}**);
 - The client can ask the cancellation of the order (**Cancel or DELETE /order/{order identifier}**).
- When the order processing is completed, the ordered products can be retrieved on-line (**DescribeResultAccess or GET /order/{order identifier}/file**).

6.3.2 Subscribe to EO Products

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

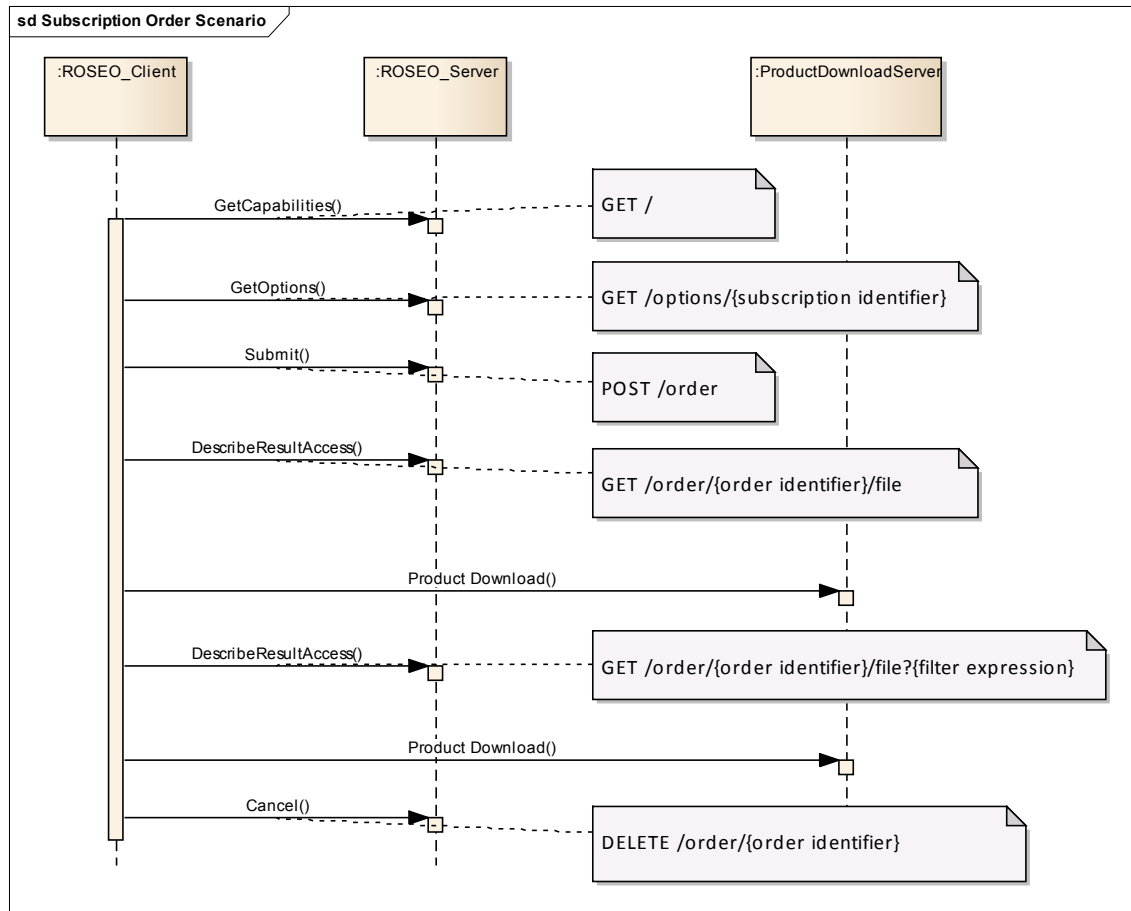


Figure 6-2: Subscribing to EO products Scenario.

In the scenario the following entities are specified:

- ROSEO Client, which represents the user submitting requests to the Order Service;
- ROSEO_Server: it is the server implementing the Order Service.

The typical scenario is:

- The client gets the list of supported subscriptions from the server (**GetCapabilities** or **GET /**).
- The next step is to retrieve the list of possible subscription options (**GetOptions** or **GET /options/{subscription identifier}**). Possible examples options are:
 - region of interest, which allows to receive only the available products 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 specifies 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 and then it is submitted (**Submit or POST /order**). The Order Service returns back an acknowledgement and the subscription is started.
- After the order has been submitted the following events are possible:
 - The client asks the status of its subscriptions (**GetStatus or GET /order/{order identifier}**).
 - When some products are ready, they can be retrieved (**DescribeResultAccess or GET /order/{order identifier}/file**).
- The client is allowed to unsubscribe from the subscription (**Cancel or DELETE /order/{order identifier}**).

6.3.3 Direct Download from Catalogue

This is the scenario followed by new ESA Users Services system – ngEO. The main difference with respect to the previous ones is that order options are set at the beginning of the user’s interaction when the user is querying the catalogue: in fact at the time the collection is selected, the relevant order options are discovered and set in the catalogue search request. In this way the catalogue responses include already EO Products complying with the specified order options and ready to be directly downloaded with those options already set. The process is showed in the picture below.

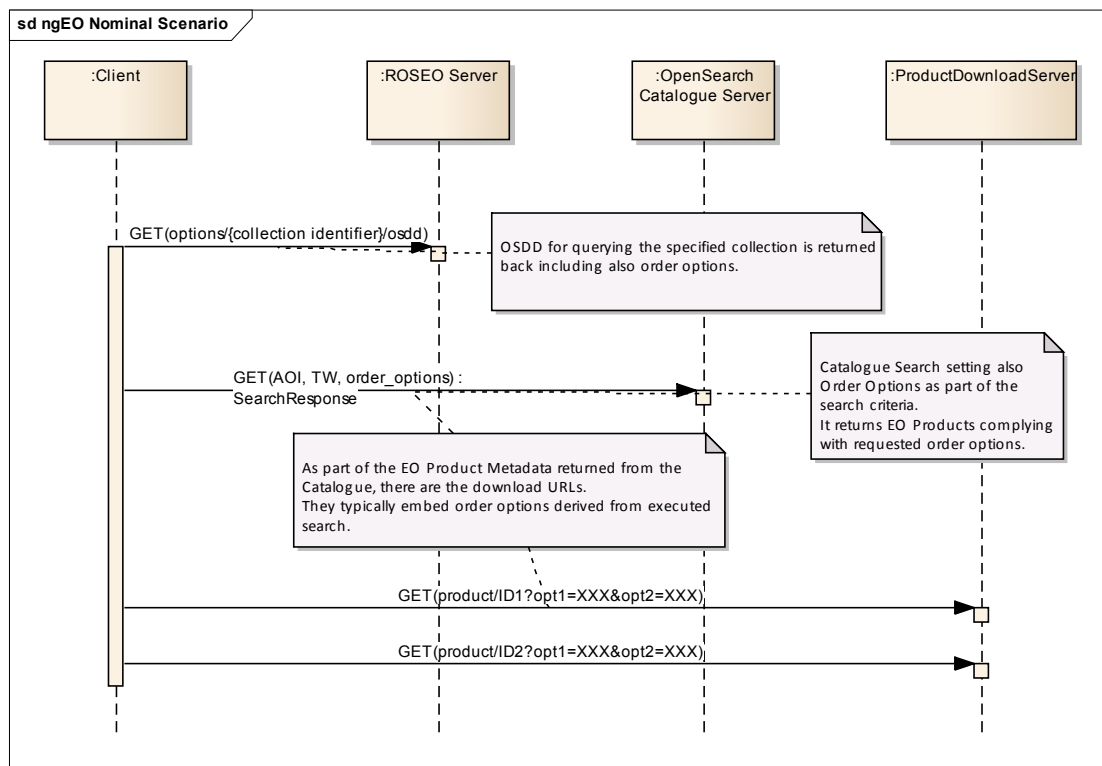


Figure 6-3 Direct Download from Catalogue Scenario.

1. The client gets from the ROSEO Server the OSDD describing the specified EO Product **Collection**, which includes:
 - Catalogue search criteria;
 - Order Options.
2. The client issues a catalogue search setting the search criteria and the order options. The Open Search Catalogue Server replies with search response including the Metadata records matching with selected query criteria and order options. As part of metadata the product download URL is returned. This URL typically includes order options set during the search phase.
3. The client selects one of the product download URL and GET it. The Download Server processes the product download URL and allows the download of the actual product file.

7. ROSEO – Resource Model

This section reports all resources defined in this specification including:

- The URL addressing the resource;
- The detailed definition, via XML schema notations;
- Supported HTTP methods (e.g. GET, POST) and provided function.

A sub-section is dedicated to each of them.

7.1 Resource Root Path

All ROSEO resources belongs to the same root defined as follows:

<Service Root URL>	http://<hostname>:<port>/<context path>
<ROSEO Root Path>	<Service Root URL>/ROSEO/1.0.0

7.2 Capabilities Resource

Capabilities resource contains metadata about the ROSEO server reporting e.g.: service identifier, description, restrictions, service provider, supported operations, etc.

ROSEO reuses the Capabilities definition provided by OSEO (OGC 06-141r6) applying a profiling for setting values compatible with ROSEO purposes.

Capabilities resource is well connected to all other ROSEO resources via the URL Template concept: it reports the rule for generating the actual URLs for accessing to Order Options, Orders, Ordered Products.

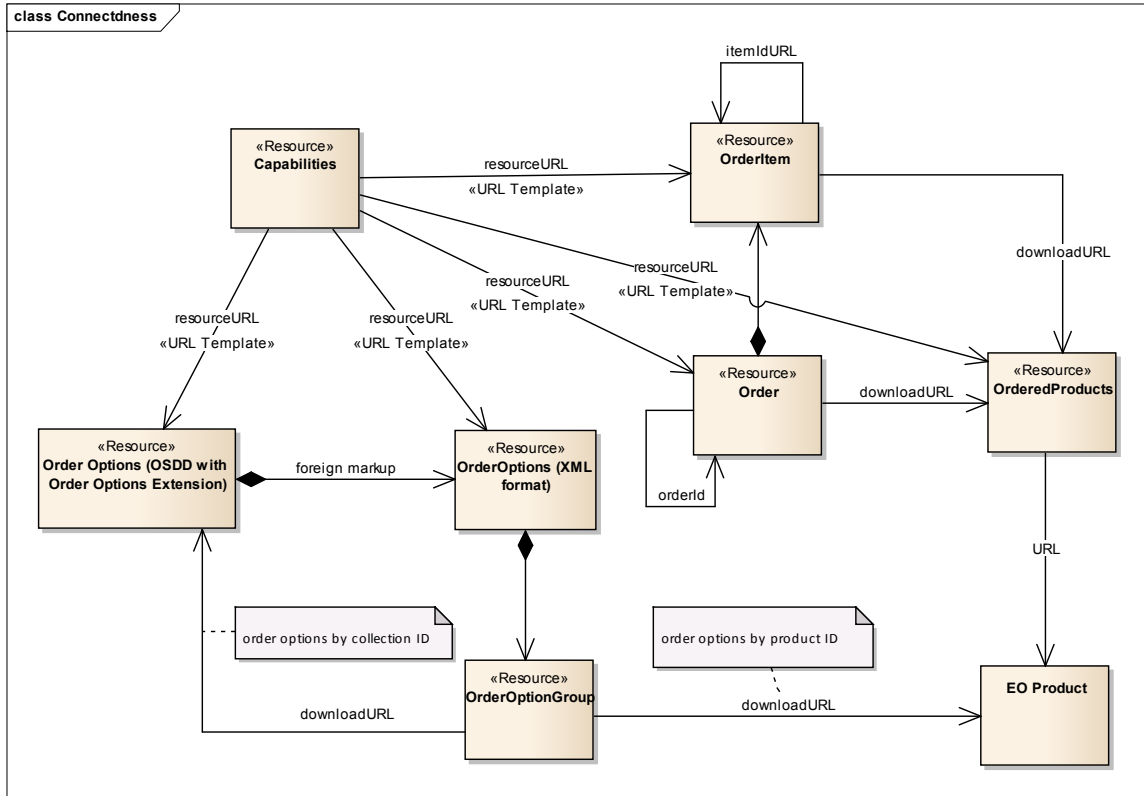


Figure 7-1: Links between ROSEO resources.

7.2.1 URL

URL	Definition
<Capabilities Resource URL>	<ROSEO Root Path>/
<ServiceIdentification section>	<ROSEO Root Path>/ServiceIdentification
<ServiceProvider section>	<ROSEO Root Path>/ServiceProvider
<Contents section>	<ROSEO Root Path>/Contents

Table 7-1: Capabilities Resource URLs.

7.2.2 Definition

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

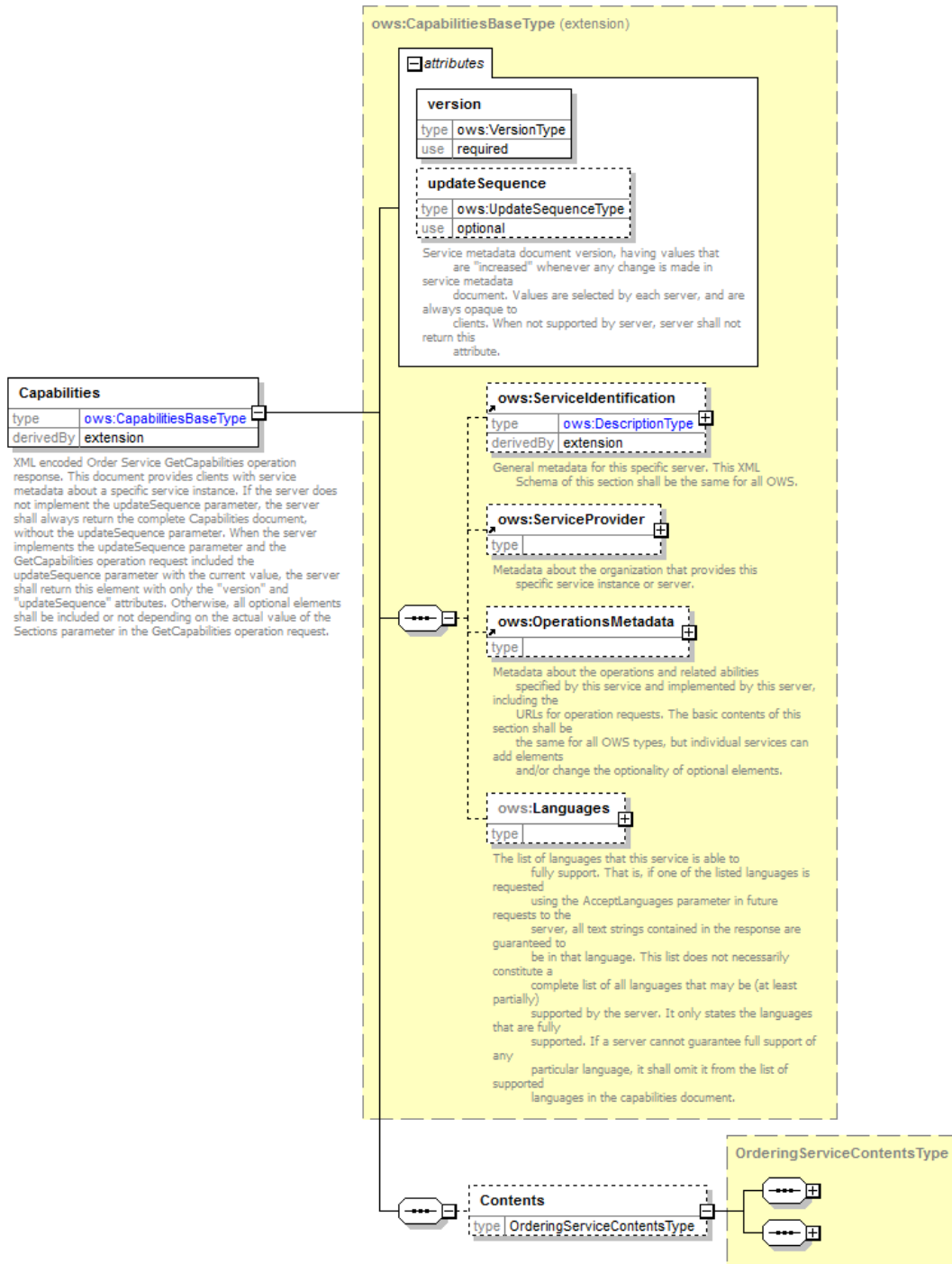


Figure 7-2: Capabilities diagram.

Names	Definition	Data type and value	Multiplicity and use
@version	Standard version for operation. It is specified in Table 6 in Subclause 7.4.2 of [NR7].	It shall be set to 1.0.0	1

Names	Definition	Data type and value	Multiplicity and use
@updateSequence	Specified in Table 6 in Subclause 7.4.2 of [NR7].	Can be left empty	0..1
ServiceIdentification	Metadata about this specific server. The contents and organization of this section should be the same for all OWSs, as specified in §7.4.4 of [NR7], plus the tailoring specified below.		
ServiceProvider	Metadata about the organization operating this server. The contents and organization of this section should be the same for all OWSs, as specified in §7.4.5 of [NR7].		
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 for all OWSs, as specified in §7.4.6 of [NR7].	Can be left empty Comment: ROSEO specification is resource oriented and not operations oriented, then this section can be left empty.	0..1
Contents	Metadata about the data served by this server. The contents and organization of this section are specific to each OWS type, as defined by that Implementation Specification. Whenever applicable, this section shall contain a set of dataset descriptions, which should each be based on the MD_DataIdentification class specified in ISO 19115 and used in ISO 19119. The specific ROSEO content is defined in §7.2.2.1.	Type: OrderingServiceContentsType See §7.2.2.1	0..1
Languages	Languages supported by this server. The contents and organization of this section shall be the same for all OWSs, as specified in §7.4.9 of [NR7]		

Table 7-2: Capabilities definition.

Names	Tailoring
ServiceIdentification	
Title	Set as per OWS specification.
Abstract	Set as per OWS specification.
Keywords	Set as per OWS specification.
ServiceType	Set as per OWS specification.
ServiceTypeVersion	Set as per OWS specification.
Profile	Put the URL of the current document i.e.: http://www.opengis.net/def/bp/roseo/1.0
Fees	Set as per OWS specification.

Names	Tailoring
AccessConstraints	Set as per OWS specification.

Table 7-3: ServiceIdentification tailoring.

7.2.2.1 Contents

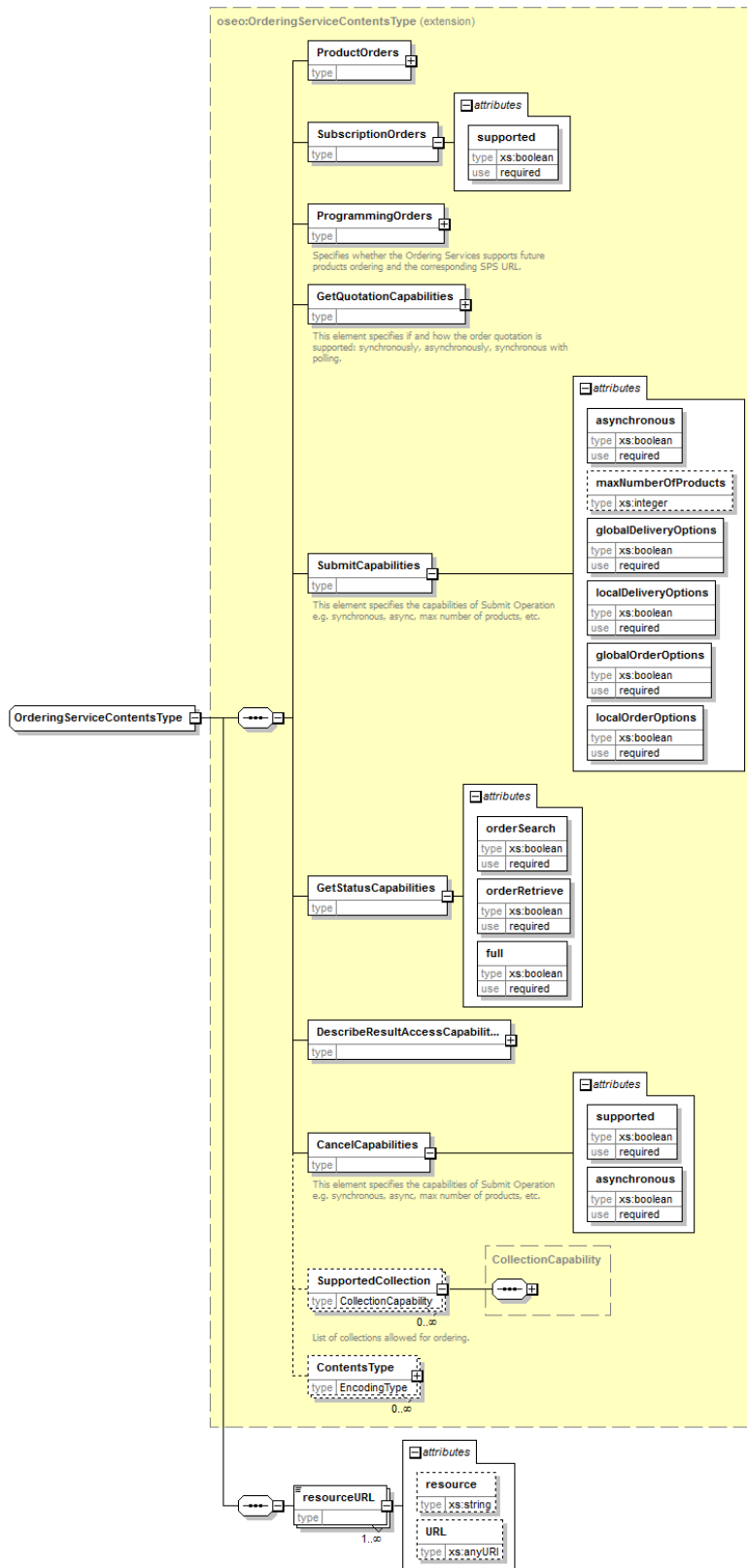


Figure 7-3: OrderingServiceContentsType diagram.

Names	Definition	Data type and value	Multiplicity and use
OrderingServiceContentsType	Inherited from oseo:OrderingServiceContentsType	See §7.2.2.3	
resourceURL	List reporting the URLs of supported resources. This block allows the dynamic discovery from a client of the possible ways for interacting with the ROSEO resources making the ROSEO resources “connected” (as per REST concepts).		0 .. N
resource	Identifier of the resource.	Type: xs:string Allowed values: <input type="checkbox"/> “capabilities” <input type="checkbox"/> “order options” <input type="checkbox"/> “order” <input type="checkbox"/> “ordered product”	1
URL	URL template of the resource. For different resources, different templates have been defined. See §7.2.2.2 for the list.	Type: xs:anyURI	1

Table 7-4: OrderingServiceContentsType definition.

7.2.2.2 Resource URL Templates

In order to support the clients to discover and access to all resources of a ROSEO server, the Contents section has been completed adding URLs of all ROSEO resources. Additionally, because the ROSEO resources are not fixed, but are changing as the users use the server, then these URLs have been made generic for representing many instances of the same resource type by using the URL template concept:

A URL template is a normal URL, but some URL components are “template parameters” i.e. identifiers between “{” and “}”. For generating an actual URL, the template parameters must be replaced with actual strings. In this way a client can access directly to a resource by building the URL applying the rule.

Resource	URL Template	Template Parameter	Template Parameter Definition
order options	<p>Template for retrieving order options by product identifier:</p> <p>http://roseo.example.com/ROSEO/1.0.0/options/{eo:identifier}</p> <p>See §7.3.1.</p>	{eo:identifier}	<p>Identifier of the EO Product, derived from the companion EO Product Catalogue, to extract order options.</p> <p>eo:identifier is the identifier of a EO Product as specified in OGC 13-026.</p> <p>eo refers to the following namespace: http://a9.com/-/opensearch/extensions/eo/1.0/</p>
order options	<p>Template for retrieving order options by collection identifier:</p> <p>http://roseo.example.com/ROSEO/1.0.0/options/{collection identifier}</p> <p>See §7.3.1.</p>	{collection identifier}	<p>Identifier of the EO Product collection to extract order options.</p> <p>It is derived from:</p> <p>Capabilities/Contents/SupportedCollection/collectionId</p> <p>where ProductOrders/@supported = true</p>
order options	<p>Template for retrieving order options by subscription identifier:</p> <p>http://roseo.example.com/ROSEO/1.0.0/options/{subscription identifier}</p> <p>See §7.3.1.</p>	{subscription identifier}	<p>Identifier of the EO Product subscription to extract order options.</p> <p>It is derived from:</p> <p>Capabilities/Contents/SupportedCollection/collectionId</p> <p>where SubscriptionOrders/@supported = true</p>
order	<p>Template for retrieving a complete order by ID:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}</p> <p>See §7.4.1.</p>	{order identifier}	<p>Identifier of the order within the ROSEO server.</p> <p>Generated by the Server at order submission time.</p>
order	<p>Template for retrieving a specified order item inside an order:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/{order item identifier}</p> <p>See §7.4.1.</p>	{order identifier}	<p>Identifier of the order within the ROSEO server.</p> <p>Generated by the Server at order submission time.</p>
		{order item identifier}	<p>Identifier of the order item.</p> <p>Defined by the client at order submission.</p>

Resource	URL Template	Template Parameter	Template Parameter Definition
order	<p>Template for retrieving all orders matching a filtering criteria:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order?{filter expression}</p> <p>See §7.4.1.</p>	{filter expression}	See §7.4.1.1.1
ordered product	<p>Template for retrieving all products of an order:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file</p> <p>See §7.5.1.</p>	{order identifier}	Identifier of the order within the ROSEO server. Generated by the Server at order submission time.
ordered product	<p>Template for retrieving the products generated from an order and matching a filter criteria:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file?{filter expression}</p> <p>See §7.5.1.</p>	{order identifier}	Identifier of the order within the ROSEO server. Generated by the Server at order submission.
ordered product	<p>Template URL for retrieving products corresponding to an ordered item:</p> <p>http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/{order item identifier}/file</p> <p>See §7.5.1.</p>	{order identifier}	Identifier of the order within the ROSEO server. Generated by the Server at order submission.
		{order item identifier}	Identifier of the ordered item.

Table 7-5: Resource Template URLs.

7.2.2.3 oseo:OrderingServiceContentsType

Names	Definition	Data type and value	Multiplicity and use
oseo:OrderingServiceContentsType	This is the OSEO definition of Contents section. This table reports the tailoring of that definition to ROSEO purposes.		
ProductOrders	Products order are always supported by ROSEO.	Type: ProductOrders	One (mandatory)
supported	Products order are always supported by ROSEO.	Type: xs:Boolean Set always to “true”	One (mandatory)

Names	Definition	Data type and value	Multiplicity and use
SubscriptionOrders	This element specifies whether subscription orders are supported by the ROSEO Server. This is applicable to all collections supported by this server unless overridden in §7.2.2.4.	Type: SubscriptionOrders	One (mandatory)
supported	Set to true whether the subscription orders are supported.	Type: xs:boolean	One (mandatory)
ProgrammingOrdering	Programming order not supported.		
supported	Programming order not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
SPS_URL	Programming order not supported.	Type: anyURI Leave empty.	One (optional)
GetQuotationCapabilities	Order Quotation not supported.		
supported	Order Quotation not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
synchronous	Order Quotation not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
asynchronous	Order Quotation not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
monitoring	Order Quotation not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
off-line	Order Quotation not supported.	Type: xs:boolean Set always to “false”	One (mandatory)
SubmitCapabilities	This element specifies how the order submit is supported: <ul style="list-style-type: none"> – Asynchronous (the synchronous behaviour is mandatory). – Max number of orderable products – Local / global options 	Type: SubmitCapabilities	One (mandatory)
asynchronous	Asynchronous notification not supported.	Type: xs:Boolean Set always to “false”	One (mandatory)
maxNumberOfProducts	It specifies the max number of products that can be ordered in Submit operation. If not specified, then no limitation	Type: xs:integer	One (optional)
globalDeliveryOptions	Set to true if the service is able to accept orders with delivery options shared between all order items.	Type: xs:boolean	One (mandatory)

Names	Definition	Data type and value	Multiplicity and use
localDeliveryOptions	Set to true if the service is able to accept orders with delivery options specified for each order item.	Type: xs:boolean	One (mandatory)
globalOrderOptions	Set to true if the service is able to accept orders with order options shared between all order items.	Type: xs:boolean	One (mandatory)
localOrderOptions	Set to true if the service is able to accept orders with order options specified for each order item.	Type: xs:boolean	One (mandatory)
GetStatusCapabilities	ROSEO requires full order search support.	Type: GetStatusCapabilities	One (mandatory)
orderSearch	ROSEO requires full order search support.	Type: xs:Boolean always "true"	One (mandatory)
orderRetrieve	ROSEO requires full order search support.	Type: xs:Boolean always "true"	One (mandatory)
full	ROSEO requires full order search support.	Type: xs:Boolean always "true"	One (mandatory)
DescribeResultAccessCapabilities	Online Access always implemented by ROSEO.	Type: DescribeResultAccessCapabilities	One (mandatory)
supported	Online Access always implemented by ROSEO.	Type: xs:Boolean Set always to true.	One (mandatory)
CancelCapabilities	Order cancellation always supported.	Type: CancelCapabilities	One (mandatory)
supported	Order cancellation always supported.	Type: xs:Boolean Set always to true.	One (mandatory)
asynchronous	No asynchronous mechanisms supported.	Type: xs:Boolean Set always to false.	One (mandatory)
SupportedCollection	This element specifies the list of collections supported by this Ordering service. This list includes collections for products ordering and for subscriptions.	Type: CollectionCapability	Zero or more (optional)
ContentsType	Information about supported encoding rules for options values	Type: EncodingType	Zero or more (optional)
supportedEncoding	String to define the encoding rules.	Type: gml:CodeType Allowed values: XMLEncoding,TextEncoding	One (mandatory)

Table 7-6: oseo:OrderingServiceContentsType tailoring.

7.2.2.4 CollectionCapability

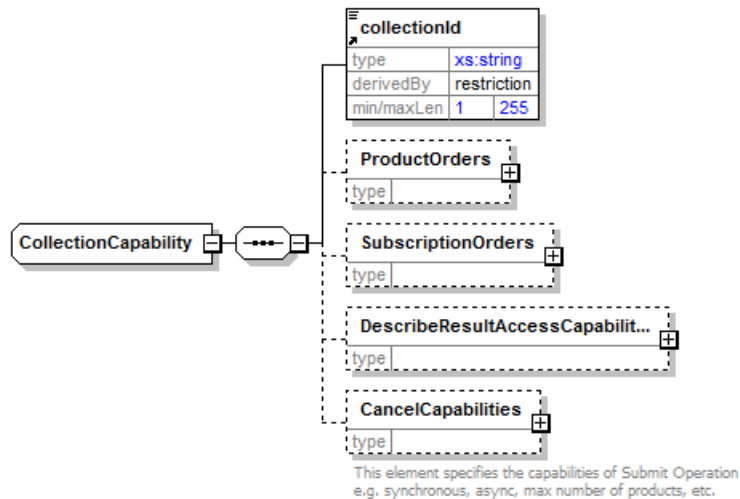


Figure 7-4: CollectionCapability diagram.

Names	Definition	Data type and value	Multiplicity and use
oseo:CollectionCapability	This element specifies the list of collections supported by this Ordering service. This list includes collections for products ordering and for subscriptions.	Type: CollectionCapability	
collectionId	Identifier for Collection Syntax: it shall be a valid URN compliant with OGC 06-131, which reports the definition of the parentIdentifier, that is equivalent to the collectionId in this specification.	Type: non empty string (max 255 chars)	One (mandatory)
ProductOrders	Product Orders always supported by ROSEO.	Type: ProductOrders	One (optional)
supported	Product Orders always supported by ROSEO.	Type: xs:Boolean Set always to true.	One (mandatory)
SubscriptionOrders	This element specifies whether subscription orders are supported on this collection by the ROSEO Server. This element overrides the same element defined at upper level.	Type: SubscriptionOrders	One (optional)
supported	Set to true whether the subscription orders are supported.	Type: xs:boolean	One (mandatory)
DescribeResultAccess Capabilities	Online Access always implemented by ROSEO.	Type: DescribeResultAccessCapabilities	One (optional)

Names	Definition	Data type and value	Multiplicity and use
supported	Online Access always implemented by ROSEO.	Type: xs:Boolean Set always to true.	One (mandatory)
CancelCapabilities	Order cancellation always supported.	Type: CancelCapabilities	One (optional)
supported	Order cancellation always supported.	Type: xs:Boolean Set always to true.	One (mandatory)
asynchronous	No asynchronous mechanisms supported.	Type: xs:Boolean Set always to false.	One (mandatory)

Table 7-7: CollectionCapability tailoring.

7.2.3 HTTP Methods

HTTP Method	URL	Definition	Request Entity Body	Response Entity Body
GET	<ROSEO Root Path>	It returns the complete capabilities document.	Empty	<roseo:Capabilities> element instance
	<ROSEO Root Path>/ServiceIdentification	It returns the ServiceIdentification element	Empty	<ows:ServiceIdentification> element instance
	<ROSEO Root Path>/ServiceProvider	It returns the ServiceProvider element	Empty	<ows:ServiceProvider> element instance
	<ROSEO Root Path>/Contents	It returns the Contents element	Empty	<roseo:Contents> element instance
POST	Not used by this document.			
PUT	Not used by this document.			
DELETE	Not used by this document.			

Table 7-8: Capabilities Resource Methods.

7.2.3.1 Examples

GET Capabilities - Request

```
GET /ROSEO/1.0.0/ HTTP/1.1
```

```
Host: roseo.example.com
```

GET Capabilities - Response

```
HTTP/1.1 200 OK |
Content-Type: text/xml

<?xml version="1.0" encoding="UTF-8"?>
<roseo:Capabilities version="0.0.0" updateSequence="String" xsi:schemaLocation="http://www.opengis.net/roseo/1.0
roseo.xsd" xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:ows="http://www.opengis.net/ows/2.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ows:ServiceIdentification>
    <ows:Title xml:lang="en-us">ROSEO Test Server</ows:Title>
```

```

<ows:Abstract xml:lang="en-us">Test Server of ROSEO protocol</ows:Abstract>
<ows:Keywords>
  <ows:Keyword xml:lang="en-us">roseo</ows:Keyword>
</ows:Keywords>
<ows:ServiceType codeSpace="http://www.altova.com">String</ows:ServiceType>
<ows:ServiceTypeVersion>1.0.0</ows:ServiceTypeVersion>
<ows:Profile>http://www.altova.com</ows:Profile>
<ows:Fees>String</ows:Fees>
<ows:AccessConstraints>String</ows:AccessConstraints>
</ows:ServiceIdentification>
<ows:ServiceProvider>
  <ows:ProviderName>ESA EECF</ows:ProviderName>
  <ows:ServiceContact>
    <ows:IndividualName>John Smith</ows:IndividualName>
    <ows:PositionName>Help Desk</ows:PositionName>
    <ows:ContactInfo>
      <ows:Phone>
        <ows:Voice>+39 06 90 180 999</ows:Voice>
      </ows:Phone>
      <ows:HoursOfService>9:00 - 18:00</ows:HoursOfService>
    </ows:ContactInfo>
  </ows:ServiceContact>
</ows:ServiceProvider>
<ows:Languages>
  <ows:Language>en-us</ows:Language>
</ows:Languages>
<roseo:Contents>
  <oseo:ProductOrders supported="true"/>
  <oseo:SubscriptionOrders supported="true"/>
  <oseo:ProgrammingOrders supported="false"/>
  <oseo:GetQuotationCapabilities supported="false" synchronous="false" asynchronous="false"
monitoring="false" off-line="false"/>
  <oseo:SubmitCapabilities asynchronous="false" maxNumberOfProducts="0"
globalDeliveryOptions="true" localDeliveryOptions="true" globalOrderOptions="true" localOrderOptions="true"/>
  <oseo:GetStatusCapabilities orderSearch="true" orderRetrieve="true" full="true"/>
  <oseo:DescribeResultAccessCapabilities supported="true"/>
  <oseo:CancelCapabilities supported="true" asynchronous="false"/>
  <oseo:SupportedCollection>
    <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</oseo:collectio
nId>
      <oseo:DescribeResultAccessCapabilities supported="false"/>
    </oseo:SupportedCollection>
    <oseo:SupportedCollection>
      <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xF</oseo:collectio
nId>
        <oseo:DescribeResultAccessCapabilities supported="false"/>
      </oseo:SupportedCollection>
      <oseo:resourceURL resource="capabilities" URL="http://roseo.example.com/ROSEO/1.0.0/">
        <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{eo:identifier}/{format}"/>
        <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{collection identifier}/{format}"/>
        <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{subscription identifier}/{format}"/>
        <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order/">
        <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order/{order
identifier}"/>
        <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order?{filter
expression}"/>
        <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order/{order
identifier}/{order item identifier}"/>
        <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file"/>
        <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file?{filter expression}"/>
        <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/{order item identifier}/file"/>
      </oseo:Contents>

```

```
</roseo:Capabilities>
```

GET Capabilities/Contents Request

```
GET /ROSEO/1.0.0/Contents HTTP/1.1
```

```
Host: roseo.example.com
```

GET Capabilities/Contents Response

```
HTTP/1.1 200 OK |
Content-Type: text/xml;

<?xml version="1.0" encoding="UTF-8"?>
<roseo:Contents xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <oseo:ProductOrders supported="true"/>
  <oseo:SubscriptionOrders supported="true"/>
  <oseo:ProgrammingOrders supported="false"/>
  <oseo:GetQuotationCapabilities supported="false" synchronous="false" asynchronous="false"
monitoring="false" off-line="false"/>
  <oseo:SubmitCapabilities asynchronous="false" maxNumberOfProducts="0" globalDeliveryOptions="true"
localDeliveryOptions="true" globalOrderOptions="true" localOrderOptions="true"/>
  <oseo:GetStatusCapabilities orderSearch="true" orderRetrieve="true" full="true"/>
  <oseo:DescribeResultAccessCapabilities supported="true"/>
  <oseo:CancelCapabilities supported="true" asynchronous="false"/>
  <oseo:SupportedCollection>
    <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</oseo:collectio
nId>
      <oseo:DescribeResultAccessCapabilities supported="false"/>
      </oseo:SupportedCollection>
      <oseo:SupportedCollection>
        <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xF</oseo:collectio
nId>
          <oseo:DescribeResultAccessCapabilities supported="false"/>
          </oseo:SupportedCollection>
          <oseo:resourceURL resource="capabilities" URL="http://roseo.example.com/ROSEO/1.0.0/">
            <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{eo:identifier}/{format}"/>
            <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{collection identifier}/{format}"/>
            <oseo:resourceURL resource="order options"
URL="http://roseo.example.com/ROSEO/1.0.0/options/{subscription identifier}/{format}"/>
            <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order"/>
            <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order/{order
identifier}"/>
            <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order?{filter
expression}"/>
            <oseo:resourceURL resource="order" URL="http://roseo.example.com/ROSEO/1.0.0/order/{order
identifier}/{order item identifier}"/>
            <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file"/>
            <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/file?{filter expression}"/>
            <oseo:resourceURL resource="ordered product"
URL="http://roseo.example.com/ROSEO/1.0.0/order/{order identifier}/{order item identifier}/file"/>
          </oseo:SupportedCollection>
        </oseo:SupportedCollection>
      </oseo:SupportedCollection>
    </oseo:SupportedCollection>
  </oseo:Contents>
```

7.2.4 Error Handling

In the event that a ROSEO server encounters an error during the access to Capabilities resource, then it returns an HTTP response including:

- HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side.
- HTTP Entity Body: ows:ExceptionReport element set as specified in §8 of [NR7].

The following table reports the possible error conditions with the defined HTTP responses.

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Bad Input Parameter. E.g. an incorrect Capabilities subsection has been specified	400	InvalidParameterValue	Name of parameter with invalid value	“Invalid value for Parameter”
Internal Server Error An error occurred inside the server while processing the request.	500	“NoApplicableCode”		

Table 7-9: Capabilities resource error conditions.

7.3 Order Options Resource

Order Options resource describes the parameters that can be set by the clients for customizing an item to order.

Depending on the Satellite mission, order options can be defined either at collection level, which means that all EO Products belonging to a specified collection have the same order options, or at product level, in this case each product has potentially different order options.

To be noted that in case of Subscription orders the collection element is used for identifying the subscription, and then in that case the order options for that subscription are returned.

Returned options are structured in array of groups, each identified by the productOrderOptionsId element 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 a different level 1 product, another for level 2 product, etc.). Each group includes mainly the following elements:

- Delivery options
- Payment options
- Scene selection options
- 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.

Two Order Options formats have been defined:

- The “canonical” XML format, i.e. the XML format directly derived from OSEO;
- the OSDD one, which reports the order options via template URL plus XML block in “canonical” format.

Order Options resource is well connected with the other ROSEO resources:

- Order Options in OSDD format includes the XML ones.
- Order Options are structured in groups; each group links to:
 - Either to an EO Product via the direct download function, in case of options by product;
 - Or to an OSDD for querying a Catalogue hosting the collection the OSDD is related to.

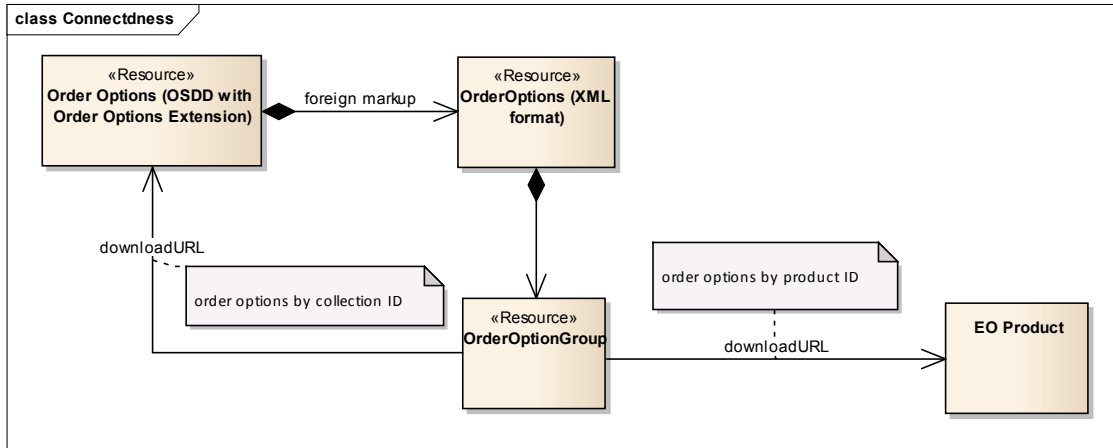


Figure 7-5: OrderOptions resource links.

7.3.1 URL

URL	Definition
<Order Option By Product> in canonical XML format	<ROSEO Root Path>/options/{eo:identifier}/xml
<Order Option By Product> in Open Search Description Document format (OSDD)	<ROSEO Root Path>/options/{eo:identifier}/osdd
<Order Option By Collection> in canonical XML format	<ROSEO Root Path>/options/{collection identifier}/xml
<Order Option By Collection> in Open Search Description Document format (OSDD)	<ROSEO Root Path>/options/{collection identifier}/osdd
<Order Option By Subscription> in canonical XML format	<ROSEO Root Path>/options/{subscription identifier}/xml
<Order Option By Subscription> in Open Search Description Document format (OSDD)	<ROSEO Root Path>/options/{subscription identifier}/osdd

Table 7-10: Order Options Resource URLs.

Names	Definition	Data type and values
{eo:identifier}	Identifier of the EO Product the Order Options resource is related to. eo:identifier is the identifier of a EO Product as specified in OGC 13-026. eo refers to the following namespace: http://a9.com/-/opensearch/extensions/eo/1.0/	xs:string (max 255 chars) URL encoded
{collection identifier}	Identifier of the EO Product Collection the Order Options resource is related to.	xs:string (max 255 chars) URL encoded
{subscription identifier}	Identifier of the EO Product Subscription the Order Options resource is related to.	xs:string (max 255 chars) URL encoded

Table 7-11: Order Options Resource URLs parameters.

To be noted that products, collections and subscriptions are below the same path (i.e. there are not additional URL components like “product”, “collection”, “subscription”) because it is assumed that the three entities have not duplicated values i.e. it is assumed

that there are not products / collections / subscriptions with the same identifier, then they have to be built with appropriate naming conventions preventing the usage of the same identifier for different concepts.

7.3.2 Definition

Two different representations are foreseen:

- The “canonical” XML one, derived from the original OSEO specification.
- Open Search Description Document embedding Order Options as foreign markup. This alternative format has been proposed in order to support online data access scenario in which the result of the catalogue access includes not only the metadata records matching the query, but also pre-built URLs for direct ordering & downloading of the search results.

7.3.2.1 Order Options in canonical XML format

This section reports the “canonical XML definition” of OrderOptions resource i.e. the definition inherited from parent OSEO specification applying minor modifications.

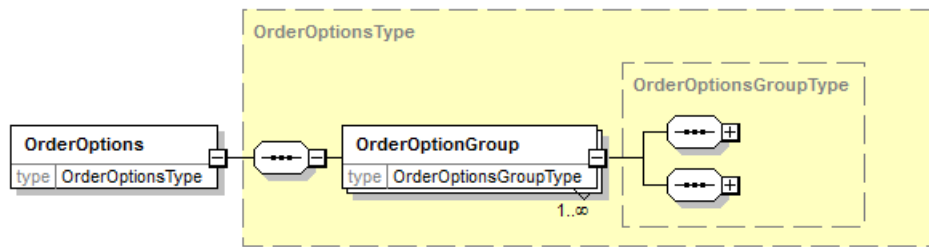


Figure 7-6: OrderOptions diagram.

Names	Definition	Data type and values	Multiplicity and use
OrderOptionGroup	A Group of order options corresponding to the specified resource (either product, or collection or subscription).	Type:OrderOptionsGroupType (see Table 7-13)	One or more

Table 7-12: OrderOptions definition.

7.3.2.1.1 OrderOptionsGroupType

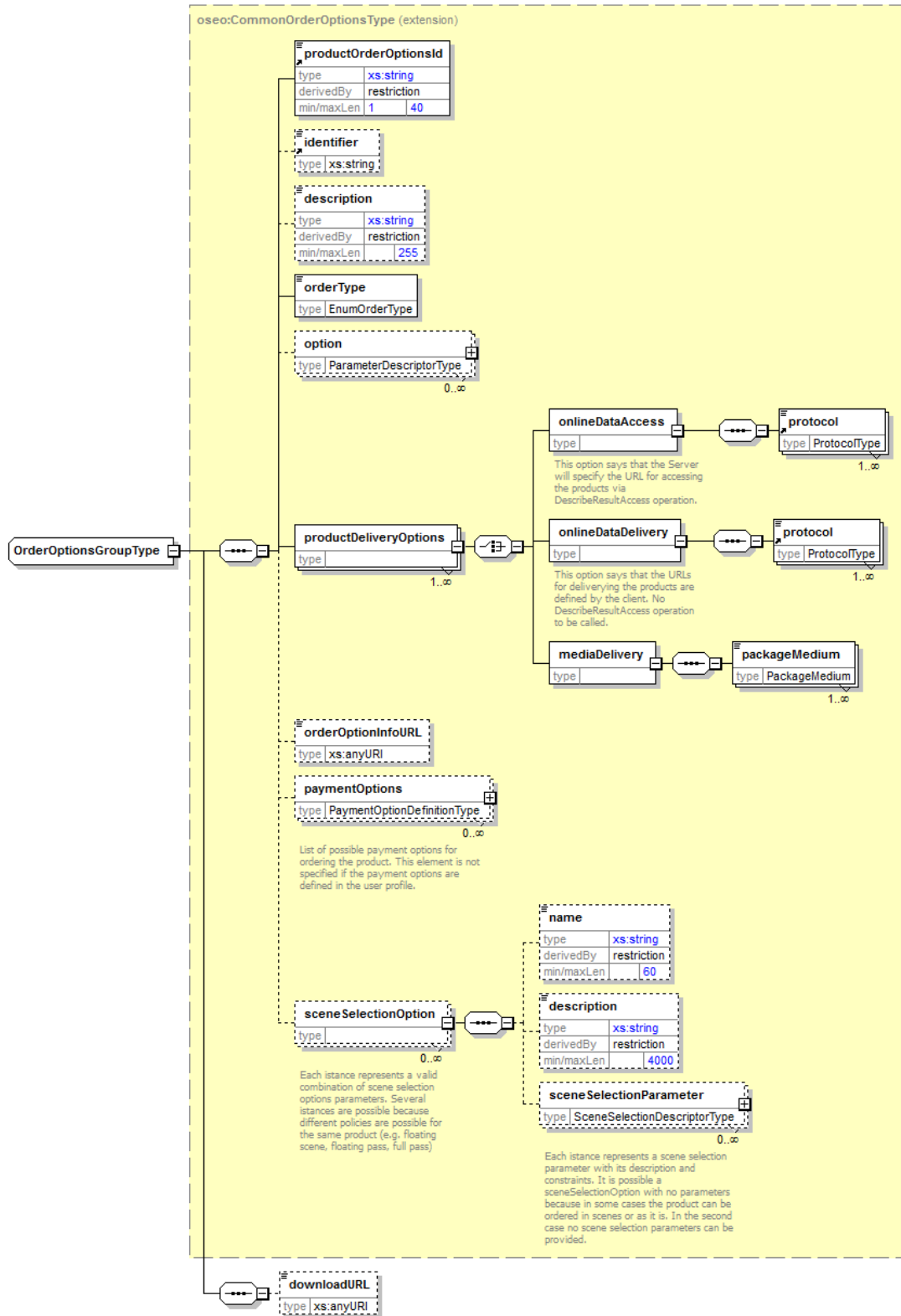


Figure 7-7: OrderOptionsGroupType diagram.

Names	Definition	Data type and values	Multiplicity and use
OrderOptionsGroupType	A group including all processing, delivery and scene selection options related to a specified resource (either a product or a collection or a subscription). It is inherited from parent OSEO specification.	Inherited from OSEO:CommonOrderOptionsType (see Table 7-15)	
downloadURL	<p>Template URL, including Order Options parameters, for direct download of products.</p> <p>This element has different purposes depending on the specified input resource: in case of EO Product it defines a Template URL for direct download of the product; in case of Collection it reports the URL for accessing to an OSDD for querying that collection; in case of a subscription it is not set. See Table 7-14 for details.</p> <p>See §7.3.2.3 for URL Template parameters.</p>	<p>Type: xs:anyURI</p> <p>See §7.3.2.3.</p>	One optional

Table 7-13: OrderOptionsGroupType definition.

	downloadURL	
	Description	Example
EO Product	In this case the downloadURL is a Template URL embedding a reference to the specified product plus all the order options for Direct Download request. Then a download request can be directly built replacing the template parameters with the appropriate values specified in the OrderOptions XML element. See §7.3.2.3 for URL Template parameters.	<code><roseo:downloadURL>http://some.roseo.server/ROSEO/1.0/.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI?prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&qos={roseo:QualityOfService}</roseo:downloadURL></code>
Collection	In this case the downloadURL is the URL for getting the OpenSearch Description Document for querying and directly downloading products from that collection. It is actually the URL for getting order options in OSDD format. See §7.3.2.3 for URL Template parameters.	<code><roseo:downloadURL>http://some.roseo.server/ROSEO/1.0/.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osdd</roseo:downloadURL></code>
Subscription	No direct download for subscriptions is supported.	

Table 7-14: downloadURL element details for the different order resources.

Names	Definition & Tailoring	Data type and value	Multiplicity and use
productOrderOptionsId	Identifier of the specific order option group.	See OSEO:CommonOrderOptionsType definition [NR8]	
identifier	Product identifier element. This field: <ul style="list-style-type: none"> – 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 / subscription. 	See OSEO:CommonOrderOptionsType definition [NR8]	
description	Free text description of the order option group.	See OSEO:CommonOrderOptionsType definition [NR8]	
orderType	This tag specifies whether the order option is related to a subscription order or to a product order.	Type: String Permitted Values: <ul style="list-style-type: none"> <input type="checkbox"/> PRODUCT_ORDER, <input type="checkbox"/> SUBSCRIPTION_ORDER TASKING_ORDER is not allowed in ROSEO specification.	One (mandatory)
option	This element reports the processing options for the specified product, collection, subscription.	See OSEO:CommonOrderOptionsType definition [NR8]	
productDeliveryOptions	This element reports the delivery options for the specified product, collection, subscription.	Type: OSEO:productDeliveryOptions	One (mandatory)
onlineDataAccess	Delivery option in case of On-line Access		
protocol		Type: ProtocolType (see Table 7-16)	One or more (mandatory)
onlineDataDelivery	Not supported		None.
protocol	Not supported		None.
mediaDelivery	Not supported		None.
packageMedium	Not supported		None.
orderOptionInfoURL	Pointer to external information about the current order option.	See OSEO:CommonOrderOptionsType definition [NR8]	
paymentOptions	See OSEO:CommonOrderOptionsType definition [NR8]		
paymentMethod	See OSEO:CommonOrderOptionsType definition [NR8]		
paymentOptionInfoURL	See OSEO:CommonOrderOptionsType definition [NR8]		
sceneSelectionOption	Set of scene selection option groups.	See OSEO:CommonOrderOptionsType definition [NR8]	
name	Name of the scene selection options group. It identifies the group of scene selection options.	See OSEO:CommonOrderOptionsType definition [NR8]	
description	Description of the scene selection option group	See OSEO:CommonOrderOptionsType definition [NR8]	

Names	Definition & Tailoring	Data type and value	Multiplicity and use
sceneSelectionParameter	Scene selection option parameters description.	See OSEO:CommonOrderOptionsType definition [NR8]	

Table 7-15: OSEO:CommonOrderOptionsType tailoring.

Names	Definition & Tailoring	Data type and value
ProtocolType	This type lists the possible protocols for getting the item delivered via Online Data Access.	Type: String Permitted Values: <ul style="list-style-type: none"> – ftp, File Transfer Protocol – sftp, SSH File Transfer Protocol) – ftps, FTP over SSL – P2P, peer to peer - Torrent – wcs, OGC Web Coverage Service – wms, OGC Web Map Service – http, Hyper Text Transfer Protocol – https

Table 7-16: OSEO:ProtocolType tailoring.

7.3.2.2 Order Options in Open Search Description Document format

This section reports the representation of OrderOptions resource within an Open Search Description document – OSDD.

This section is actually an extension to OpenSearch protocol for managing Order Options. In fact it includes:

- Extension to the OSDD, via the foreign markup mechanism, for including OrderOptions resource in “canonical” XML format (§7.3.2.1).
- Extension to the Open Search Template URL for including OrderOptions resource as template parameters.

The namespace of this Open Search extension is the ROSEO one:

- Prefix: roseo
- URL: <http://www.opengis.net/roseo/1.0>

7.3.2.2.1 Open Search Description Document Extension for Order Options

This section reports the extension to the standard Open Search Description Document for embedding the OrderOptions resource.

As specified in [NR15], OpenSearch Description Documents can be extended with new XML “foreign” elements and attributes provided that all of them are associated with an explicit XML namespace. Clients that encounter unrecognized foreign elements should ignore them and continue to process the document as if these elements did not appear.

Then the following table reports the “foreign markup” to be added to a standard Open Search Description Document and the tailoring to be applied to the standard OSDD elements.

Names	Definition & Tailoring	Data Type and values	Multiplicity and use
ShortName	Contains a brief human-readable title that identifies this search engine.	Type: String (max 15 char)	One mandatory
Description	Contains a human-readable text description of the search engine.	Type: String (max 1024 char)	One mandatory
Url	<p>Describes an interface by which a client can make requests for an external resource, such as search results, search suggestions, or additional description documents.</p> <p>One Url element instance shall be included for each order option group.</p>		One or more Mandatory
template	<p>XML attribute.</p> <p>It contains the search URL template to be processed according to the OpenSearch URL template syntax.</p> <p>It shall be set with template parameters corresponding to the available order options. See §7.3.2.3 for URL template rules.</p> <p>This element has different purposes depending on the specified input resource: in case of EO Product it defines a Template URL for direct download of the product; in case of Collection it defines a Template URL for querying and directly downloading the products from that collection; in case of a subscription it is not set. See Table 7-18 for details.</p>	Type: URL	One mandatory

Names	Definition & Tailoring	Data Type and values	Multiplicity and use
type	<p>XML attribute.</p> <p>The MIME type of the resource being described.</p> <p>Set with:</p> <p>application/atom+xml</p>	<p>Type: String</p> <p>Allowed values: only valid MIME types.</p>	One mandatory
rel	<p>XML attribute.</p> <p>The role of the resource being described in relation to the description document.</p> <p>Can be left empty.</p>		One optional
indexOffset	<p>XML attribute.</p> <p>The index number of the first search result.</p> <p>Default: "1"</p> <p>Can be left empty.</p>		One optional
pageOffset	<p>XML attribute.</p> <p>The page number of the first set of search results.</p> <p>Default: "1"</p> <p>Can be left empty.</p>		One optional
Contact	<p>Contains an email address at which the maintainer of the description document can be reached.</p> <p>Can be left empty.</p>		One optional
Tags	<p>Contains a set of words that are used as keywords to identify and categorize this search content. Tags must be a single word and are delimited by the space character (' ').</p> <p>Can be left empty.</p>		One optional

Names	Definition & Tailoring	Data Type and values	Multiplicity and use
LongName	<p>Contains an extended human-readable title that identifies this search engine.</p> <p>Can be left empty.</p>		One optional
Image	<p>Contains a URL that identifies the location of an image that can be used in association with this search content.</p> <p>Can be left empty.</p>		One or more optional
Query	<p>Defines a search query that can be performed by search clients. Please see the OpenSearch Query element specification for more information.</p> <p>OpenSearch description documents should include at least one Query element of role="example" that is expected to return search results. Search clients may use this example query to validate that the search engine is working properly.</p> <p>Can be left empty.</p>		One or more optional
Developer	<p>Contains the human-readable name or identifier of the creator or maintainer of the description document.</p> <p>The developer is the person or entity that created the description document, and may or may not be the owner, author, or copyright holder of the source of the content itself.</p> <p>Can be left empty.</p>		One optional
Attribution	<p>Contains a list of all sources or entities that should be credited for the content contained in the search feed.</p> <p>Can be left empty.</p>		One optional

Names	Definition & Tailoring	Data Type and values	Multiplicity and use
SyndicationRight	<p>Contains a value that indicates the degree to which the search results provided by this search engine can be queried, displayed, and redistributed.</p> <p>Set with: open</p>		One optional
AdultContent	<p>Contains a boolean value that should be set to true if the search results may contain material intended only for adults.</p> <p>Set with: false</p>		One optional
Language	<p>Contains a string that indicates that the search engine supports search results in the specified language.</p> <p>Default: "*".</p> <p>"*" means that the search engine does not restrict search results to any particular language.</p> <p>Can be left empty.</p>		One or more optional
InputEncoding	<p>Contains a string that indicates that the search engine supports search requests encoded with the specified character encoding.</p> <p>Default: "UTF-8".</p> <p>Can be left empty.</p>		One or more optional
OutputEncoding	<p>Contains a string that indicates that the search engine supports search responses encoded with the specified character encoding.</p> <p>Default: "UTF-8".</p> <p>Can be left empty.</p>		One or more Optional
OrderOptions	Order options inserted as foreign markup within the OSDD.	<p>Type: OrderOptionsType</p> <p>See §7.3.2.1</p>	One mandatory

Table 7-17: Order Options definition in OSDD tailoring.

	URL template	
	Description	Example
EO Product	In this case the URL Template embeds a reference to the specified product plus all the order options for Direct Download request. Then a download request can be directly built replacing the template parameters with the appropriate values specified in the OrderOptions XML element.	<code><mstns:Url type="application/atom+xml" template="http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI?prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&qos={roseo:QualityOfService}"/></code>
Collection	In this case it is URL Template for issuing Open Search queries to the specified collection, including also the available order options.	<code><mstns:Url type="application/atom+xml" template="http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS?q={searchTerm}&count={count}&startIndex={startIndex}&startPage={startPage}&language={language}&inputEncoding={inputEncoding}&outputEncoding={outputEncoding}&bbox={geo:box}&geom={geo:geometry}&id={geo:uid}&lat={geo:lat}&lon={geo:lon}&radius={geo:radius}&rel={geo:relation}&loc={geo:name}&startdate={time:start}&stopdate={time:end}&prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&qos={roseo:QualityOfService}"/></code>
Subscription	No direct download for subscriptions is supported.	

Table 7-18: Open Search Template URL details for the different order resources.

7.3.2.3 Open Search Template URL for Order Options

This section reports the list of template parameters to be added to a standard Open Search URL Template for carrying on Order Options. They have been derived through 1:1 mapping from the “Pre-defined list of ordering options” specified in §7.3.4, §7.3.6 of [NR8] applying the rule for converting the XML representation in URL representation described in §7.3.2.3.1.

7.3.2.3.1 URL encoding rule for OSEO Order Options

This section specifies the rule for converting an order option of OSEO specification in template parameters within an Open Search Template URL.

Two aspects have been addressed in this section:

- The **declaration** of order options, i.e. to define the name (e.g. ProcessingLevel), the type (e.g. string) the allowed values (e.g. L0, L1A, L1B, etc.), the default values. This is in the scope of OrderOptions resource of this specification.
- The **setting** of order options i.e. to assign a value to an available order option e.g. ProcessingLevel=L1A. This is in the scope of Order resource of this specification.

These aspects are addressed via SWE Common in OSEO and via the URL Template in Open Search; furthermore the same item, the URL template, covers both aspects in Open

Search. So this section describes both the rules for **declaring** and for **setting** an order option within the Open Search URL Template.

Order Option Declaration

Open Search Template does not allow to describe anything, but just to say whether a parameter is possible or not, and what is it. Then the representation of OSEO order option is quite simple: each OSEO order options becomes a template parameter.

Example:

Example OSEO Order Option Declaration	Example Open Search Template Parameter
<pre> <option> <swe:DataRecord> <swe:field name="processingLevel"> <swe:Category updatable="false" optional="true" definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel"> <swe:identifier>processing Level</swe:identifier> <swe:constraint> <swe:AllowedTokens> <swe:value>1A</swe:value> <swe:value>1B</swe:value> <swe:value>2B</swe:value> </swe:AllowedTokens> </swe:constraint> </swe:Category> </swe:field> </swe:DataRecord> </grouping>Processing Option</grouping> </option> </pre>	<pre> <a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel} </pre>
<pre> <option> <swe:DataRecord> <swe:field name="productType"> <swe:Category updatable="false" optional="true" definition="http://www.opengis.net/def/parameter/ESA/1.0/productType"> <swe:identifier>Product Type</swe:identifier> <swe:constraint> <swe:AllowedTokens> <swe:value>ASA_IMM_1P</swe:value> <swe:value>ASA_IMS_1P</swe:value> <swe:value>ASA_IMP_1P</swe:value> </swe:AllowedTokens> </swe:constraint> </swe:Category> </swe:field> </swe:DataRecord> </grouping>Processing Option</grouping> </option> </pre>	<pre> <a href="http://roseo.server.com/<path>?<other parameters>&prdt={roseo:ProductType}">http://roseo.server.com/<path>?<other parameters>&prdt={roseo:ProductType} </pre>

Table 7-19: Example Order Options declaration.

As highlighted in the example above, the OSEO specification, which is the canonical XML specification, using SWE Common, provides a complete specification of the parameter: name (processingLevel), type (swe:Category) and allowed values (1A, 1B, ..). The Open Search specification just says that there is a template parameter (roseo:ProcessingLevel) without further information.

Order Option Setting

The setting of values is more complex. Open Search foresees a textual replacement of the Template parameter with the actual value, then:

- in case of **simple order options** i.e. defined using basic types like xs:int, xs:string, xs:dateTime, the setting is straightforward: just replace the Template parameter with the URL encoded value. Example:

Example OSEO Order Option Setting	Example Open Search Template Parameter Setting
<pre><option> <ParameterData> <encoding>XMLEncoding</encoding> <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset"> <ns:processingLevel>1B</ns:processingLevel> <ns:productType>ASA_IMS_1P</ns:productType> <ns:qualityOfService>STANDARD</ns:qualityOfService> </values> </ParameterData> </option></pre>	<pre>http://roseo.server.com/<path>?<other parameters>& prclv=1B&prdt=ASA_IMS_1P&qos=STANDARD</pre>

Table 7-20: Example Order Option setting (simple).

- in case of **structured order options** i.e. defined using complex types like: arrays, structures, and nested structures (e.g. arrays of structures, structures of structures, etc.) the mapping is more complex because a rule has to be defined for encoding the values of sub-parameters. For the sake of simplicity the well known and vastly used JSON syntax [NR16] has been adopted. Example:

Example OSEO Order Option Setting	Example Open Search Template Parameter Setting
<pre><option> <ParameterData> <encoding>XMLEncoding</encoding> <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset"> <ns:SpectralBandColorComposition> <ns:RedBand>band1</ns:RedBand> <ns:GreenBand>band6</ns:GreenBand> <ns:BlueBand>band12</ns:BlueBand> </ns:SpectralBandColorComposition> </values> </ParameterData> </option></pre>	<pre>http://roseo.server.com/<path>?<other parameters>&sbcc={"RedBand": "band1", "GreenBand": "band6", "BlueBand": "band12"}</pre>

Table 7-21: Example Order Option setting (complex).

This section has provided the rule for representing OSEO Order Options within Open Search Template parameters: the full list of order options is anyway specified in §7.3.2.3.3.

7.3.2.3.2 URL Template Search Operators

The following table reports the possible search operators that can be used within the Template URL.

Search Operator	Open Search URL encoding	Example
Equal	“=”	http://<cataloguehostname>?size=625765213
Equal with multiple values (=exp1 OR =exp2 etc.)	“=” and a comma separating the different values	http://<cataloguehostname>?size=10000,11000,12000
GreaterEqual (>=)	“=” and a “[“ at start of query expression	http://<cataloguehostname>?size=[625765213
LessEqual (<=)	“=” and a “]” at end of query expression	http://<cataloguehostname>?size=625765213]
Between (>=exp1 AND <=exp2)	“=” and a “[“;”]” surrounding the query expression	http://<cataloguehostname>?size=[623751148,625765213]

Table 7-22: Search Operators.

7.3.2.3.3 Predefined Order Options URL Template Parameters

The following tables report the list of allowed Template URL parameters, including:

- The OpenSearch Template URL key (e.g. “q”). This is a suggestion, not a requirement.
- The OpenSearch Template URL value (e.g. “searchTerms”).
- The allowed search operators (see Table 7-22).
- Open Search URL Example.

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
bo	{roseo:BitsOutput}	BitsOutput	Equal	xs:int	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&bo={roseo:BitsOutput}">http://roseo.server.com/<path>?<other parameters>&bo={roseo:BitsOutput}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&bo=16">http://roseo.server.com/<path>?<other parameters>&bo=16</p>
cmpr	{roseo:Compression}	Compression	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>& cmpr={roseo:Compression}">http://roseo.server.com/<path>?<other parameters>& cmpr={roseo:Compression}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&cmpr=gzip">http://roseo.server.com/<path>?<other parameters>&cmpr=gzip</p>
cons	{roseo:Consolidation}	Consolidation	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&cons={roseo:Consolidation}">http://roseo.server.com/<path>?<other parameters>&cons={roseo:Consolidation}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&cons=consolidated">http://roseo.server.com/<path>?<other parameters>&cons=consolidated</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
dg	{roseo:DopplerGrid}	DopplerGrid	Equal	xs:boolean	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&dg={roseo:DopplerGrid}">http://roseo.server.com/<path>?<other parameters>&dg={roseo:DopplerGrid}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&dg=true">http://roseo.server.com/<path>?<other parameters>&dg=true</p>
em	{roseo:EarthModel}	EarthModel	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&em={roseo:EarthModel}">http://roseo.server.com/<path>?<other parameters>&em={roseo:EarthModel}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&em=CRS84">http://roseo.server.com/<path>?<other parameters>&em=CRS84</p>
elco	{roseo:ElevationCorrection}	ElevationCorrection	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&elco={roseo:ElevationCorrection}">http://roseo.server.com/<path>?<other parameters>&elco={roseo:ElevationCorrection}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&elco=DEM">http://roseo.server.com/<path>?<other parameters>&elco=DEM</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
frm	{roseo:Format}	Format	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm=DIMAP,GEOTIFF">http://roseo.server.com/<path>?<other parameters>&frm=DIMAP,GEOTIFF</p>
geocor	{roseo:GeoCorrection}	GeoCorrection	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&geocor={roseo:GeoCorrection}">http://roseo.server.com/<path>?<other parameters>&geocor={roseo:GeoCorrection}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&geocor=geo-coded">http://roseo.server.com/<path>?<other parameters>&geocor=geo-coded</p>
mpd	{roseo:MapDirection}	MapDirection	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&mpd={roseo:MapDirection}">http://roseo.server.com/<path>?<other parameters>&mpd={roseo:MapDirection}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&mpd=satellite">http://roseo.server.com/<path>?<other parameters>&mpd=satellite</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
mpp	{roseo:MapProjection}	MapProjection	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&mpp={roseo: MapProjection }">http://roseo.server.com/<path>?<other parameters>&mpp={roseo: MapProjection }</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&mpp=UTM">http://roseo.server.com/<path>?<other parameters>&mpp=UTM</p>
pxls	{roseo:PixelSpacing}	PixelSpacing	Equal	xs:double	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&pxls={roseo:PixelSpacing}">http://roseo.server.com/<path>?<other parameters>&pxls={roseo:PixelSpacing}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&pxls=6.25">http://roseo.server.com/<path>?<other parameters>&pxls=6.25</p>
polar	{roseo:Polarisation}	Polarisation	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&polar={roseo:Polarisation}">http://roseo.server.com/<path>?<other parameters>&polar={roseo:Polarisation}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&polar=HH %2FVV">http://roseo.server.com/<path>?<other parameters>&polar=HH %2FVV</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
prclv	{roseo:ProcessingLevel}	ProcessingLevel	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv=1B1">http://roseo.server.com/<path>?<other parameters>&prclv=1B1</p>
prcm	{roseo:ProcessingMode}	ProcessingMode	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prcm={roseo:ProcessingMode}">http://roseo.server.com/<path>?<other parameters>&prcm={roseo:ProcessingMode}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prcm=short%20latency">http://roseo.server.com/<path>?<other parameters>&prcm=short%20latency</p>
prdt	{roseo:ProductType}	ProductType	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prdt={roseo:ProductType}">http://roseo.server.com/<path>?<other parameters>&prdt={roseo:ProductType}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prdt=ASA_IMM_1P">http://roseo.server.com/<path>?<other parameters>&prdt=ASA_IMM_1P</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
qos	{roseo:QualityOfService}	QualityOfService	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&qos={roseo:QualityOfService}">http://roseo.server.com/<path>?<other parameters>&qos={roseo:QualityOfService}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&qos=STANDARD">http://roseo.server.com/<path>?<other parameters>&qos=STANDARD</p>
rcorr	{roseo:RadioCorrection}	RadioCorrection	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&rcorr={roseo:RadioCorrection}">http://roseo.server.com/<path>?<other parameters>&rcorr={roseo:RadioCorrection}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&rcorr=pre-flight">http://roseo.server.com/<path>?<other parameters>&rcorr=pre-flight</p>
resamp	{roseo:Resampling}	Resampling	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&resamp={roseo:Resampling}">http://roseo.server.com/<path>?<other parameters>&resamp={roseo:Resampling}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&resamp=cubic%20convolution">http://roseo.server.com/<path>?<other parameters>&resamp=cubic%20convolution</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
sbcc	{roseo:SpectralBandColorComposition}	SpectralBandColorComposition	Equal	Complex: <ul style="list-style-type: none"> <input type="checkbox"/> RedBand: Enumerated String <input type="checkbox"/> GreenBand: Enumerated String <input type="checkbox"/> BlueBand: Enumerated String 	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbcc={roseo:SpectralBandColorComposition}">http://roseo.server.com/<path>?<other parameters>&sbcc={roseo:SpectralBandColorComposition}</p> <p>Open Search URL:</p> <p><a "band1",="" "band3",="" "band7"}"="" "blueband":="" "greenband":="" href="http://roseo.server.com/<path>?<other parameters>&sbcc={" redband":="">http://roseo.server.com/<path>?<other parameters>&sbcc={"RedBand": "band1", "GreenBand": "band3", "BlueBand": "band7"}</p>
sbc	{roseo:SpectralBandComposition}	SpectralBandComposition	Equal	Enumerated String	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbc={roseo:SpectralBandComposition}">http://roseo.server.com/<path>?<other parameters>&sbc={roseo:SpectralBandComposition}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbc=Band%235%3A%20WV_6.2">http://roseo.server.com/<path>?<other parameters>&sbc=Band%235%3A%20WV_6.2</p>

Table 7-23: Open Search Template Parameters for Product Order Options (from OGC 06-141r6).

key	Template Parameter	Type	SWE Type	Description	Search Operator	OpenSearch URL Example
res	{roseo:Resolution}	xs:string	swe:DataRecord/ swe:field/ swe:Category	Required resolution	Equal	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&res={roseo:Resolution}">http://roseo.server.com/<path>?<other parameters>&res={roseo:Resolution}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&res=FR">http://roseo.server.com/<path>?<other parameters>&res=FR</p>
swath	{roseo:Swath}	xs:string	swe:DataRecord/ swe:field/ swe:Category	Required sensor swath	Equal	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&swath={roseo:Swath}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&swath=IW1">http://roseo.server.com/<path>?<other parameters>&swath=IW1</p>

Table 7-24: New Product Order Options.

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
drange	{roseo:DateRange}	DateRange	Equal	A pair of xs:dateTime separated by blank. The first one is the lower bound of the range; the second one is the upper bound of the range.	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&drange={roseo:DateRange}">http://roseo.server.com/<path>?<other parameters>&drange={roseo:DateRange}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&drange=2008-01-01T02:27:08.80Z%202008-01-31T02:27:08.80Z">http://roseo.server.com/<path>?<other parameters>&drange=2008-01-01T02:27:08.80Z%202008-01-31T02:27:08.80Z</p>
freqo	{roseo:FrequencyObservation}	FrequencyObservation	Equal	<p>Complex:</p> <ul style="list-style-type: none"> <input type="checkbox"/> numberOfObservations: xs:int <input type="checkbox"/> observationGap: xs:int 	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&freqo={roseo:FrequencyObservation}">http://roseo.server.com/<path>?<other parameters>&freqo={roseo:FrequencyObservation}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&freqo={" numberofobservations":30,"observationgap":7}"="">http://roseo.server.com/<path>?<other parameters>&freqo={"numberOfObservations":30,"observationGap":7}</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
roi	{roseo:RegionOfInterest}	RegionOfInterest	Equal	<p>The geometry is defined using the Well Known Text and supports the following 2D geographic shapes:</p> <ul style="list-style-type: none"> <input type="checkbox"/> POINT, <input type="checkbox"/> LINESTRING, <input type="checkbox"/> POLYGON, <input type="checkbox"/> MULTIPOINT <input type="checkbox"/> MULTILINESTRING <input type="checkbox"/> MULTIPOLYGON <p>The Geometry shall be expressed using the EPSG:4326.</p>	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&roi={roseo:RegionOfInterest}">http://roseo.server.com/<path>?<other parameters>&roi={roseo:RegionOfInterest}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&roi=POLYGON((0.582%2040.496%2C%200.231%2040.737%2C%200.736%2042.869%2C%203.351%2042.386%2C%203.263%2041.814%2C%202.164%2041.265%2C%200.978%20%20%2040.957%2C%200.802%2040.781%2C%200.978%2040.649%2C%200.582%2040.496))">http://roseo.server.com/<path>?<other parameters>&roi=POLYGON((0.582%2040.496%2C%200.231%2040.737%2C%200.736%2042.869%2C%203.351%2042.386%2C%203.263%2041.814%2C%202.164%2041.265%2C%200.978%20%20%2040.957%2C%200.802%2040.781%2C%200.978%2040.649%2C%200.582%2040.496))</p>

Table 7-25: Open Search Template Parameters for Subscription Order Options.

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
acts	{roseo:AcrossTrackSize}	AcrossTrackSize	Equal	xs:double	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&acts={roseo:AcrossTrackSize}">http://roseo.server.com/<path>?<other parameters>&acts={roseo:AcrossTrackSize}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&acts=5.0">http://roseo.server.com/<path>?<other parameters>&acts=5.0</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
alts	{roseo:AlongTrackSize}	AlongTrackSize	Equal	xs:double	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&alts={roseo:AlongTrackSize}">http://roseo.server.com/<path>?<other parameters>&alts={roseo:AlongTrackSize}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&alts=10.0">http://roseo.server.com/<path>?<other parameters>&alts=10.0</p>
colex	{roseo:ColumnsExtraction}	ColumnsExtraction	Equal	A pair of xs:int separated by blank. The first item defines the lower bound of the column extraction range; the second defines the upper bound of the column extraction range.	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&colex={roseo:ColumnsExtraction}">http://roseo.server.com/<path>?<other parameters>&colex={roseo:ColumnsExtraction}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&colex=15%2035">http://roseo.server.com/<path>?<other parameters>&colex=15%2035</p>
frm	{roseo:Frame}	Frame	Equal	xs:integer	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Frame}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Frame}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm=1800">http://roseo.server.com/<path>?<other parameters>&frm=1800</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
lookap	{roseo:LookAngleP}	LookAngleP	Equal	Complex: <ul style="list-style-type: none"> <input type="checkbox"/> lookAngle: xs:double <input type="checkbox"/> FOV: xs:double 	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&lookap={roseo:LookAngleP}">http://roseo.server.com/<path>?<other parameters>&lookap={roseo:LookAngleP}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&lookap={" lookangle":30.0,"fov":5.5}"="">http://roseo.server.com/<path>?<other parameters>&lookap={"lookAngle":30.0,"FOV":5.5}</p>
orb	{roseo:Orbit}	Orbit	Equal	xs:int	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&orb={roseo:Orbit}">http://roseo.server.com/<path>?<other parameters>&orb={roseo:Orbit}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&orb=1200">http://roseo.server.com/<path>?<other parameters>&orb=1200</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
rowse	{roseo:RowsExtraction}	RowsExtraction	Equal	A pair of xs:int separated by blank. The first item defines the lower bound of the rows extraction range; the second defines the upper bound of the rows extraction range.	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&rowse={roseo:RowsExtraction}">http://roseo.server.com/<path>?<other parameters>&rowse={roseo:RowsExtraction}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&rowse=10%2025">http://roseo.server.com/<path>?<other parameters>&rowse=10%2025</p>
sat	{roseo:SAT}	SAT	Equal	xs:int	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&sat={roseo:SAT}">http://roseo.server.com/<path>?<other parameters>&sat={roseo:SAT}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&sat=5">http://roseo.server.com/<path>?<other parameters>&sat=5</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
sbpol	{roseo:SceneBoundingPolygon}	SceneBoundingPolygon	Equal	<p>The geometry is defined using the Well Known Text and supports the following 2D geographic shapes:</p> <ul style="list-style-type: none"> <input type="checkbox"/> POINT, <input type="checkbox"/> LINESTRING, <input type="checkbox"/> POLYGON, <input type="checkbox"/> MULTIPOINT <input type="checkbox"/> MULTILINESTRING <input type="checkbox"/> MULTIPOLYGON <p>The Geometry shall be expressed using the EPSG:4326.</p>	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbpol={roseo:SceneBoundingPolygon}">http://roseo.server.com/<path>?<other parameters>&sbpol={roseo:SceneBoundingPolygon}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbpol=POLYGON((0.582%2040.496%2C%200.231%2040.737%2C%200.736%2042.869%2C%203.351%2042.386%2C%203.263%2041.814%2C%202.164%2041.265%2C%200.978%20%20%2040.957%2C%200.802%2040.781%2C%200.978%2040.649%2C%200.582%2040.496))">http://roseo.server.com/<path>?<other parameters>&sbpol=POLYGON((0.582%2040.496%2C%200.231%2040.737%2C%200.736%2042.869%2C%203.351%2042.386%2C%203.263%2041.814%2C%202.164%2041.265%2C%200.978%20%20%2040.957%2C%200.802%2040.781%2C%200.978%2040.649%2C%200.582%2040.496))</p>
sccord	{roseo:SceneCentreCoordinates}	SceneCentreCoordinates	Equal	<p>Complex:</p> <ul style="list-style-type: none"> <input type="checkbox"/> latitude: xs:double <input type="checkbox"/> longitude: xs:double 	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sccord={roseo:SceneCentreCoordinates}">http://roseo.server.com/<path>?<other parameters>&sccord={roseo:SceneCentreCoordinates}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sccord={" latitude":42.0,"longitude":12.0}"="">http://roseo.server.com/<path>?<other parameters>&sccord={"latitude":42.0,"longitude":12.0}</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
sbrect	{roseo:SceneBoundingRectangle}	SceneBoundingRectangle	Equal	<p>The geometry is defined using the Well Known Text and supports the following 2D geographic shapes:</p> <ul style="list-style-type: none"> □ POLYGON <p>The Geometry shall be expressed using the EPSG:4326 and only 4 corners shall be defined.</p>	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&sbrect={roseo:SceneBoundingRectangle}">http://roseo.server.com/<path>?<other parameters>&sbrect={roseo:SceneBoundingRectangle}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&sbrect=POLYGON((45%2010%2C45%2015%2C40%2015%2C40%2010%2C45%2010))">http://roseo.server.com/<path>?<other parameters>&sbrect=POLYGON((45%2010%2C45%2015%2C40%2015%2C40%2010%2C45%2010))</p>
ssst	{roseo:SceneStartStopTime}	SceneStartStopTime	Equal	<p>A pair of xs:dateTime separated by blank. The first item defines the scene start time; the second one defines the scene stop time.</p>	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&ssst={roseo:SceneStartStopTime}">http://roseo.server.com/<path>?<other parameters>&ssst={roseo:SceneStartStopTime}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&ssst=2010-01-01T12:00:00.00Z%202010-01-01T12:01:30.00Z">http://roseo.server.com/<path>?<other parameters>&ssst=2010-01-01T12:00:00.00Z%202010-01-01T12:01:30.00Z</p>
st	{roseo:SceneType}	SceneType	Equal	Enumerated String	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&st={roseo:SceneType}">http://roseo.server.com/<path>?<other parameters>&st={roseo:SceneType}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&st=FloatingPass">http://roseo.server.com/<path>?<other parameters>&st=FloatingPass</p>

key	Template Parameter	OSEO Mapping	Search Operator	Type	OpenSearch URL Example
track	{roseo:Track}	Track	Equal	xs:int	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&track={roseo:Track}">http://roseo.server.com/<path>?<other parameters>&track={roseo:Track}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&track=206">http://roseo.server.com/<path>?<other parameters>&track=206</p>

Table 7-26: Open Search Template Parameters for Scene Selection Order Options (from OGC 06-141r6).

7.3.2.4 Examples

7.3.2.4.1 OrderOptions By Product (Canonical XML format)

URL:

```
http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-
05121921114570-3322.XI/xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
<roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>Level 1,Product PRI (ASA_IMP)</oseo:productOrderOptionsId>
    <oseo:identifier>ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-
3322.XI</oseo:identifier>
    <oseo:description>Order Options for producing ASAR IMP 1P product</oseo:description>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="processingLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
            <swe:identifier>processing Level</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>1B</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="productType">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
            <swe:identifier>Product Type</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>ASA_IMP_1P</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="qualityOfService">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
            <swe:identifier>qualityOfService</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>STANDARD</swe:value>
                <swe:value>NRT</swe:value>
                <swe:value>RUSH</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
    </oseo:option>
  </oseo:option>
</roseo:OrderOptionGroup>
</OrderOptions>
```



```

</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>
</swe>DataRecord>
<oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
<oseo:onlineDataAccess>
<oseo:protocol>https</oseo:protocol>
</oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
<roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1
-05121921114570-
3322.XI?prclv={roseo:ProcessingLevel}&amp;prdt={roseo:ProductType}&amp;qos={roseo:QualityOfService}</roseo:down
loadURL>
</roseo:OrderOptionGroup >
<roseo:OrderOptionGroup>
<oseo:productOrderOptionsId>Level 1,Product GEC (ASA_IMG)</oseo:productOrderOptionsId>
<oseo:identifier>ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-
3322.XI</oseo:identifier>
<oseo:description>Order Options for producing ASAR IMG 1P product</oseo:description>
<oseo:orderType>PRODUCT_ORDER</oseo:orderType>
<oseo:option>
<swe>DataRecord>
<swe:field name="processingLevel">
<swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
<swe:identifier>processingLevel</swe:identifier>
<swe:constraint>
<swe:AllowedTokens>
<swe:value>1B</swe:value>
</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>
</swe>DataRecord>
<oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
<swe>DataRecord>
<swe:field name="productType">
<swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
<swe:identifier>productType</swe:identifier>
<swe:constraint>
<swe:AllowedTokens>
<swe:value>ASA_IMG_1P</swe:value>
</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>
</swe>DataRecord>
<oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
<swe>DataRecord>
<swe:field name="qualityOfService">
<swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
<swe:identifier>qualityOfService</swe:identifier>
<swe:constraint>
<swe:AllowedTokens>
<swe:value>STANDARD</swe:value>
<swe:value>NRT</swe:value>
<swe:value>RUSH</swe:value>
</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>

```

```

        </swe:DataRecord>
        <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:productDeliveryOptions>
        <oseo:onlineDataAccess>
            <oseo:protocol>https</oseo:protocol>
        </oseo:onlineDataAccess>
    </oseo:productDeliveryOptions>

    <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1
-05121921114570-
3322.XI?prclv={roseo:ProcessingLevel}&amp;prdt={roseo:ProductType}&amp;qos={roseo:QualityOfService}</roseo:down
loadURL>
    </roseo:OrderOptionGroup>
    <roseo:OrderOptionGroup>
        <oseo:productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</oseo:productOrderOptionsId>
        <oseo:identifier>ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-
3322.XI</oseo:identifier>
        <oseo:description>Order Options for producing ASAR IMS 1P product</oseo:description>
        <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="processingLevel">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
                        <swe:identifier>processingLevel</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>1B</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="productType">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
                        <swe:identifier>productType</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>ASA_IMS_1P</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="qualityOfService">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
                        <swe:identifier>qualityOfService</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>STANDARD</swe:value>
                                <swe:value>NRT</swe:value>
                                <swe:value>RUSH</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
    </roseo:OrderOptionGroup>

```

```

<oseo:productDeliveryOptions>
  <oseo:onlineDataAccess>
    <oseo:protocol>https</oseo:protocol>
  </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>

<roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI?prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&qos={roseo:QualityOfService}</roseo:downloadURL>
</roseo:OrderOptionGroup >
</roseo:OrderOptions>

```

7.3.2.4.2 OrderOptions By Product (OSDD format)

URL:

```

http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI/osdd

```

```

<?xml version="1.0" encoding="UTF-8"?>
<mstns:OpenSearchDescription xmlns:oseo="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:swe="http://www.opengis.net/swe/2.0"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:mstns="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <mstns:ShortName>Order Options</mstns:ShortName>
  <mstns:Description>OSDD for Order Options</mstns:Description>
  <mstns:Url type="application/atom+xml"
template="http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI?prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&qos={roseo:QualityOfService}"/>
  <mstns:SyndicationRight>open</mstns:SyndicationRight>
  <mstns:AdultContent>>false</mstns:AdultContent>
  <mstns:Language>*</mstns:Language>
  <mstns:InputEncoding>UTF-8</mstns:InputEncoding>
  <mstns:OutputEncoding>UTF-8</mstns:OutputEncoding>
  <roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <roseo:OrderOptionGroup>
      <oseo:productOrderOptionsId>Level 1,Product PRI
(ASA_IMP)</oseo:productOrderOptionsId>
      <oseo:identifier>ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI</oseo:identifier>
      <oseo:description>Order Options for producing ASAR IMP 1P product</oseo:description>
      <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
      <oseo:option>
        <swe:DataRecord>
          <swe:field name="processingLevel">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
              <swe:identifier>processing Level</swe:identifier>
              <swe:constraint>
                <swe:AllowedTokens>
                  <swe:value>1B</swe:value>
                </swe:AllowedTokens>
              </swe:constraint>
            </swe:Category>
          </swe:field>
        </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
  </oseo:option>
</swe:DataRecord>

```

```

                <swe:field name="productType">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
                        <swe:identifier>Product Type</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>ASA_IMP_1P</swe:value>
                                </swe:AllowedTokens>
                            </swe:constraint>
                        </swe:Category>
                    </swe:field>
                </swe:DataRecord>
                <oseo:grouping>Processing Option</oseo:grouping>
            </oseo:option>
            <oseo:option>
                <swe:DataRecord>
                    <swe:field name="qualityOfService">
                        <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
                            <swe:identifier>qualityOfService</swe:identifier>
                            <swe:constraint>
                                <swe:AllowedTokens>
                                    <swe:value>STANDARD</swe:value>
                                    <swe:value>NRT</swe:value>
                                    <swe:value>RUSH</swe:value>
                                </swe:AllowedTokens>
                            </swe:constraint>
                        </swe:Category>
                    </swe:field>
                </swe:DataRecord>
                <oseo:grouping>Processing Option</oseo:grouping>
            </oseo:option>
            <oseo:productDeliveryOptions>
                <oseo:onlineDataAccess>
                    <oseo:protocol>https</oseo:protocol>
                </oseo:onlineDataAccess>
            </oseo:productDeliveryOptions>
            <oseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1
-05121921114570-
3322.XI?prclv={roseo:ProcessingLevel}&amp;prdt={roseo:ProductType}&amp;qos={roseo:QualityOfService}</oseo:down
loadURL>
                </oseo:OrderOptionGroup>
            </oseo:OrderOptionGroup>
            <oseo:productOrderOptionsId>Level 1,Product GEC
(ASA_IMG)</oseo:productOrderOptionsId>
            <oseo:identifier>ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-
3322.XI</oseo:identifier>
            <oseo:description>Order Options for producing ASAR IMG 1P product</oseo:description>
            <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
            <oseo:option>
                <swe:DataRecord>
                    <swe:field name="processingLevel">
                        <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
                            <swe:identifier>processingLevel</swe:identifier>
                            <swe:constraint>
                                <swe:AllowedTokens>
                                    <swe:value>1B</swe:value>
                                </swe:AllowedTokens>
                            </swe:constraint>
                        </swe:Category>
                    </swe:field>
                </swe:DataRecord>
                <oseo:grouping>Processing Option</oseo:grouping>
            </oseo:option>

```

```

        <oseo:option>
          <swe:DataRecord>
            <swe:field name="productType">
              <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
                <swe:identifier>productType</swe:identifier>
                <swe:constraint>
                  <swe:AllowedTokens>
                    <swe:value>ASA_IMG_1P</swe:value>
                  </swe:AllowedTokens>
                </swe:constraint>
              </swe:Category>
            </swe:field>
          </swe:DataRecord>
        </oseo:option>
        <oseo:option>
          <swe:DataRecord>
            <swe:field name="qualityOfService">
              <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
                <swe:identifier>qualityOfService</swe:identifier>
                <swe:constraint>
                  <swe:AllowedTokens>
                    <swe:value>STANDARD</swe:value>
                    <swe:value>NRT</swe:value>
                    <swe:value>RUSH</swe:value>
                  </swe:AllowedTokens>
                </swe:constraint>
              </swe:Category>
            </swe:field>
          </swe:DataRecord>
        </oseo:option>
        <oseo:productDeliveryOptions>
          <oseo:onlineDataAccess>
            <oseo:protocol>https</oseo:protocol>
          </oseo:onlineDataAccess>
        </oseo:productDeliveryOptions>
        <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMG_xS:EN1-05121921114570-3322.XI?prclv={roseo:ProcessingLevel}&amp;prdt={roseo:ProductType}&amp;qos={roseo:QualityOfService}</roseo:downloadURL>
      </roseo:OrderOptionGroup>
      <roseo:OrderOptionGroup>
        <oseo:productOrderOptionsId>Level 1,Product SLC
(ASA_IMS)</oseo:productOrderOptionsId>
        <oseo:identifier>ESA:EECF:ENVISAT_ASA_IMG_xS:EN1-05121921114570-3322.XI</oseo:identifier>
        <oseo:description>Order Options for producing ASAR IMS 1P product</oseo:description>
        <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
        <oseo:option>
          <swe:DataRecord>
            <swe:field name="processingLevel">
              <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
                <swe:identifier>processingLevel</swe:identifier>
                <swe:constraint>
                  <swe:AllowedTokens>
                    <swe:value>1B</swe:value>
                  </swe:AllowedTokens>
                </swe:constraint>
              </swe:Category>
            </swe:field>
          </swe:DataRecord>
        </oseo:option>
      </roseo:OrderOptionGroup>
    </oseo:OrderOptionGroup>
  </oseo:OrderOptionGroup>

```

```

        <oseo:grouping>Processing Option</oseo:grouping>
      </oseo:option>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="productType">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
            <swe:identifier>productType</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>ASA_IMS_1P</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
    </oseo:grouping>Processing Option</oseo:grouping>
  </oseo:option>
</oseo:option>
<oseo:option>
  <swe:DataRecord>
    <swe:field name="qualityOfService">
      <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
        <swe:identifier>qualityOfService</swe:identifier>
        <swe:constraint>
          <swe:AllowedTokens>
            <swe:value>STANDARD</swe:value>
            <swe:value>NRT</swe:value>
            <swe:value>RUSH</swe:value>
          </swe:AllowedTokens>
        </swe:constraint>
      </swe:Category>
    </swe:field>
  </swe:DataRecord>
</oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
  <oseo:onlineDataAccess>
    <oseo:protocol>https</oseo:protocol>
  </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
  <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/product/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1
-05121921114570-
3322.XI?prclv={roseo:ProcessingLevel}&amp;prdt={roseo:ProductType}&amp;qos={roseo:QualityOfService}</roseo:down
loadURL>
</roseo:OrderOptionGroup>
</roseo:OrderOptions>
</mstns:OpenSearchDescription>

```

7.3.2.4.3 OrderOptions By Collection (Canonical XML format)

URL:

```

http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/xml

```

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

```

<roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>Level 1,Product PRI (ASA_IMP)</oseo:productOrderOptionsId>
    <oseo:description>Order Options for producing ASAR IMP 1P product</oseo:description>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="processingLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
            <swe:identifier>processing Level</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>1B</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="productType">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
            <swe:identifier>Product Type</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>ASA_IMP_1P</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="qualityOfService">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
            <swe:identifier>qualityOfService</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>STANDARD</swe:value>
                <swe:value>NRT</swe:value>
                <swe:value>RUSH</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:productDeliveryOptions>
      <oseo:onlineDataAccess>
        <oseo:protocol>https</oseo:protocol>
      </oseo:onlineDataAccess>
    </oseo:productDeliveryOptions>

    <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osd
d</roseo:downloadURL>
  </roseo:OrderOptionGroup>
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>Level 1,Product GEC (ASA_IMG)</oseo:productOrderOptionsId>
    <oseo:description>Order Options for producing ASAR IMG 1P product</oseo:description>

```

```

        <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="processingLevel">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
                        <swe:identifier>processingLevel</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>1B</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="productType">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
                        <swe:identifier>productType</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>ASA_IMG_1P</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="qualityOfService">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
                        <swe:identifier>qualityOfService</swe:identifier>
                        <swe:constraint>
                            <swe:AllowedTokens>
                                <swe:value>STANDARD</swe:value>
                                <swe:value>NRT</swe:value>
                                <swe:value>RUSH</swe:value>
                            </swe:AllowedTokens>
                        </swe:constraint>
                    </swe:Category>
                </swe:field>
            </swe:DataRecord>
            <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:productDeliveryOptions>
            <oseo:onlineDataAccess>
                <oseo:protocol>https</oseo:protocol>
            </oseo:onlineDataAccess>
        </oseo:productDeliveryOptions>

        <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osd
d</roseo:downloadURL>
    </roseo:OrderOptionGroup>
    <roseo:OrderOptionGroup>
        <oseo:productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</oseo:productOrderOptionsId>
        <oseo:description>Order Options for producing ASAR IMS 1P product</oseo:description>
        <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
        <oseo:option>
            <swe:DataRecord>
                <swe:field name="processingLevel">
                    <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
                        <swe:identifier>processingLevel</swe:identifier>

```



```

                <swe:constraint>
                    <swe:AllowedTokens>
                        <swe:value>1B</swe:value>
                    </swe:AllowedTokens>
                </swe:constraint>
            </swe:Category>
        </swe:field>
    </swe>DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
    <swe>DataRecord>
        <swe:field name="productType">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
                <swe:identifier>productType</swe:identifier>
                <swe:constraint>
                    <swe:AllowedTokens>
                        <swe:value>ASA_IMS_1P</swe:value>
                    </swe:AllowedTokens>
                </swe:constraint>
            </swe:Category>
        </swe:field>
    </swe>DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
    <swe>DataRecord>
        <swe:field name="qualityOfService">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
                <swe:identifier>qualityOfService</swe:identifier>
                <swe:constraint>
                    <swe:AllowedTokens>
                        <swe:value>STANDARD</swe:value>
                        <swe:value>NRT</swe:value>
                        <swe:value>RUSH</swe:value>
                    </swe:AllowedTokens>
                </swe:constraint>
            </swe:Category>
        </swe:field>
    </swe>DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
    <oseo:onlineDataAccess>
        <oseo:protocol>https</oseo:protocol>
    </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>

    <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osd
d</roseo:downloadURL>
    </roseo:OrderOptionGroup>
</roseo:OrderOptions>

```

7.3.2.4.4 OrderOptions By Collection (OSDD format)

URL:

```

http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osdd

```

```

<mstns:OpenSearchDescription xmlns:oseo="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:swe="http://www.opengis.net/swe/2.0"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:mstns="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <mstns:ShortName>Order Options</mstns:ShortName>
  <mstns:Description>OSDD for Order Options</mstns:Description>
  <mstns:Url type="application/atom+xml"
template="http://some.eocat.server/ESA:EECF:ENVISAT_ASA_IMx_xS?q={searchTerm}&count={count}&startI
ndex={startIndex?}&startPage={startPage?}&language={language?}&inputEncoding={inputEncoding?}&am
p;outputEncoding={outputEncoding?}&bbox={geo:box?}&geom={geo:geometry?}&id={geo:uid?}&lat={
geo:lat?}&lon={geo:lon?}&radius={geo:radius?}&rel={geo:relation?}&loc={geo:name&}&start
date={time:start?}&stopdate={time:end?}&prclv={roseo:ProcessingLevel}&prdt={roseo:ProductType}&
qos={roseo:QualityOfService}"/>
  <mstns:SyndicationRight>open</mstns:SyndicationRight>
  <mstns:AdultContent>>false</mstns:AdultContent>
  <mstns:Language>*</mstns:Language>
  <mstns:InputEncoding>UTF-8</mstns:InputEncoding>
  <mstns:OutputEncoding>UTF-8</mstns:OutputEncoding>
  <roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <roseo:OrderOptionGroup>
      <oseo:productOrderOptionsId>Level 1,Product PRI
(ASA_IMP)</oseo:productOrderOptionsId>
      <oseo:description>Order Options for producing ASAR IMP 1P product</oseo:description>
      <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
      <oseo:option>
        <swe:DataRecord>
          <swe:field name="processingLevel">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
              <swe:identifier>processing Level</swe:identifier>
              <swe:constraint>
                <swe:AllowedTokens>
                  <swe:value>1B</swe:value>
                </swe:AllowedTokens>
              </swe:constraint>
            </swe:Category>
          </swe:field>
        </swe:DataRecord>
        <oseo:grouping>Processing Option</oseo:grouping>
      </oseo:option>
      <oseo:option>
        <swe:DataRecord>
          <swe:field name="productType">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
              <swe:identifier>Product Type</swe:identifier>
              <swe:constraint>
                <swe:AllowedTokens>
                  <swe:value>ASA_IMP_1P</swe:value>
                </swe:AllowedTokens>
              </swe:constraint>
            </swe:Category>
          </swe:field>
        </swe:DataRecord>
        <oseo:grouping>Processing Option</oseo:grouping>
      </oseo:option>
      <oseo:option>
        <swe:DataRecord>
          <swe:field name="qualityOfService">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
              <swe:identifier>qualityOfService</swe:identifier>
              <swe:constraint>
                <swe:AllowedTokens>
                  <swe:value>STANDARD</swe:value>
                </swe:AllowedTokens>
              </swe:constraint>
            </swe:Category>
          </swe:field>
        </swe:DataRecord>
      </oseo:option>
    </roseo:OrderOptionGroup>
  </mstns:OrderOptions>

```

```

<swe:value>NRT</swe:value>

<swe:value>RUSH</swe:value>
                                </swe:AllowedTokens>
                                </swe:constraint>
                                </swe:Category>
                                </swe:field>
                                </swe:DataRecord>
                                <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
  <oseo:onlineDataAccess>
    <oseo:protocol>https</oseo:protocol>
  </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>

  <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMG_xS/osd
d</roseo:downloadURL>
  </roseo:OrderOptionGroup>
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>Level 1,Product GEC
(ASA_IMG)</oseo:productOrderOptionsId>
    <oseo:description>Order Options for producing ASAR IMG 1P product</oseo:description>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="processingLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/processingLevel">
            <swe:identifier>processingLevel</swe:identifier>
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>1B</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
  <swe:DataRecord>
    <swe:field name="productType">
      <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/productType">
        <swe:identifier>productType</swe:identifier>
        <swe:constraint>
          <swe:AllowedTokens>

            <swe:value>ASA_IMG_1P</swe:value>
          </swe:AllowedTokens>
        </swe:constraint>
      </swe:Category>
    </swe:field>
  </swe:DataRecord>
  <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
  <swe:DataRecord>
    <swe:field name="qualityOfService">
      <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/parameter/ESA/1.0/qualityOfService">
        <swe:identifier>qualityOfService</swe:identifier>
        <swe:constraint>
          <swe:AllowedTokens>

            <swe:value>STANDARD</swe:value>
            <swe:value>NRT</swe:value>
          </swe:AllowedTokens>
        </swe:constraint>
      </swe:Category>
    </swe:field>
  </swe:DataRecord>
  <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
</oseo:option>

```



```

                </swe:AllowedTokens>
            </swe:constraint>
        </swe:Category>
    </swe:field>
    </swe:DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
    <oseo:onlineDataAccess>
        <oseo:protocol>https</oseo:protocol>
    </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
    <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS/osd
d</roseo:downloadURL>
    </roseo:OrderOptionGroup>
</roseo:OrderOptions>
</mstns:OpenSearchDescription>

```

7.3.2.4.5 OrderOptions By Subscription (Canonical XML format)

URL:

```

http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS:subscription/xml

```

```

<?xml version="1.0" encoding="UTF-8"?>
<roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <roseo:OrderOptionGroup>
        <oseo:productOrderOptionsId>TerraSAR-X_SubscriptionOptions</oseo:productOrderOptionsId>
        <oseo:description>Order Options for Subscription</oseo:description>
        <oseo:orderType>SUBSCRIPTION_ORDER</oseo:orderType>
        <oseo:option>
            <swe:DataArray
definition="http://www.opengis.net/def/parameter/ESA/1.0/regionOfInterest" optional="false" updatable="false">
                <swe:identifier>regionOfInterest</swe:identifier>
                <swe:elementCount>
                    <swe:Count
definition="http://www.opengis.net/def/parameter/ESA/1.0/SpatialDimension"/>
                </swe:elementCount>
                <swe:elementType name="point">
                    <swe:Vector
definition="http://www.opengis.net/def/parameter/ESA/1.0/LocationVector"
referenceFrame="http://www.opengis.net/def/crs/EPSSG/7.1/4326">
                        <swe:identifier>Location Point</swe:identifier>
                        <swe:coordinate name="latitude">
                            <swe:Quantity
definition="http://www.opengis.net/def/parameter/ESA/1.0/latitude" axisID="Lat">
                                <swe:identifier>Latitude</swe:identifier>
                                <swe:uom code="deg"/>
                            </swe:Quantity>
                        </swe:coordinate>
                        <swe:coordinate name="longitude">
                            <swe:Quantity
definition="http://www.opengis.net/def/parameter/ESA/1.0/longitude" axisID="Long">
                                <swe:identifier>Longitude</swe:identifier>
                                <swe:uom code="deg"/>
                            </swe:Quantity>
                        </swe:coordinate>
                    </swe:Vector>
                </swe:elementType>
            </swe>DataArray>
        </oseo:option>
    </roseo:OrderOptionGroup>

```

```

        </swe:coordinate>
      </swe:Vector>
    </swe:elementType>
  <swe:encoding>
    <swe:XMLEncoding/>
  </swe:encoding>
  <swe:values>
    <point>
      <latitude>48.0</latitude>
      <longitude>18.0</longitude>
    </point>
    <point>
      <latitude>48.0</latitude>
      <longitude>47.0</longitude>
    </point>
    <point>
      <latitude>21.0</latitude>
      <longitude>47.0</longitude>
    </point>
    <point>
      <latitude>21.0</latitude>
      <longitude>18.0</longitude>
    </point>
    <point>
      <latitude>48.0</latitude>
      <longitude>18.0</longitude>
    </point>
  </swe:values>
</swe:DataArray>
<oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
  <swe:DataRecord>
    <swe:field name="dateRange">
      <swe:TimeRange updatable="false" optional="false"
definition="http://www.opengis.net/def/dataType/ISO-19108:2002:TM_Period">
        <swe:uom code="s"/>
        <swe:value>2008-01-01T02:27:08.80Z 2008-01-
31T02:27:08.80Z</swe:value>
      </swe:TimeRange>
    </swe:field>
  </swe:DataRecord>
</oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
  <swe:DataArray>
    <swe:elementCount>
      <swe:Count>
        <swe:value>1</swe:value>
      </swe:Count>
    </swe:elementCount>
    <swe:elementType name="frequencyObservation">
      <swe:DataRecord>
        <swe:field name="numberOfObservations">
          <swe:Count>
            <swe:value>20</swe:value>
          </swe:Count>
        </swe:field>
        <swe:field name="observationGap">
          <swe:Count>
            <swe:value>2</swe:value>
          </swe:Count>
        </swe:field>
      </swe:DataRecord>
    </swe:elementType>
  </swe:DataArray>
</oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>

```

```

<oseo:productDeliveryOptions>
  <oseo:onlineDataAccess>
    <oseo:protocol>https</oseo:protocol>
  </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
</roseo:OrderOptionGroup>
</roseo:OrderOptions>

```

7.3.3 HTTP Methods

HTTP Method	URL	Definition	Request Entity Body	Response Entity Body
GET	<ROSEO Root Path>/options/{ID}/{format}	It returns the Order Options related to the specified item (product / collection / subscription).	Empty	<roseo:OrderOptions> element instance.
POST	Not used by this document.			
PUT	Not used by this document.			
DELETE	Not used by this document.			

Table 7-27: Order Options Resource Methods.

Names	Definition	Data type and value
{ID}	ID of the resource to get OrderOptions: <ul style="list-style-type: none"> <input type="checkbox"/> either an EO Product <input type="checkbox"/> or a collection <input type="checkbox"/> or a subscription. 	xs:string (max 255 chars) URL encoded
{format}	Required OrderOptions format: <ul style="list-style-type: none"> <input type="checkbox"/> either canonical XML format <input type="checkbox"/> or OSDD format 	xs:string (max 255 chars) Allowed Values: <ul style="list-style-type: none"> <input type="checkbox"/> xml <input type="checkbox"/> osdd

Table 7-28: OrderOptions GET parameters.

7.3.3.1 Examples

Get order options by Product ID, canonical format

```

GET /ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-05121921114570-3322.XI/xml HTTP/1.1

Host: roseo.example.com

```

Get order options by Product ID, OSDD format

```
GET /ROSEO/1.0.0/options/ESA:EECF:ENVISAT_ASA_IMx_xS:EN1-
05121921114570-3322.XI/osdd HTTP/1.1
```

```
Host: roseo.example.com
```

7.3.4 Error Handling

In the event that a ROSEO server encounters an error during the access to Order Options resource, then it returns an HTTP response including:

- HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side.
- HTTP Entity Body: ows:ExceptionReport element set as specified in §8 of [NR7].

The following table reports the possible error conditions with the defined HTTP responses.

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Missing Parameter. E.g. neither the product nor the collection nor the subscription is specified.	400	MissingParameterVa lue	Name of missing parameter	“Missing value for Parameter”
Bad Input Parameter. E.g. an incorrect product / collection / subscription has been specified	400	InvalidParameterVal ue	Name of parameter with invalid value	“Invalid value for Parameter”
Internal Server Error An error occurred inside the server while processing the request.	500	“NoApplicableCode”		
Authentication Fail	401	AuthenticationFailed	“identity_token”	“Invalid or missing identity information”
Authorization Fail	403	AuthorizationFailed	Possible values: <input type="checkbox"/> “Order Options” <input type="checkbox"/> “collectionId” <input type="checkbox"/> “identifier”	Text describing the item not authorized.

Table 7-29: Order Options resource error conditions.

7.4 Order Resource

This section describes the Order resource i.e. the envelope sent from the client for ordering a set of EO products with the selected order options or for subscribing to an existing EO Product subscription. Additionally the Order resource includes also status information reporting the current status of the order processed by the server.

This resource can be accessed as a whole, including the whole order, or in parts by accessing to the various ordered items.

Order resource is well connected with the Ordered Product resource and with itself:

- orderId is a URL for accessing directly to the Order resource.
- Order/downloadURL returns the OrderedProduct resources needed to actually download the files.
- OrderItem/downloadURL returns the OrderedProduct resources needed to actually download the corresponding files.
- OrderItem/itemIdURL is a URL for accessing directly to the OrderItem resource.

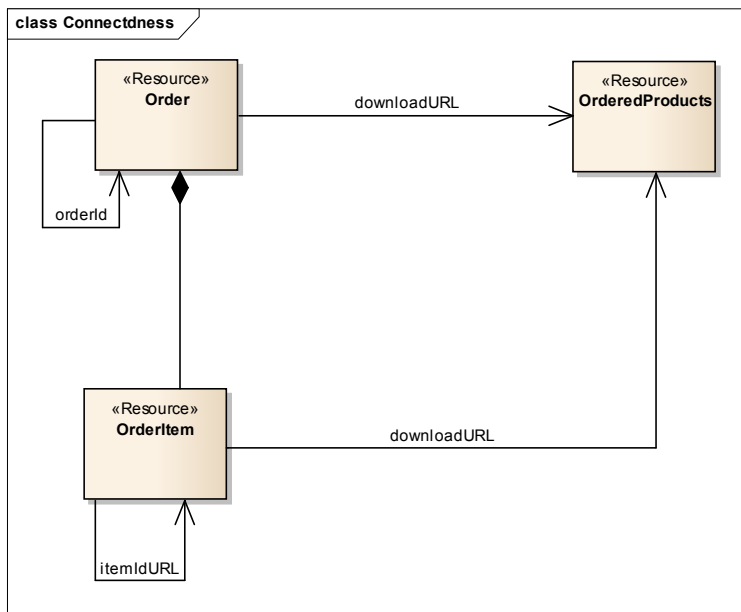


Figure 7-8: Links between resources.

7.4.1 URL

URL	Definition
<All Orders>	<ROSEO Root Path>/order
<Order By ID>	<ROSEO Root Path>/order/{order identifier}
<Order Item By ID>	<ROSEO Root Path>/order/{order identifier}/{order item identifier}
<Order By Filter Expression>	<ROSEO Root Path>/order?{filter expression}

Table 7-30: Order Resource URLs.

Names	Definition	Data type and values
{order identifier}	Identifier of the Order resource.	xs:string (max 255 chars) URL encoded
{order item identifier}	Identifier of ordered item with the Order resource.	xs:string (max 255 chars) URL encoded
{filter expression}	Expression for filtering the list of retrieved orders.	See §7.4.1.1

Table 7-31: Order Resource URLs parameters.

7.4.1.1 ORDER SEARCH URL Template

OpenSearch standard is used for describing the Order Search parameters: then this section defines an extension to Open Search to look for orders within a ROSEO Server.

This extension does not require any extension to the Open Search Description Document.

This extension adds the parameters specified in §7.4.1.1.1 to the Open Search Template URL.

The namespace of this Open Search extension is:

- Prefix: roseos
- URL: <http://www.opengis.net/roseo/1.0/search>

7.4.1.1.1 Open Search Template URL for Order Search

This section reports the list of template parameters to be added to a standard Open Search URL Template for looking for Orders. They have been derived through 1:1 mapping from the “filteringCriteria” of GetStatus operation of OSEO standard [NR8].

The following table reports the list of Template URL parameters, including:

- The OpenSearch Template URL key (e.g. “q”). This is a requirement, not a suggestion.
- The OpenSearch Template URL value (e.g. “searchTerms”).
- The allowed search operators (see Table 7-22).
- Open Search URL Example.

key	Template Parameter	OSEO Mapping §14.3.1 [NR8]	Search Operator §7.3.2.3.2	Type	OpenSearch URL Example
lu	{roseos:lastUpdate}	lastUpdate	GreaterEqual LessEqual Between	xs:dateTime	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&lu={roseos:lastUpdate}">http://roseo.server.com/<path>?<other parameters>&lu={roseos:lastUpdate}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&lu=[2013-05-01T00:00:00.00Z">http://roseo.server.com/<path>?<other parameters>&lu=[2013-05-01T00:00:00.00Z</p>
ost	{roseos:orderStatus}	orderStatus	Equal	xs:string	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&ost={roseos:orderStatus}">http://roseo.server.com/<path>?<other parameters>&ost={roseos:orderStatus}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&ost=Submitted">http://roseo.server.com/<path>?<other parameters>&ost=Submitted</p>
orr	{roseos:orderReference}	orderReference	Equal	xs:string	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&orr={roseos:orderReference}">http://roseo.server.com/<path>?<other parameters>&orr={roseos:orderReference}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&orr=Test_Order_1">http://roseo.server.com/<path>?<other parameters>&orr=Test_Order_1</p>

Table 7-32: ORDER SEARCH Template URL parameters.

7.4.2 Definition

The Order resource has been derived with minor modifications from OSEO:CommonOrderMonitorSpecification. In fact that complex type included both the order specification and the status information, which are both part of the Order resource of ROSEO spec.

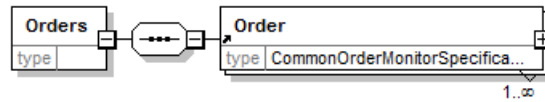


Figure 7-9: Orders diagram.

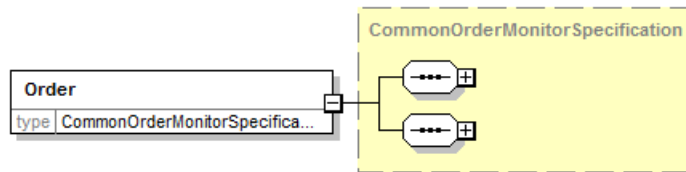


Figure 7-10: Order diagram.

Names	Definition	Data type and values	Multiplicity and use
Order	One Order including all order parameters and status information.	CommonOrderMonitorSpecification (see Table 7-34)	One or more Mandatory

Table 7-33: Orders definition.

7.4.2.1 CommonOrderMonitorSpecification

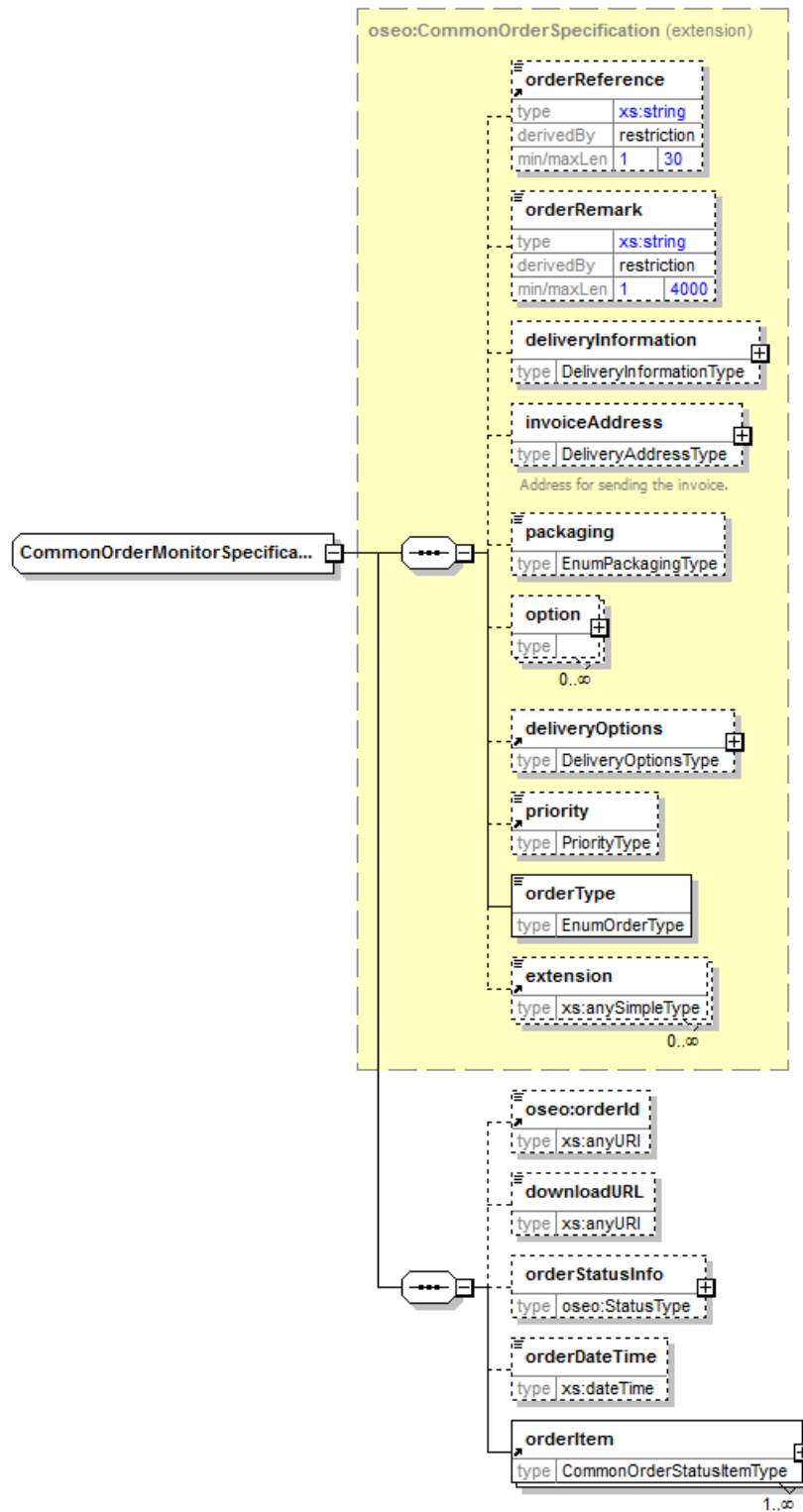


Figure 7-11: CommonOrderMonitorSpecification diagram.

Names	Definition	Data type and value	Multiplicity and use
CommonOrderMonitorSpecification	Complex Type representing one order.	Inherited from OSEO:CommonOrderSpecification (see Table 7-35)	
orderId	Unique identifier of the order within the ROSEO server. It is set from the server after successful submission.	Type: xs:anyURI See [NR8].	Zero or one (optional)
downloadURL	URL for downloading the ordered products. It is set by the server after order submission. This element is set with <All Products by Order ID> Ordered Product resource URL defined at §7.5.1.	Type: xs:anyURI	Zero or one (optional)
orderStatusInfo	Contains the Order status information. It is set from the server after successful submission.	Type: OSEO:StatusType See [NR8].	Zero or one (optional)
orderDateTime	Date and Time of the order submission/update.	Type: xs:dateTime See [NR8].	Zero or one (optional)
orderItem	This element reports the complete information about an ordered item.	Type: CommonOrderStatusItemType.	One or More (mandatory)

Table 7-34: CommonOrderMonitorSpecification definition.

Names	Definition & Tailoring	Data type and values	Multiplicity and use
orderReference	User defined name assigned to that order.	See OSEO:CommonOrderSpecification definition [NR8]	
orderRemark	Textual remark on the order.	See OSEO:CommonOrderSpecification definition [NR8]	
deliveryInformation	Not supported		None
invoiceAddress	Not supported		None
packaging	This element allows packing all ordered items in the same file.	See OSEO:CommonOrderSpecification definition [NR8]	
option	This element represents the order options common to all order items. By default these options are applied to all order items, unless they are re-defined in the order item itself.	See OSEO:CommonOrderSpecification definition [NR8]	

Names	Definition & Tailoring	Data type and values	Multiplicity and use
deliveryOptions	This element represents the delivery options common to all order items within the order. By default these options are applied to all order items, unless they are re-defined in the order item itself.	Type: DeliveryOptionsType (see §7.4.2.2)	One (optional)
priority	Priority of the order	See OSEO:CommonOrderSpecification definition [NR8]	
orderType	This tag specifies whether the order option is related to a subscription order or to a product order.	Type: string Allowed Values: <ul style="list-style-type: none"> <input type="checkbox"/> PRODUCT_ORDER <input type="checkbox"/> SUBSCRIPTION_ORDER TASKING_ORDER is not allowed in ROSEO specification.	One (mandatory)
extension	This element allows to specify additional implementation specific parameters.	See OSEO:CommonOrderSpecification definition [NR8]	

Table 7-35: OSEO:CommonOrderSpecification tailoring.

7.4.2.2 OSEO:DeliveryOptionsType

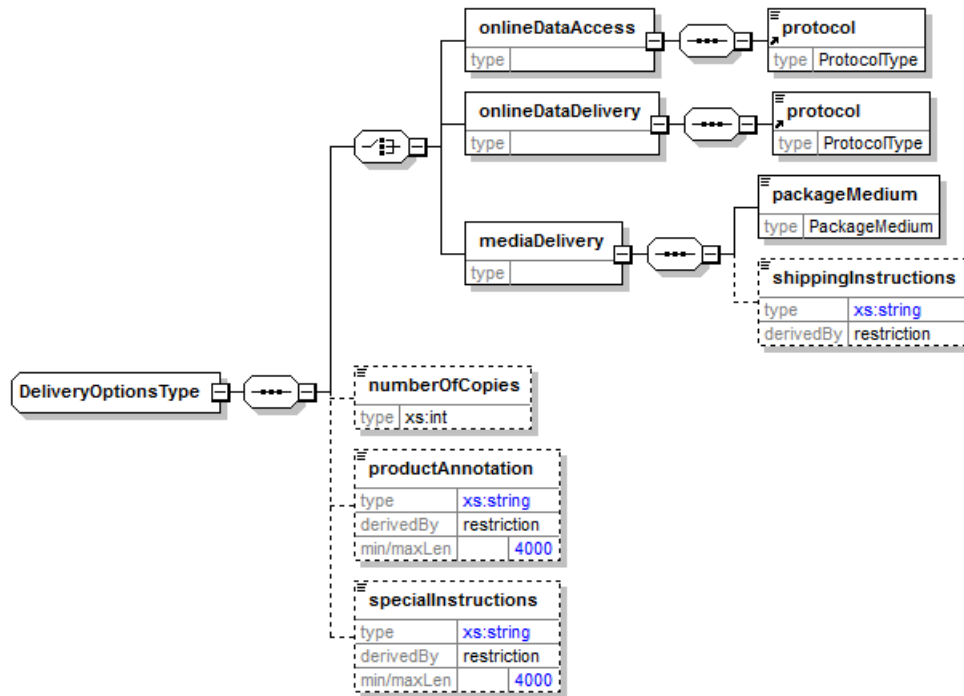


Figure 7-12: OSEO:DeliveryOptionsType diagram.

Names	Definition & Tailoring	Data type and value	Multiplicity and use
onlineDataAccess	This element defines the selected Online Data Access options.		One (mandatory)
protocol		Type: OSEO:ProtocolType See [NR8]	
onlineDataDelivery	Not supported.		None
protocol	Not supported.		None
mediaDelivery	Not supported.		None
packageMedium	Not supported.		None
shippingInstructions	Not supported.		None
numberOfCopies	Not supported.		None
productAnnotation	an optional free-text field for delivered products	See OSEO:DeliveryOptionsType definition [NR8]	
specialInstructions	Special instructions for delivery	See OSEO:DeliveryOptionsType definition [NR8]	

Table 7-36: OSEO:DeliveryOptionsType tailoring.

7.4.2.3 CommonOrderStatusItemType

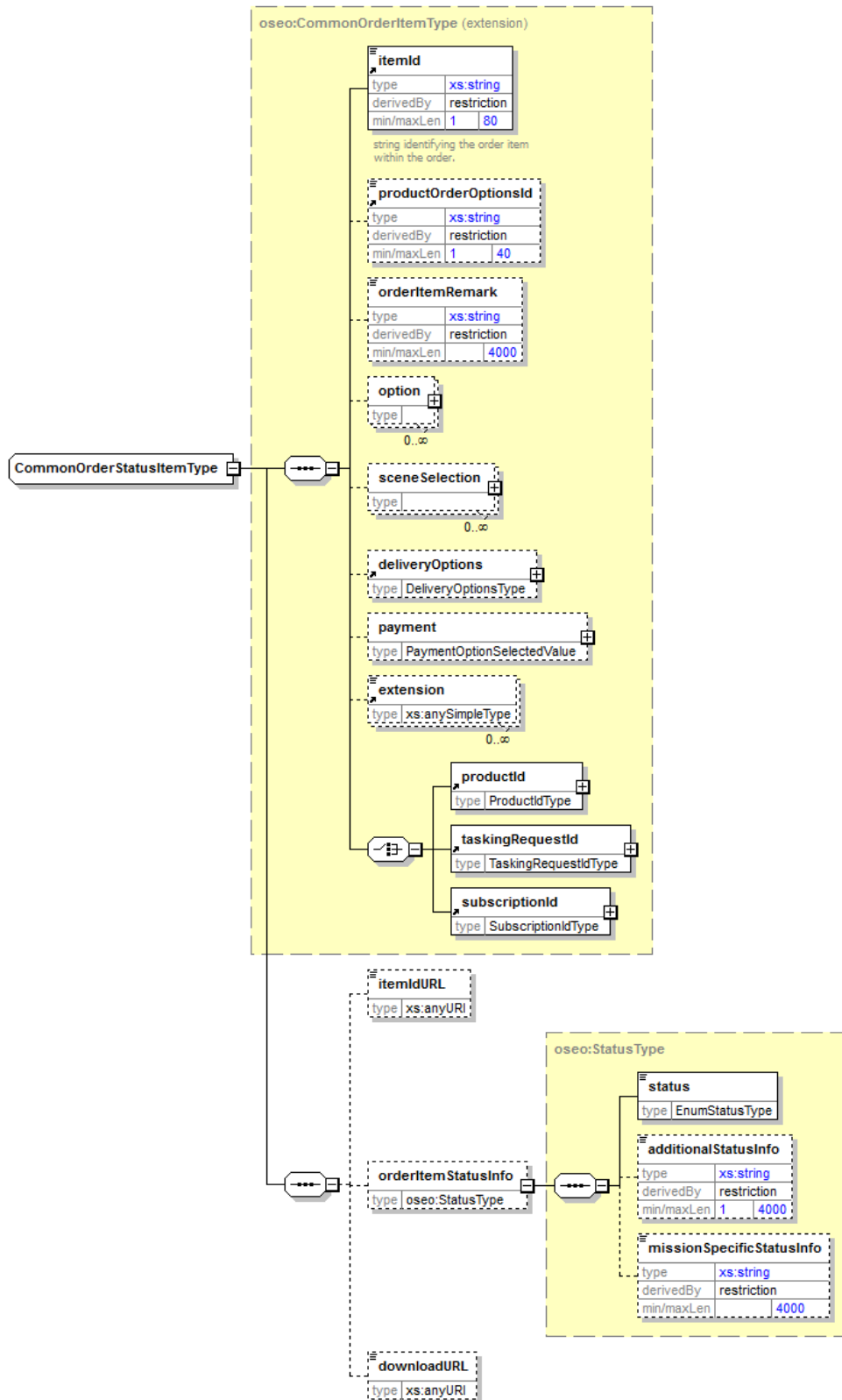


Figure 7-13: CommonOrderStatusItemType diagram.

Names	Definition	Data type and value	Multiplicity and use
CommonOrderStatusItemType	It regroups the common status attributes.	Inherited from OSEO:CommonOrderItemType (see Table 7-38)	
itemIdURL	URL for direct access to the order item. It is set by the server after order submission. This element is set with <Order Item By ID> Order resource URL defined at §7.4.1.	Type: xs:anyURI	Zero or one (optional)
orderItemStatusInfo	Status information at item level.	Type: OSEO:StatusType See OSEO:StatusType [NR8]	Zero or one (optional)
status	Status of order item.	See OSEO:StatusType [NR8]	One (mandatory)
additionalStatusInfo	Description associated with the Order status.	See OSEO:StatusType [NR8]	One (optional)
missionSpecificStatusInfo	Additional text description where mission specific information can be put.	See OSEO:StatusType [NR8]	One (optional)
downloadURL	URL for downloading the product(s) related to the orderItem. It is set by the server after order submission. This element is set with <Products by Order Item ID> Ordered Product resource URL defined at §7.5.1.	Type: xs:anyURI	Zero or one (optional)

Table 7-37: CommonOrderStatusItemType definition.

Names	Definition & Tailoring	Data type and values	Multiplicity and use
itemId	Unique identifier of the item within the order.	See OSEO:CommonOrderItemType [NR8]	
productOrderOptionsId	Identifier of chosen order option group	See OSEO:CommonOrderItemType [NR8]	
orderItemRemark	Textual remark on the order item put by the issuer.	See OSEO:CommonOrderItemType [NR8]	

Names	Definition & Tailoring	Data type and values	Multiplicity and use
option	<p>It specifies the options to be applied to the ordered item. The list of values specified in this element shall comply with those specified in the corresponding OrderOptions resource.</p> <p>To be noted that order options can be specified also at order level (Table 7-35), but the definition at order item level overrides the global one.</p>	See OSEO:CommonOrderItemType [NR8]	
sceneSelection	<p>This field has two purposes:</p> <ul style="list-style-type: none"> - It specifies the selection of the scene from the product that is to be delivered. Then it is used from the processing chain for extracting the scene from the parent product. - It is the footprint of the product that has to be delivered. Then this value is used along the ordering chain for e.g.: rendering on map, checking spatial restrictions, etc. 	See OSEO:CommonOrderItemType [NR8]	
deliveryOptions	<p>This element specifies the delivery options selected for the order item. To be noted that delivery options can be specified also at order level (Table 7-35), but the definition at order item level overrides the global one.</p>	Type: DeliveryOptionsType (see Table 7-36)	One (optional)
payment	<p>Selected payment information by user. If specified, it overrides the possible payment method and payment info stored in the user profile.</p>	See OSEO:CommonOrderItemType [NR8]	
paymentMethod	<p>Selected payment method: quota, credit card, etc.</p>	See OSEO:CommonOrderItemType [NR8]	
orderAccount	<p>In case of payment by quota, this field specifies the account under which the user is authorised to order from the specific provider e.g. a project or service name.</p> <p>This field is alternative of 'creditCardInfo'.</p>	See OSEO:CommonOrderItemType [NR8]	

Names	Definition & Tailoring	Data type and values	Multiplicity and use
creditCardInfo	In case of payment by credit card it specifies the credit card information. This element should be managed in more secure way. This field is alternative of 'orderAccount'.	See OSEO:CommonOrderItemType [NR8]	
extension	This element allows to specify additional implementation specific parameters.	See OSEO:CommonOrderItemType [NR8]	
productId	This field is set for ordering items from Catalogue. Identifier of the target product on which the order item is based. This field is alternative to 'taskingRequestId' and 'subscriptionId'.	See OSEO:CommonOrderItemType [NR8]	
taskingRequestId	Not supported		None
subscriptionId	It identifies the target subscription on which the order item is based. This field is alternative to 'ProductId' and 'taskingRequestId'	See OSEO:CommonOrderItemType [NR8]	

Table 7-38: OSEO:CommonOrderItemType tailoring.

7.4.2.4 Examples

7.4.2.4.1 Submitted EO Product Order (3 items)

```
<rose:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:processingLevel>1B</ns:processingLevel>
        <ns:productType>ASA_IMS_1P</ns:productType>
        <ns:qualityOfService>STANDARD</ns:qualityOfService>
      </values>
    </ParameterData>
  </option>
  <deliveryOptions>
    <onlineDataAccess>
      <protocol>https</protocol>
    </onlineDataAccess>
  </deliveryOptions>
  <orderType>PRODUCT_ORDER</orderType>
  <rose:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
    <orderItemRemark>First product</orderItemRemark>
    <sceneSelection>
      <ParameterData>
```

```

        <encoding>XMLEncoding</encoding>
        <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
          <ns:sceneType>FloatingScene</ns:sceneType>
          <ns:sceneStartStopTime>
            <ns:min>2010-01-01T11:55:00.00Z</ns:min>
            <ns:max>2010-01-01T12:00:00.00Z</ns:max>
          </ns:sceneStartStopTime>
          <ns:frame>7191</ns:frame>
        </values>
      </ParameterData>
    </sceneSelection>
  </payment>
  <paymentMethod>quota</paymentMethod>
  <orderAccount>project_10000</orderAccount>
</payment>
<productId>

<identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</identifier>

<collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
</productId>
</roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0002</itemId>
  <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
  <orderItemRemark>Second product</orderItemRemark>
  <sceneSelection>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:sceneType>FloatingScene</ns:sceneType>
        <ns:sceneStartStopTime>
          <ns:min>2010-01-01T11:55:00.00Z</ns:min>
          <ns:max>2010-01-01T12:00:00.00Z</ns:max>
        </ns:sceneStartStopTime>
        <ns:frame>7191</ns:frame>
      </values>
    </ParameterData>
  </sceneSelection>
</payment>
  <paymentMethod>quota</paymentMethod>
  <orderAccount>project_10000</orderAccount>
</payment>
<productId>

<identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122021114570-3322.XI</identifier>

<collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
</productId>
</roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0003</itemId>
  <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
  <orderItemRemark>Third product</orderItemRemark>
  <sceneSelection>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:sceneType>FloatingScene</ns:sceneType>
        <ns:sceneStartStopTime>
          <ns:min>2010-01-01T11:55:00.00Z</ns:min>
          <ns:max>2010-01-01T12:00:00.00Z</ns:max>
        </ns:sceneStartStopTime>
        <ns:frame>7191</ns:frame>
      </values>
    </ParameterData>
  </sceneSelection>
</payment>

```

```

        <paymentMethod>quota</paymentMethod>
        <orderAccount>project_10000</orderAccount>
    </payment>
    <productId>

    <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122121114570-3322.XI</identifier>

    <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
    </productId>
    </roseo:orderItem>
</roseo:Order>

```

7.4.2.4.2 Submitted Subscription Order

```

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:regionOfInterest>
          <ns:point>
            <ns:latitude>0.0</ns:latitude>
            <ns:longitude>0.0</ns:longitude>
          </ns:point>
          <ns:point>
            <ns:latitude>50.0</ns:latitude>
            <ns:longitude>0.0</ns:longitude>
          </ns:point>
          <ns:point>
            <ns:latitude>50.0</ns:latitude>
            <ns:longitude>20.0</ns:longitude>
          </ns:point>
          <ns:point>
            <ns:latitude>0.0</ns:latitude>
            <ns:longitude>20.0</ns:longitude>
          </ns:point>
          <ns:point>
            <ns:latitude>0.0</ns:latitude>
            <ns:longitude>0.0</ns:longitude>
          </ns:point>
        </ns:regionOfInterest>
        <ns:dateRange>
          <ns:min>2013-01-01T00:00:00.00Z</ns:min>
          <ns:max>2015-01-01T23:59:59.99Z</ns:max>
        </ns:dateRange>
        <ns:numberOfObservations>20</ns:numberOfObservations>
        <observationGap>35</observationGap>
      </values>
    </ParameterData>
  </option>
  <deliveryOptions>
    <onlineDataAccess>
      <protocol>https</protocol>
    </onlineDataAccess>
  </deliveryOptions>
  <orderType>SUBSCRIPTION_ORDER</orderType>
  <roseo:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>SubscriptionOptions</productOrderOptionsId>
    <orderItemRemark>Subscribed collection</orderItemRemark>
    <payment>
      <paymentMethod>quota</paymentMethod>
    </payment>
  </roseo:orderItem>
</roseo:Order>

```

```

        <orderAccount>project_10000</orderAccount>
    </payment>
    <subscriptionId>
        <collectionId>ESA:EECF:ENVISAT_ASA_IMx_xS:subscription</collectionId>
    </subscriptionId>
</roseo:orderItem>
</roseo:Order>

```

7.4.2.4.3 Retrieved Order

```

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
    <orderReference>example_0001</orderReference>
    <orderRemark>example</orderRemark>
    <option>
        <ParameterData>
            <encoding>XMLEncoding</encoding>
            <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
                <ns:processingLevel>1B</ns:processingLevel>
                <ns:productType>ASA_IMS_1P</ns:productType>
                <ns:qualityOfService>STANDARD</ns:qualityOfService>
            </values>
        </ParameterData>
    </option>
    <deliveryOptions>
        <onlineDataAccess>
            <protocol>https</protocol>
        </onlineDataAccess>
    </deliveryOptions>
    <orderType>PRODUCT_ORDER</orderType>
    <orderId>http://some.roseo.server/ROSEO/1.0.0/order/ID_20130429120800.000001</orderId>
    <roseo:orderStatusInfo>
        <status>InProduction</status>
    </roseo:orderStatusInfo>
    <roseo:orderDateTime>2013-04-29T13:00:00.00Z</roseo:orderDateTime>
    <roseo:orderItem>
        <itemId>item_0001</itemId>
        <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
        <orderItemRemark>First product</orderItemRemark>
        <sceneSelection>
            <ParameterData>
                <encoding>XMLEncoding</encoding>
                <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
                    <ns:sceneType>FloatingScene</ns:sceneType>
                    <ns:sceneStartStopTime>
                        <ns:min>2010-01-01T11:55:00.00Z</ns:min>
                        <ns:max>2010-01-01T12:00:00.00Z</ns:max>
                    </ns:sceneStartStopTime>
                    <ns:frame>7191</ns:frame>
                </values>
            </ParameterData>
        </sceneSelection>
        <payment>
            <paymentMethod>quota</paymentMethod>
            <orderAccount>project_10000</orderAccount>
        </payment>
        <productId>
            <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</identifier>
            <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
            </productId>
            <roseo:orderItemStatusInfo>
                <status>Completed</status>
            </roseo:orderItemStatusInfo>
        </productId>
    </roseo:orderItem>
</roseo:Order>

```

```

</roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0002</itemId>
  <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
  <orderItemRemark>Second product</orderItemRemark>
  <sceneSelection>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:sceneType>FloatingScene</ns:sceneType>
        <ns:sceneStartStopTime>
          <ns:min>2010-01-01T11:55:00.00Z</ns:min>
          <ns:max>2010-01-01T12:00:00.00Z</ns:max>
        </ns:sceneStartStopTime>
        <ns:frame>7191</ns:frame>
      </values>
    </ParameterData>
  </sceneSelection>
  <payment>
    <paymentMethod>quota</paymentMethod>
    <orderAccount>project_10000</orderAccount>
  </payment>
  <productId>
    <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122021114570-3322.XI</identifier>
    <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
    </productId>
    <roseo:orderItemStatusInfo>
      <status>InProduction</status>
    </roseo:orderItemStatusInfo>
  </roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0003</itemId>
  <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
  <orderItemRemark>Third product</orderItemRemark>
  <sceneSelection>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:sceneType>FloatingScene</ns:sceneType>
        <ns:sceneStartStopTime>
          <ns:min>2010-01-01T11:55:00.00Z</ns:min>
          <ns:max>2010-01-01T12:00:00.00Z</ns:max>
        </ns:sceneStartStopTime>
        <ns:frame>7191</ns:frame>
      </values>
    </ParameterData>
  </sceneSelection>
  <payment>
    <paymentMethod>quota</paymentMethod>
    <orderAccount>project_10000</orderAccount>
  </payment>
  <productId>
    <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122121114570-3322.XI</identifier>
    <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
    </productId>
    <roseo:orderItemStatusInfo>
      <status>Accepted</status>
    </roseo:orderItemStatusInfo>
  </roseo:orderItem>
</roseo:Order>

```


7.4.3 HTTP Methods

HTTP Method	URL	Definition	Request Entity Body	Response Entity Body
GET	<ROSEO Root Path>/order/{order identifier}	It returns the Order related to the specified order identifier.	Empty	<roseo:Order> element instance.
	<ROSEO Root Path>/order/{order identifier}/{order item identifier}	It returns the Order Item within the specified Order	Empty	<roseo:orderItem> element instance.
	<ROSEO Root Path>/order?{filter expression}	It returns all orders matching the filter expression.	Empty	<roseo:Orders> element instance.
POST	<ROSEO Root Path>/order	It allows to submit an order to the ROSEO server. The ID of the submitted order is returned in the Response Entity Body.	<roseo:Order> element instance.	<oseo:orderId> with the URL of the created order resource.
PUT	Not used by this document			
DELETE	<ROSEO Root Path>/order/{order identifier}	To flag as Cancelled the specified Order resource. The Order resource is still on the server.	Empty	Empty

Table 7-39: Order Resource Methods.

Names	Definition	Data type and value
{order identifier}	Identifier of the Order resource.	See Table 7-31
{order item identifier}	Identifier of ordered item with the Order resource.	See Table 7-31
{filter expression}	Expression for filtering the list of retrieved orders.	See §7.4.1.1

Table 7-40: Order GET parameters.

7.4.3.1 Examples

7.4.3.1.1 Submit Product Order

Request

```
POST /ROSEO/1.0.0/order
Host: roseo.example.com
Content-Type: text/xml

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:processingLevel>1B</ns:processingLevel>
      </values>
    </ParameterData>
  </option>
</roseo:Order>
```

```

<ns:productType>ASA_IMS_1P</ns:productType>
<ns:qualityOfService>STANDARD</ns:qualityOfService>
</values>
</ParameterData>
</option>
<deliveryOptions>
  <onlineDataAccess>
    <protocol>https</protocol>
  </onlineDataAccess>
</deliveryOptions>
<orderType>PRODUCT_ORDER</orderType>
<roseo:orderItem>
  <itemId>item_0001</itemId>
  .....
  <productId>
    <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</identifier>
    <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
    </productId>
  </roseo:orderItem>
  <roseo:orderItem>
    <itemId>item_0002</itemId>
    .....
    <productId>
      <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122021114570-3322.XI</identifier>
      <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
      </productId>
    </roseo:orderItem>
    <roseo:orderItem>
      <itemId>item_0003</itemId>
      .....
      <productId>
        <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122121114570-3322.XI</identifier>
        <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
        </productId>
      </roseo:orderItem>
</roseo:Order>

```

Response

```

HTTP/1.1 200 OK
Content-Type: text/xml

```

```

<?xml version="1.0" encoding="UTF-8"?>
<oseo:orderId xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">http://roseo.example.com/ROSEO/1.0.0/order/ID_20130429120800.000001</oseo:orderId>

```

7.4.3.1.2 Get Order By ID

Request

```
GET /ROSEO/1.0.0/order/ID_20130429120800.000001
```

```
Host: roseo.example.com
```

Response

```

HTTP/1.1 200 OK
Content-Type: text/xml

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:processingLevel>1B</ns:processingLevel>
        <ns:productType>ASA_IMS_1P</ns:productType>
        <ns:qualityOfService>STANDARD</ns:qualityOfService>
      </values>
    </ParameterData>
  </option>
  <deliveryOptions>
    <onlineDataAccess>
      <protocol>https</protocol>
    </onlineDataAccess>
  </deliveryOptions>
  <orderType>PRODUCT_ORDER</orderType>
  <orderId>http://roseo.example.com/ROSEO/1.0.0/order/ID_20130429120800.000001</orderId>
  <roseo:orderStatusInfo>
    <status>InProduction</status>
  </roseo:orderStatusInfo>
  <roseo:orderDateTime>2013-04-29T13:00:00.00Z</roseo:orderDateTime>
  <roseo:orderItem>
    <itemId>item_0001</itemId>
    .....
    <productId>
      <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-
3322.XI</identifier>
      <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
      </productId>
      <roseo:orderItemStatusInfo>
        <status>Completed</status>
      </roseo:orderItemStatusInfo>
    </roseo:orderItem>
  </roseo:orderItem>
    <itemId>item_0002</itemId>
    .....
    <productId>
      <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122021114570-
3322.XI</identifier>
      <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
      </productId>
      <roseo:orderItemStatusInfo>
        <status>InProduction</status>
      </roseo:orderItemStatusInfo>
    </roseo:orderItem>
  </roseo:orderItem>
    <itemId>item_0003</itemId>
    .....
    <productId>

```

```

<identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-0512212114570-3322.XI</identifier>

  <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
  </productId>
  <roseo:orderItemStatusInfo>
    <status>Accepted</status>
  </roseo:orderItemStatusInfo>
</roseo:orderItem>
</roseo:Order>

```

7.4.3.1.3 Get Order Item By ID

Request

```

GET /ROSEO/1.0.0/order/ID_20130429120800.000001/item_0001
Host: roseo.example.com

```

Response

```

HTTP/1.1 200 OK
Content-Type: text/xml

<?xml version="1.0" encoding="UTF-8"?>
<roseo:orderItem xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <itemId>item_0001</itemId>
  <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
  <orderItemRemark>First product</orderItemRemark>
  <sceneSelection>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:sceneType>FloatingScene</ns:sceneType>
        <ns:sceneStartStopTime>
          <ns:min>2010-01-01T11:55:00.00Z</ns:min>
          <ns:max>2010-01-01T12:00:00.00Z</ns:max>
        </ns:sceneStartStopTime>
        <ns:frame>7191</ns:frame>
      </values>
    </ParameterData>
  </sceneSelection>
  <payment>
    <paymentMethod>quota</paymentMethod>
    <orderAccount>project_10000</orderAccount>
  </payment>
  <productId>
    <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-0512192114570-3322.XI</identifier>

    <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
  </productId>
  <roseo:orderItemStatusInfo>
    <status>Completed</status>
  </roseo:orderItemStatusInfo>
</roseo:orderItem>

```

7.4.3.1.4 Get Order By Filter Expression

Request

```
GET /ROSEO/1.0.0/order?lu=[2013-01-01,2014-01-01]&ost=InProduction HTTP/1.1
Host: roseo.example.com
```

Response

```
HTTP/1.1 200 OK
Content-Type: text/xml

<roseo:Orders xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd">
  <roseo:Order>
    <orderReference>example_0001</orderReference>
    <orderRemark>example</orderRemark>
    <option>
      <ParameterData>
        <encoding>XMLEncoding</encoding>
        <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
          <ns:processingLevel>1B</ns:processingLevel>
          <ns:productType>ASA_IMS_1P</ns:productType>
          <ns:qualityOfService>STANDARD</ns:qualityOfService>
        </values>
      </ParameterData>
    </option>
    <deliveryOptions>
      <onlineDataAccess>
        <protocol>https</protocol>
      </onlineDataAccess>
    </deliveryOptions>
    <orderType>PRODUCT_ORDER</orderType>
    <orderId>http://some.roseo.server/ROSEO/1.0.0/order/ID_20130429120800.000001</orderId>
    <roseo:orderStatusInfo>
      <status>InProduction</status>
    </roseo:orderStatusInfo>
    <roseo:orderDateTime>2013-04-29T12:08:00.00Z</roseo:orderDateTime>
    <roseo:orderItem>
      <itemId>item_0001</itemId>
      <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
      <orderItemRemark>First product</orderItemRemark>
      <sceneSelection>
        <ParameterData>
          <encoding>XMLEncoding</encoding>
          <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
            <ns:sceneType>FloatingScene</ns:sceneType>
            <ns:sceneStartStopTime>
              <ns:min>2010-01-01T11:55:00.00Z</ns:min>
              <ns:max>2010-01-01T12:00:00.00Z</ns:max>
            </ns:sceneStartStopTime>
            <ns:frame>7191</ns:frame>
          </values>
        </ParameterData>
      </sceneSelection>
      <payment>
        <paymentMethod>quota</paymentMethod>
        <orderAccount>project_10000</orderAccount>
      </payment>
    </orderItem>
  </roseo:Order>
</roseo:Orders>
</productId>
```

```

<identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</identifier>

<collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
  </productId>
  <roseo:orderItemStatusInfo>
    <status>Completed</status>
  </roseo:orderItemStatusInfo>
</roseo:orderItem>
</roseo:Order>
<roseo:Order>
  <orderReference>example_0002</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:processingLevel>1B</ns:processingLevel>
        <ns:productType>ASA_IMS_1P</ns:productType>
        <ns:qualityOfService>STANDARD</ns:qualityOfService>
      </values>
    </ParameterData>
  </option>
  <deliveryOptions>
    <onlineDataAccess>
      <protocol>https</protocol>
    </onlineDataAccess>
  </deliveryOptions>
  <orderType>PRODUCT_ORDER</orderType>
  <orderId>http://some.roseo.server/ROSEO/1.0.0/order/ID_20130429120900.000001</orderId>
  <roseo:orderStatusInfo>
    <status>InProduction</status>
  </roseo:orderStatusInfo>
  <roseo:orderDateTime>2013-04-29T12:09:00.00Z</roseo:orderDateTime>
  <roseo:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>Level 1,Product SLC (ASA_IMS)</productOrderOptionsId>
    <orderItemRemark>First product</orderItemRemark>
    <sceneSelection>
      <ParameterData>
        <encoding>XMLEncoding</encoding>
        <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
          <ns:sceneType>FloatingScene</ns:sceneType>
          <ns:sceneStartStopTime>
            <ns:min>2010-01-01T11:55:00.00Z</ns:min>
            <ns:max>2010-01-01T12:00:00.00Z</ns:max>
          </ns:sceneStartStopTime>
          <ns:frame>7191</ns:frame>
        </values>
      </ParameterData>
    </sceneSelection>
    <payment>
      <paymentMethod>quota</paymentMethod>
      <orderAccount>project_10000</orderAccount>
    </payment>
  </productId>

  <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</identifier>

  <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</collectionId>
    </productId>
    <roseo:orderItemStatusInfo>
      <status>Completed</status>
    </roseo:orderItemStatusInfo>
  </roseo:orderItem>
</roseo:Order>
</roseo:Orders>

```

7.4.3.1.5 Order Cancellation

```
DELETE /ROSEO/1.0.0/order/ID_20130429120800.000001 HTTP/1.1
```

```
Host: roseo.example.com
```

7.4.4 Error Handling

In the event that a ROSEO server encounters an error during the access to Order resource, then it returns an HTTP response including:

- HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side.
- HTTP Entity Body: ows:ExceptionReport element set as specified in §8 of [NR7].

The following table reports the possible error conditions with the defined HTTP responses.

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Missing Parameter. E.g. order search submitted without filtering parameters, order submitted with missing options, etc..	400	MissingParameterVa lue	Name of missing parameter	“Missing value for Parameter”
Bad Input Parameter. E.g. an incorrect product / collection / subscription has been specified; a wrong search parameter has been specified, etc..	400	InvalidParameterVal ue	Name of parameter with invalid value	“Invalid value for Parameter”
Internal Server Error An error occurred inside the server while processing the request.	500	“NoApplicableCode”		
Authentication Fail	401	AuthenticationFailed	“identity_token”	“Invalid or missing identity information”
Authorization Fail	403	AuthorizationFailed	Possible values: <input type="checkbox"/> “Order Options” <input type="checkbox"/> “collectionId” <input type="checkbox"/> “identifier”	Text describing the item not authorized.

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Unavailable collection The collection specified in the submitted order is not supported by the server.	400	CollectionNotAvailable	“collectionId” parameter	“Collection not available”
Unavailable subscription The subscription specified in the submitted order is not supported by the server.	400	SubscriptionNotAvailable	“subscriptionId” parameter	“Subscription not available”
Unavailable product The product specified in the submitted order is not supported by the server.	400	ProductNotAvailable	“identifier” parameter	“Product not available”
Invalid Order Search Filter The Order Search GET request contains a search parameter that the service doesn’t support.	400	InvalidFilteringValue	“filteringCriteria” parameter	“Invalid value for filtering”
Invalid Order Identifier The GET / DELETE Operation request contains an invalid order identifier.	400	InvalidOrderIdentifier	“orderId” parameter	“Invalid value for order”
Invalid Order Item Identifier The GET Operation request contains an invalid order item identifier.	400	InvalidOrderItemIdentifier	“itemId” parameter	“Invalid value for order”
Order search returning too many hits It happens when an Order Search is performed with too wide search criteria.	400	TooManyHits	None, omit “locator” parameter	“Too many hits”
Order search with no hits.	404	No orders found	None, omit “locator” parameter	“No orders found”

Table 7-41: Order resource error conditions.

7.5 Ordered Product Resource

This section describe the Ordered Product resource, i.e. the EO product asked to the server by sending an Order request. This resource reports the actual URL for physically downloading products plus further metadata attributes.

7.5.1 URL

URL	Definition
<All Products by Order ID>	<ROSEO Root Path>/order/{order identifier}/file
<Filtered Products by Order ID>	<ROSEO Root Path>/order/{order identifier}/file?{filter expression}
<Products by Order Item ID>	<ROSEO Root Path>/order/{order identifier}/{order item identifier}/file
<Filtered Products by Order Item ID>	<ROSEO Root Path>/order/{order identifier}/{order item identifier}/file?{filter expression}

Table 7-42: Ordered Products Resource URLs.

Names	Definition	Data type and values
{order identifier}	Identifier of the Order resource.	xs:string (max 255 chars) URL encoded
{order item identifier}	Identifier of ordered item with the Order resource.	xs:string (max 255 chars) URL encoded
{filter expression}	Expression for extracting only the produced products matching the specified filter.	See Table 7-44.

Table 7-43: Ordered Products Resource URLs parameters.

key	Description	Type	Search Operator §7.3.2.3.2
lastUpdate	Ordered products generation date. It allows to filter the products that have been generated within a specified interval.	xs:dateTime	GreaterEqual LessEqual Between

Table 7-44: Ordered Products Filter expression parameters.

7.5.2 Definition

The Ordered Product resource has been directly derived from OSEO:ItemURLType.

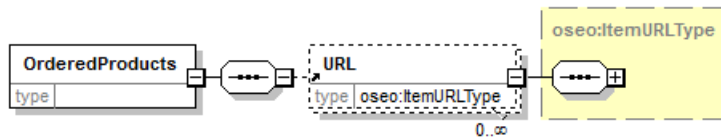


Figure 7-14: OrderedProducts diagram.

Names	Definition	Data type and values	Multiplicity and use
URL	Element including all information necessary for downloading the products of an orderItem.	OSEO:ItemURLType (see Table 7-46)	Zero or more Mandatory

Table 7-45: OrdredProducts definition.

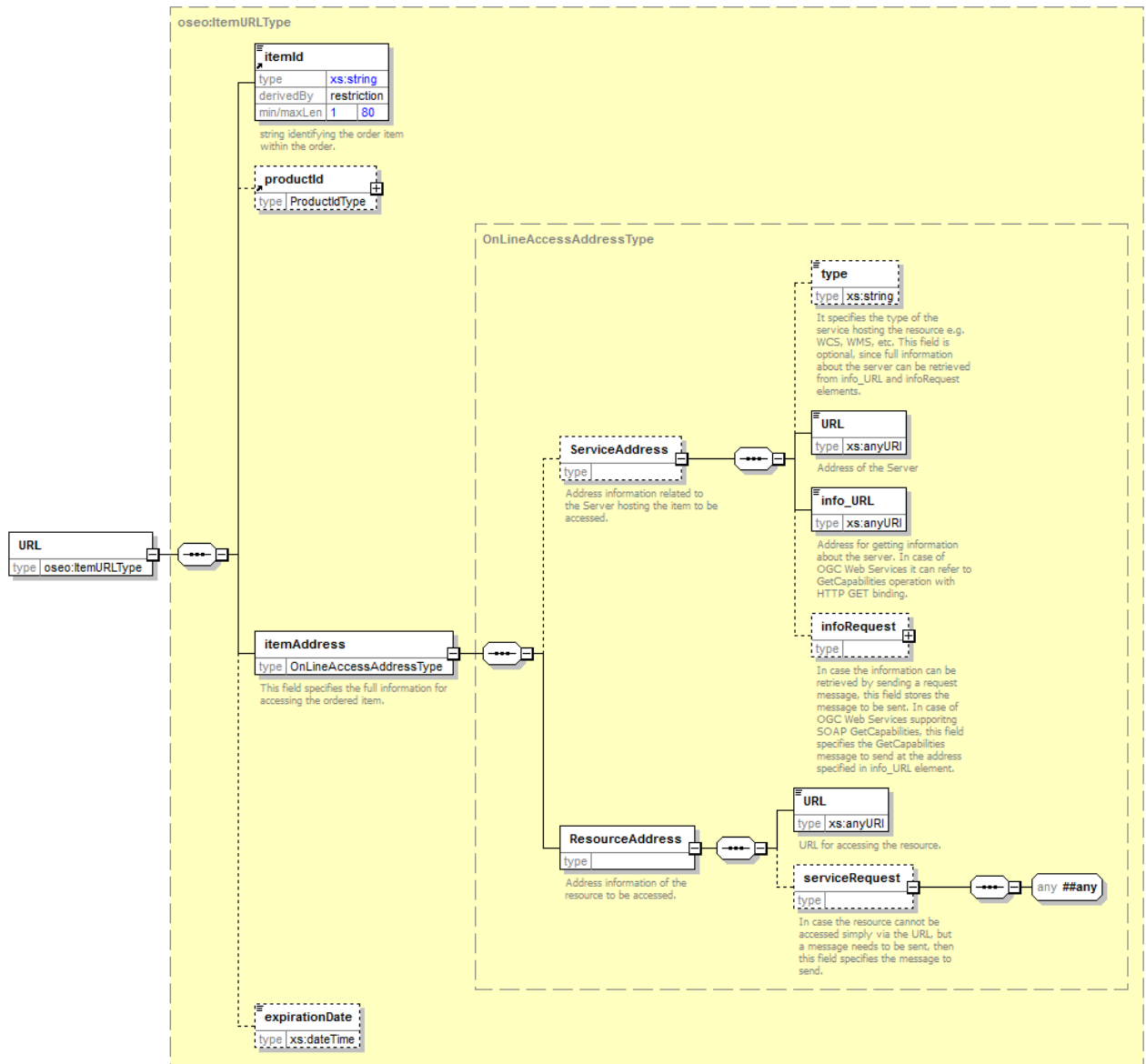


Figure 7-15: URL diagram.

Names	Definition & Tailoring	Data type and values	Multiplicity and use
itemId	Order item identifier specified in the Submit request.	See OSEO:ItemURLType definition [NR8]	
productId	Identifier of the product the URL is related to.	See OSEO:ItemURLType definition [NR8]	
itemAddress	This is the address 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. According to the settings of packaging flag in Submit, this might yield a single item or a bunch of items (packaging=None).	Type: OnLineAccessAddressType (see Table 7-47)	One (mandatory)
expirationDate	Date and time at which the URL will expire.	Type: xs:dateTime	One (optional)

Table 7-46: OSEO:ItemURLType tailoring.

Names	Definition	Data type and values	Multiplicity and use
ServiceAddress	This element provides full information about the server hosting the order item. This element is useful e.g. in case of items ordered through a WCS / WMS / etc.	See OSEO:OnLineAccessAddressType definition [NR8]	
type	This field specifies the type of the service hosting the ordered item e.g.: WCS, WMS, etc.	See OSEO:OnLineAccessAddressType definition [NR8]	
URL	URL of the server hosting the ordered item.	See OSEO:OnLineAccessAddressType definition [NR8]	
info_URL	URL of a document providing metadata about the server. In case of OGC Web Services, it refers to the GetCapabilities operation (HTTP GET, KVP binding).	See OSEO:OnLineAccessAddressType definition [NR8]	
infoRequest	In case the server information are returned via HTTP POST request, this element specifies the message to send (e.g. in case the service supports GetCapabilities with SOAP binding, then the GetCapabilities XML message is specified in this tag)	See OSEO:OnLineAccessAddressType definition [NR8]	
ResourceAddress	This element provides full information for accessing directly the ordered item.	See OSEO:OnLineAccessAddressType definition [NR8]	

Names	Definition	Data type and values	Multiplicity and use
URL	URL of the ordered item.	Type: anyURI	One (mandatory)
serviceRequest	In case the ordered item is accessible via HTTP POST protocol, this element specifies the message to send for getting the ordered item.	Type: ##any	One (optional)

Table 7-47: OSEO:OnLineAccessAddressType tailoring.

7.5.2.1 Examples

```
<?xml version="1.0" encoding="UTF-8"?>
<roseo:OrderedProducts xsi:schemaLocation="http://www.opengis.net/roseo/1.0 roseo.xsd"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <roseo:URL>
    <oseo:itemId>item_0001</oseo:itemId>
    <oseo:productId>
      <oseo:identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05121921114570-3322.XI</oseo:identifier>
      <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</oseo:collectio
nId>
      <oseo:productId>
        <oseo:itemAddress>
          <oseo:ResourceAddress>
            <oseo:URL>http://roseo.example.com/ROSEO/1.0.0/product/aaaaa1</oseo:URL>
            </oseo:ResourceAddress>
          </oseo:itemAddress>
          <oseo:expirationDate>2014-12-17T09:30:47Z</oseo:expirationDate>
        </roseo:URL>
      </oseo:URL>
      <oseo:itemId>item_0002</oseo:itemId>
      <oseo:productId>
        <oseo:identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122021114570-3322.XI</oseo:identifier>
        <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</oseo:collectio
nId>
        <oseo:productId>
          <oseo:itemAddress>
            <oseo:ResourceAddress>
              <oseo:URL>http://roseo.example.com/ROSEO/1.0.0/product/aaaaa2</oseo:URL>
              </oseo:ResourceAddress>
            </oseo:itemAddress>
            <oseo:expirationDate>2014-12-17T09:30:47Z</oseo:expirationDate>
          </roseo:URL>
        </oseo:URL>
        <oseo:itemId>item_0003</oseo:itemId>
        <oseo:productId>
          <oseo:identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS/EN1-05122121114570-3322.XI</oseo:identifier>
          <oseo:collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.ENVISAT_ASA_IMx_xS</oseo:collectio
nId>
          </oseo:productId>
        </oseo:productId>
      </oseo:productId>
    </oseo:productId>
  </oseo:URL>
</roseo:OrderedProducts>
```

```

        <oseo:itemAddress>
            <oseo:ResourceAddress>

        <oseo:URL>http://roseo.example.com/ROSEO/1.0.0/product/aaaaa3</oseo:URL>
            </oseo:ResourceAddress>
            </oseo:itemAddress>
            <oseo:expirationDate>2014-12-17T09:30:47Z</oseo:expirationDate>
        </oseo:URL>
    </roseo:OrderedProducts>
    
```

7.5.3 HTTP Methods

HTTP Method	URL	Definition	Request Entity Body	Response Entity Body
GET	<ROSEO Root Path>/order/{order identifier}/file	It returns all Ordered Product resources related to the specified order.	Empty	<roseo:OrderedProducts> element instance.
	<ROSEO Root Path>/order/{order identifier}/{order item identifier}/file	It returns the Ordered Product resource related to the specified order item.	Empty	<roseo:OrderedProducts> element instance.
	<ROSEO Root Path>/order/{order identifier}/file?{filter expression}	It returns all Ordered Product resources related to the specified order matching the specified filter.	Empty	<roseo:OrderedProducts> element instance.
POST	Not used by this document			
PUT	Not used by this document			
DELETE	Not used by this document			

Table 7-48: Ordered Products Resource Methods.

Names	Definition	Data type and value
{order identifier}	Identifier of the Order resource.	See Table 7-43
{order item identifier}	Identifier of ordered item with the Order resource.	See Table 7-43
{filter expression}	Expression for filtering the list of retrieved orders.	See Table 7-43

Table 7-49: Ordered Products GET parameters.

7.5.3.1 Examples

7.5.3.1.1 Get all ordered products

```

GET /ROSEO/1.0.0/order/ID_20130429120800.000001/file
Host: roseo.example.com
    
```

7.5.3.1.2 Get order item products

```

GET /ROSEO/1.0.0/order/ID_20130429120800.000001/item_0001/file
    
```

```
Host: roseo.example.com
```

7.5.3.1.3 Get all ordered products generated since a date

```
GET /ROSEO/1.0.0/order/ID_20130429120800.000001/file?lastUpdate=[2013-01-01T00:00:00.00Z
```

```
Host: roseo.example.com
```

7.5.4 Error Handling

In the event that a ROSEO server encounters an error during the access to OrderedProducts resource, then it returns an HTTP response including:

- HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side.
- HTTP Entity Body: ows:ExceptionReport element set as specified in §8 of [NR7].

The following table reports the possible error conditions with the defined HTTP responses.

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Missing Parameter.	400	MissingParameterVa lue	Name of missing parameter	“Missing value for Parameter”
Internal Server Error An error occurred inside the server while processing the request.	500	“NoApplicableCode”		
Authentication Fail	401	AuthenticationFailed	“identity_token”	“Invalid or missing identity information”
Authorization Fail	403	AuthorizationFailed	Possible values: □ “orderId”	Text describing the item not authorized.
Invalid Filter The request contains a search parameter that the service doesn’t support.	400	InvalidFilteringValue	“filteringCriteria” parameter	“Invalid value for filtering”
Invalid Order Identifier The operation request contains an invalid order identifier.	400	InvalidOrderIdentifier	“orderId” parameter	“Invalid value for order”

Error Description	HTTP Error Code	OGC Exception Report		
		“exceptionCode”	“locator”	“ExceptionText”
Invalid Order Item Identifier The operation request contains an invalid order item identifier.	400	InvalidOrderItemIdentifier	“itemId” parameter	“Invalid value for order”
Bad Input Parameter.	400	InvalidParameterValue	Name of parameter with invalid value	“Invalid value for Parameter”

Table 7-50: Ordered Product resource error conditions.

8. ROSEO “Core” Requirement Class

This section reports all the requirements a ROSEO server has to comply with for claiming the conformance with respect to the Core class.

This section has been structured by resources: for each ROSEO resource a dedicated subsection has been prepared reporting all related requirements:

- Capabilities’s requirements have been reported in §8.1.
- Order Option’s requirements have been reported in §8.2.
- Order’s requirements have been reported in §8.3.
- Ordered Product’s requirements have been reported in §8.4.

8.1 Capabilities

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/Core	
Target type	ROSEO Server
Dependency	None
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Root</p> <p>All resources of a ROSEO server shall be accessible from the following root URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities</p> <p>The Capabilities resource of a ROSEO server shall be accessible from the ROSEO root path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0</p> <p>via the HTTP GET method.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceIdentification</p> <p>The ServiceIdentification section of Capabilities resource of a ROSEO server shall be accessible from the following path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/ServiceIdentification</p> <p>via the HTTP GET method.</p>

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceProvider</p> <p>The ServiceProvider section of Capabilities resource of a ROSEO server shall be accessible from the following path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/ServiceProvider</p> <p>via the HTTP GET method.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/Contents</p> <p>The Contents section of Capabilities resource of a ROSEO server shall be accessible from the following path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/Contents</p> <p>via the HTTP GET method.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/schema</p> <p>The returned Capabilities resource shall consist of an XML instance document as validated by the entity Capabilities in the roseo.xsd XML Schema.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource</p> <p>The returned Capabilities resource shall contain all information about the resources supported by the ROSEO Server.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/profile</p> <p>The returned Capabilities resource shall advertise the support of ROSEO specification including:</p> <p style="text-align: center;">Capabilities/ServiceIdentification/Profile= http://www.opengis.net/def/bp/roseo/1.0</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/resourceURL</p> <p>The returned Capabilities resource shall advertise the supported resources setting the element:</p> <p style="text-align: center;">Capabilities/Contents/resourceURL</p> <p>reporting the URL templates for accessing to the Capabilities, OrderOptions, Order, OrderedProducts resources.</p>

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_status</p> <p>The Capabilities document returned by a ROSEO Server shall have:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Capabilities/Contents/GetStatusCapabilities/@orderSearch = true <input type="checkbox"/> Capabilities/Contents/GetStatusCapabilities/@orderRetrieve = true <input type="checkbox"/> Capabilities/Contents/GetStatusCapabilities/@full = true
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_options_encoding</p> <p>A compliant ROSEO Server shall support the following SWE encoding:</p> <p style="text-align: center;">XMLEncoding</p> <p>Then the returned Capabilities document shall have:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Capabilities/Contents/ContentsType/supportedEncoding = XMLEncoding
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/product_order</p> <p>The ROSEO Server shall return a Capabilities document including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Either <ul style="list-style-type: none"> Capabilities/Contents/ProductOrders/@supported = true <input type="checkbox"/> Or at least one element <ul style="list-style-type: none"> Capabilities/Contents/SupportedCollection/ProductOrders/@supported = true
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/oda</p> <p>The ROSEO Server shall return a Capabilities document including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Either <ul style="list-style-type: none"> Capabilities/Contents/DescribeResultAccessCapabilities/@supported = true <input type="checkbox"/> Or at least one element <ul style="list-style-type: none"> Capabilities/Contents/SupportedCollection/DescribeResultAccessCapabilities/@supported = true

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/cancel</p> <p>The ROSEO Server shall return a Capabilities document including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Either <p style="margin-left: 40px;">Capabilities/Contents/CancelCapabilities/@supported = true</p> <input type="checkbox"/> Or at least one element <p style="margin-left: 40px;">Capabilities/Contents/SupportedCollection/CancelCapabilities/@supported = true</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/exception</p> <p>When a ROSEO Server encounters an error while returning a Capabilities resource, it shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side as specified in Table 7-9. <input type="checkbox"/> HTTP Entity Body: an ows:ExceptionReport according to the clause 8 of [NR9].

8.2 Order Options

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/Core	
Target type	ROSEO Server
Dependency	None
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions</p> <p>The OrderOptions resource of a ROSEO server shall be accessible from the following root path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options</p> <p>via the HTTP GET method.</p>

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/product_id</p> <p>The OrderOptions available for a specified EO Product shall be accessible to the following URLs:</p> <p>XML format:</p> <pre>http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{eo:identifier}/xml</pre> <p>Open Search Description Document (OSDD) format:</p> <pre>http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{eo:identifier}/osdd</pre> <p>via HTTP GET request.</p> <p>eo:identifier is the identifier of a EO Product as specified in OGC 13-026. eo refers to the following namespace: http://a9.com/-/opensearch/extensions/eo/1.0/</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/collection_id</p> <p>The OrderOptions available for a specified EO product Collection shall be accessible to the following URLs:</p> <p>XML format:</p> <pre>http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/xml</pre> <p>Open Search Description Document (OSDD) format:</p> <pre>http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/osdd</pre> <p>via HTTP GET request.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml</p> <p>OrderOptions resource in XML format shall consist of an XML instance document as validated by the entity OrderOptions in the roseo.xsd XML Schema.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd</p> <p>OrderOptions resource in Open Search Description Document format shall consist of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> a Open Search Description Document instance complying with: <p style="margin-left: 20px;">http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_description_document</p> <input type="checkbox"/> including, as foreign markup, an OrderOptions element as validated by the entity OrderOptions in the roseo.xsd XML Schema

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/product_id</p> <p>The OrderOptions corresponding to an EO Product shall:</p> <ul style="list-style-type: none"> <input type="checkbox"/> include at least one instance of OrderOptions/OrderOptionGroup/identifier. <input type="checkbox"/> include OrderOptions/OrderOptionGroup/orderType = PRODUCT_ORDER <input type="checkbox"/> optionally include OrderOptions/OrderOptionGroup/downloadURL reporting a template URL for direct download of the product.
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/collection_id</p> <p>The OrderOptions corresponding to a product collection shall:</p> <ul style="list-style-type: none"> <input type="checkbox"/> include OrderOptions/OrderOptionGroup/orderType = PRODUCT_ORDER <input type="checkbox"/> include OrderOptions/OrderOptionGroup/downloadURL reporting the URL for retrieving an OSDD for querying the specified product collection.
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/oda</p> <p>OrderOptions resource shall include at least one instance of:</p> <p style="padding-left: 40px;">OrderOptions/OrderOptionGroup/productDeliveryOptions/onlineDataAccess/protocol</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url</p> <p>The OrderOptions resource in OSDD format shall include one Url element for each instance of OrderOptions/OrderOptionGroup.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url/template</p> <p>The OrderOptions resource in OSDD format shall include Url/@template attribute including as possible template parameters those specified at §7.3.2.3.3.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url/template/collection_id</p> <p>OrderOptions by collection id in OSDD format shall include Url/@template attribute allowing to issue an Open Search query on the specified collection.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/exception</p> <p>When a ROSEO Server encounters an error while returning an OrderOptions resource, it shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side as specified in Table 7-29. <input type="checkbox"/> HTTP Entity Body: an ows:ExceptionReport according to the clause 8 of [NR9].

8.3 Order

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/Core	
Target type	ROSEO Server
Dependency	None
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order</p> <p>The Order resources of a ROSEO server shall be accessible from the following root path:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/id</p> <p>Order resource created on a ROSEO server shall be available at the following URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}</p> <p>{order identifier} is a URL encoded string (max 255 chars).</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/itemId</p> <p>An Order item of an Order resource created on a ROSEO server shall be available at the following URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/{order item identifier}</p> <p>{order identifier} is a URL encoded string (max 255 chars).</p> <p>{order item identifier} is a URL encoded string (max 255 chars).</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation</p> <p>The ROSEO Server shall allow Order resource creation by:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP POST request to the Order resources root URL: <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order</p> <input type="checkbox"/> HTTP Entity Body including a <roseo:Order> element as validated by roseo.xsd XML Schema.

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/response</p> <p>On successful Order resource creation, a ROSEO server shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 201 Created <input type="checkbox"/> HTTP Entity Body: <oseo:orderId> element as validated by the roseo.xsd XML Schema including the URL of the created order resource: <p style="margin-left: 40px;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}</p> <p style="margin-left: 40px;">{order identifier} is a URL encoded string (max 255 chars).</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/content</p> <p>To create an Order resource on a ROSEO server, the submitted <roseo:Order> element shall be composed as follows:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Order/orderType=PRODUCT_ORDER <input type="checkbox"/> to include one or more Order/orderItem elements; <input type="checkbox"/> having unique Order/orderItem/itemId elements; <input type="checkbox"/> setting Order/orderItem/productOrderOptionsId with the identifier of the selected OrderOptionGroup element (from OrderOptions resource); <input type="checkbox"/> setting Order/orderItem/option according to the chosen OrderOptionGroup (from OrderOptions resource); <input type="checkbox"/> setting Order/orderItem/deliveryOptions/onlineDataAccess/protocol according to the chosen OrderOptionGroup (from OrderOptions resource); <input type="checkbox"/> setting Order/orderItem/productId/identifier and optionally Order/orderItem/productId/collectionId with the chosen EO Product. <p>Optionally, in case all order items share the same options, then options can be set through the following elements:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Order/option <input type="checkbox"/> Order/deliveryOptions/onlineDataAccess/protocol

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/id</p> <p>The successful response to HTTP GET request on Order resource URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}</p> <p>shall return a <roseo:Order> element as validated by the roseo.xsd XML Schema including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> all order parameters specified at Order resource creation <input type="checkbox"/> the order identifier as created by the server (roseo:Order/oseo:orderId) <input type="checkbox"/> the overall status information (roseo:Order/orderStatusInfo) <input type="checkbox"/> the order update date & time (roseo:Order/orderDateTime) <input type="checkbox"/> the status info of all order items (roseo:Order /orderItem/orderItemStatusInfo) <input type="checkbox"/> the URL for accessing to the ordered product resources (roseo:Order/downloadURL) <input type="checkbox"/> the URL for direct access to order items (roseo:Order /orderItem/itemIdURL) <input type="checkbox"/> the URL for accessing to the order item's products (roseo:Order/orderItem/downloadURL)
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/prod</p> <p>When a Product Order is returned by a ROSEO server, the following elements shall be included:</p> <ul style="list-style-type: none"> <input type="checkbox"/> roseo:Order/orderType = "PRODUCT_ORDER" <input type="checkbox"/> at least one Earth Observation product (roseo:orderItem/productId)
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/completed_order_item</p> <p>In case of completed order items, the returned <roseo:orderItem> element shall be set as follows:</p> <p style="text-align: center;">roseo:orderItem/orderItemStatusInfo/status = Completed</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/not_completed_order_item</p> <p>In case of NOT yet completed order items, the returned <roseo:orderItem> element shall be set as follows:</p> <p style="text-align: center;">roseo:orderItem/orderItemStatusInfo/status = Submitted or Accepted or InProduction</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search</p> <p>Order resources stored in a ROSEO server can be searched by issuing an HTTP GET request to the following URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?{filter expression}</p> <p>{filter expression}: Open Search Template URL.</p>

Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/lastUpdate A ROSEO server shall support order search by Last Update queriable as specified in Table 7-32.
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderStatus A ROSEO server shall support order search by Order Status queriable as specified in Table 7-32.
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderReference A ROSEO server shall support order search by Order Reference queriable as specified in Table 7-32.
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response The successful response to an order search shall return a <roseo:Orders> element as validated by the roseo.xsd XML Schema including one <roseo:Order> element for each Order resource matching the {filter expression}.
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting The <roseo:Order> elements returned by an order search shall be sorted by order date time (roseo:Order/orderDateTime) reporting new orders first.
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content A <roseo:Order> element returned by an order search shall include: <ul style="list-style-type: none"> <input type="checkbox"/> all order parameters specified at Order resource creation <input type="checkbox"/> the order identifier as created by the server (roseo:Order/oseo:orderId) <input type="checkbox"/> the overall status information (roseo:Order/orderStatusInfo) <input type="checkbox"/> the order update date & time (roseo:Order/orderDateTime) <input type="checkbox"/> the status info of all order items (roseo:Order /orderItem/orderItemStatusInfo) <input type="checkbox"/> the URL for downloading the ordered product resources (roseo:Order/downloadURL) <input type="checkbox"/> the URL for direct access to order items (roseo:Order /orderItem/itemIdURL) <input type="checkbox"/> the URL for downloading the order item's products (roseo:Order/orderItem/downloadURL)

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation</p> <p>The ROSEO Server shall allow Order resource cancellation by:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP DELETE request on the Order resource URL: <p style="margin-left: 40px;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}</p> <input type="checkbox"/> HTTP Entity Body: empty. <p>Note: the DELETE method asks for cancellation of the Order resource: the order is not cancelled. For verifying whether the order has been flagged as cancelled the GET method can be used.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation/response</p> <p>On succesfull acceptance of Order cancellation, a ROSEO server shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 200. <input type="checkbox"/> HTTP Entity Body: empty
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception</p> <p>When a ROSEO Server encounters an error while processing an Order resource (GET, POST, DELETE), it shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side as specified in Table 7-41. <input type="checkbox"/> HTTP Entity Body: an ows:ExceptionReport according to the clause 8 of [NR9].

8.4 Ordered Product

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/Core	
Target type	ROSEO Server
Dependency	None
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL</p> <p>All Products ordered via a submitted Order shall be accessible from the following URL:</p> <p style="margin-left: 40px;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file</p> <p>{order identifier}: identifier of the Order resource.</p>

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL/item</p> <p>The Products ordered via an order item shall be accessible from the following URL:</p> <p style="text-align: center;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/{order item identifier}/file</p> <p>{order identifier}: identifier of the Order resource.</p> <p>{order item identifier}: identifier of the order item within the Order resource.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content</p> <p>The OrderedProducts resource shall consist of an XML instance document as validated by the entity roseo:OrderedProducts in the roseo.xsd XML Schema.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content/expiration</p> <p>If the returned URLs (OrderedProducts/URLs) are available on-line for a limited time window then the ROSEO Server shall return</p> <p style="text-align: center;">OrderedProducts/URL/expirationDate</p> <p>specifying the date & time the item will no longer be available.</p> <p>If there is no limitation on time availability then the element shall be left empty.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter</p> <p>The Products ordered via a submitted order can be filtered by issuing an HTTP GET request to the following URL:</p> <p style="text-align: center;"><ROSEO Root Path>/order/{order identifier}/file?{filter expression}</p> <p>{filter expression}: Expression for extracting only the produced products matching the specified filter.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter/lastUpdate</p> <p>A ROSEO server shall support OrderedProducts filtering by Last Update as specified in Table 7-44.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProducts/exception</p> <p>When a ROSEO Server encounters an error while processing an OrderedProducts resource (GET), it shall return:</p> <ul style="list-style-type: none"> <input type="checkbox"/> HTTP Status Code: 4XX for errors on the client side; 5XX for errors on server side as specified in Table 7-50. <input type="checkbox"/> HTTP Entity Body: an ows:ExceptionReport according to the clause 8 of [NR9].

9. ROSEO “SceneSelection” Requirement Class

This section reports all the requirements a ROSEO server has to comply with for claiming the conformance with respect to the SceneSelection class.

This section has been structured by resources: for each ROSEO resource a dedicated subsection has been prepared reporting all related requirements:

- Capabilities’s requirements have been reported in §9.1.
- Order Option’s requirements have been reported in §9.2.
- Order’s requirements have been reported in §9.3.
- Ordered Product’s requirements have been reported in §9.4.

9.1 Capabilities

None

9.2 Order Options

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/OrderOptions/format/xml A ROSEO server shall return an OrderOptions resource for at least one collection or product having at least one non empty element of: OrderOptions/OrderOptionGroup/sceneSelectionOption

9.3 Order

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core
Requirement	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/creation/content A ROSEO server shall accept creation of Order resource having, for at least one product, the scene selection option set (roseo:Order/orderItem/sceneSelection).

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/retrieve/response</p> <p>When a Order resource having scene selection option is returned from a ROSEO server, it shall include the following element:</p> <p style="text-align: center;">roseo:Order/orderItem/sceneSelection</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/exception</p> <p>When a ROSEO server encounters an error on scene selection while creating an Order resource it shall return:</p> <ul style="list-style-type: none"> □ HTTP Status Code: 400 □ HTTP Entity Body: an ows:ExceptionReport according to the clause 8 of [NR9] specifying: <ul style="list-style-type: none"> ○ “exceptionCode”: InvalidParameterValue ○ “locator”: sceneSelection ○ “ExceptionText”: “Invalid value for Parameter”

9.4 Ordered Product

None.

10. ROSEO “SubscriptionOrder” Requirement Class

This section reports all the requirements a ROSEO server has to comply with for claiming the conformance with respect to the SubscriptionOrder class.

This section has been structured by resources: for each ROSEO resource a dedicated subsection has been prepared reporting all related requirements:

- Capabilities’s requirements have been reported in §10.1.
- Order Option’s requirements have been reported in §10.2.
- Order’s requirements have been reported in §10.3.
- Ordered Product’s requirements have been reported in §10.4.

10.1 Capabilities

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Capabilities/resource</p> <p>The ROSEO Server shall return a Capabilities document including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Either <ul style="list-style-type: none"> Capabilities/Contents/SubscriptionOrders/@supported = true <input type="checkbox"/> Or at least one element <ul style="list-style-type: none"> Capabilities/Contents/SupportedCollection/SubscriptionOrders/@supported = true

10.2 Order Options

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core

Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions</p> <p>The OrderOptions available for a specified EO product Subscription shall be accessible to the following URLs:</p> <p>XML format:</p> <p style="padding-left: 40px;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{subscription identifier}/xml</p> <p>Open Search Description Document (OSDD) format:</p> <p style="padding-left: 40px;">http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{subscription identifier}/osdd</p> <p>via HTTP GET request.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions/format/xml</p> <p>The OrderOptions corresponding to a product Subscription shall:</p> <ul style="list-style-type: none"> <input type="checkbox"/> include OrderOptions/OrderOptionGroup/orderType = SUBSCRIPTION_ORDER

10.3 Order

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/creation/content</p> <p>A ROSEO server shall accept creation of Order resource having:</p> <ul style="list-style-type: none"> <input type="checkbox"/> roseo:Order/orderType = SUBSCRIPTION_ORDER <input type="checkbox"/> and including one Subscription to Earth Observation products: <p style="padding-left: 40px;">roseo:Order/orderItem/subscriptionId</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/retrieve/response</p> <p>When a Subscription Order is returned from a ROSEO server, it shall include the following elements:</p> <ul style="list-style-type: none"> <input type="checkbox"/> roseo:Order/orderType = SUBSCRIPTION_ORDER <input type="checkbox"/> and including one Subscription to Earth Observation products: <p style="padding-left: 40px;">roseo:Order/orderItem/subscriptionId</p>

10.4 Ordered Product

Requirements Class	
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder	
Target type	ROSEO Server
Dependency	http://www.opengis.net/spec/ROSEO/1.0/req/Core
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/itemId</p> <p>A ROSEO server shall support multiple OrderedProducts/URL elements having the same itemId.</p> <p>Note: in fact a single subscription (which is a single orderItem) might return multiple products.</p>
Requirement	<p>http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/productId</p> <p>A ROSEO server shall always set the OrderedProducts/URL/productId element corresponding to a subscription order item.</p> <p>Note: this attribute is necessary for getting description of the products delivered from the subscription.</p>

11. Annex A: Conformance Class Abstract Test Suite (Normative)

This section describes the Abstract Test Suite (ATS) of the

OGC RESTful Encoding of Ordering Services Framework for Earth Observation Products.

An ATS provides a basis for developing an executable test suite (ETS) to verify that an Implementation Under Test (IUT) conforms to all relevant functional specifications.

A number of Conformance classes have been defined for verifying the various Requirement classes defined in this specification:

Requirement Class	Conformance Class	Conformance Class URI
Core	Core	http://www.opengis.net/spec/ROSEO/1.0/conf/Core
SceneSelection	SceneSelection	http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection
SubscriptionOrder	SubscriptionOrder	http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder

Table 11-1: ROSEO Requirement vs. Conformance Classes.

Each Conformance Class is composed of a set of tests, each verifying one or more requirements of the corresponding Requirements Class.

Each Conformance Class covers all requirements of the corresponding Requirements Class.

It has to be noted that the tests reported in the Conformance classes have “temporal dependencies”: in fact for running one test another specific test might be needed (e.g. to test order status at least one order needs to be created in the ROSEO Server). Then:

- The tests specified in a Conformance Class must be executed in the order they are specified in the document;
- The tests of a Conformance Class can be started only if the tests of the parent class have been completed.

11.1 Conformance class: Core (<http://www.opengis.net/spec/ROSEO/1.0/conf/Core>)

This Conformance Class is in charge of verifying the compliance of the ROSEO Server under test with respect to the Core Requirement Class, which includes the basic functions that every ROSEO Server shall implement i.e. download of identified EO Products.

11.1.1 GET Capabilities

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Capabilities

b) Test purpose: To verify that the ROSEO Server under test correctly supports the HTTP GET method on Capabilities resource.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - complies with the Capabilities element of roseo.xsd schema
 - the `ows:OperationsMetadata` element is filled-in with the list of supported operations
 - the `Capabilities/ServiceIdentification/Profile` element is set with: `http://www.opengis.net/def/bp/roseo/1.0`
 - The `Capabilities/Contents/resourceURL` shall report the supported resources
 - all attributes of `Capabilities/Contents/GetStatusCapabilities` element are set to true
 - the supported SWE encoding (`Capabilities/Contents/ContentsType/supportedEncoding`) is XMLEncoding
 - at least one collection identifier is returned
 - product orders are supported:
 - Either
 - `Capabilities/Contents/ProductOrders/@supported = true`
 - Or at least one element
 - `Capabilities/Contents/SupportedCollection/ProductOrders/@supported = true`
 - Online Download is supported:
 - Either
 - `Capabilities/Contents/DescribeResultAccessCapabilities/@supported = true`
 - Or at least one element
 - `Capabilities/Contents/SupportedCollection/DescribeResultAccessCapabilities/@supported = true`
 - Request Cancellation is supported:
 - Either
 - `Capabilities/Contents/CancelCapabilities/@supported = true`
 - Or at least one element

- Capabilities/Contents/SupportedCollection/CancelCapabilities/@supported = true

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Root>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/schema>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/profile>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/resourceURL>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_status
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_options_encoding
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/product_order
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/oda>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/cancel>

e) Test type: Capability

11.1.2 GET Capabilities/ServiceIdentification

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Capabilities/ServiceIdentification

b) Test purpose: To verify that the ROSEO Server under test correctly returns the ServiceIdentification section of a Capabilities resource.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/ServiceIdentification`

Verify the response message:

- HTTP Status: 200 OK

- HTTP Entity Body:
 - complies with the ServiceIdentification element of ows.xsd schema

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceIdentification>

e) Test type: Capability

11.1.3 GET Capabilities/ServiceProvider

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Capabilities/ServiceProvider

b) Test purpose: To verify that the ROSEO Server under test correctly returns the ServiceProvider section of a Capabilities resource.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/ServiceProvider`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - complies with the ServiceProvider element of ows.xsd schema

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceProvider>

e) Test type: Capability

11.1.4 GET Capabilities/Contents

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Capabilities/Contents

b) Test purpose: To verify that the ROSEO Server under test correctly returns the Contents section of a Capabilities resource.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/Contents

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - complies with the Contents element of roseo.xsd schema

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/Contents>

e) Test type: Capability

11.1.5 GET Capabilities/non_nominal_conditions

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Capabilities-non-nominal

b) Test purpose:

Verification that the ROSEO Server under test throws a correct error message when incorrect HTTP GET request of Capabilities resource is received.

c) Test method:

Send an incorrect GET request on Capabilities resource:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/WRONG_SECTION

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an ows:ExceptionReport element set as Table 7-9

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/exception>

e) Test type: Capability

11.1.6 GET OrderOptions/xml/product_id

a) **Test** **id:**
[http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions/XML/
 PID](http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions/XML/PID)

b) **Test purpose:**

To verify whether the ROSEO Server under test supports HTTP GET method on OrderOptions resource by product identifier and in XML format.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to return a non empty response (i.e. it has to specify a supported product id).

c) **Test method:**

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{eo:identifier}/xml

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OrderOptions is valid against roseo.xsd XML Schema.
 - include at least one instance of OrderOptions/OrderOptionGroup/identifier. It shall be identical to the product identifier specified in the request URL.
 - include OrderOptions/OrderOptionGroup/orderType set with: PRODUCT_ORDER
 - optionally include OrderOptions/OrderOptionGroup/downloadURL reporting a template URL for direct download of the product.
 - include at least one instance of OrderOptions/OrderOptionGroup/productDeliveryOptions/onlineData Access/protocol

d) **References:**

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/product_id
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml>
- [http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/
product_id](http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/product_id)
- [http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/
oda](http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/oda)

e) **Test type: Capability**

11.1.7 GET OrderOptions/xml/collection_id

a) **Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions/XML/CID

b) **Test purpose:**

To verify whether the ROSEO Server under test supports HTTP GET method on OrderOptions resource by collection identifier and in XML format.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to return a non empty response (i.e. it has to specify a supported collection id).

c) **Test method:**

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/xml`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OrderOptions is valid against roseo.xsd XML Schema.
 - include OrderOptions/OrderOptionGroup/orderType set with: PRODUCT_ORDER
 - optionally include OrderOptions/OrderOptionGroup/downloadURL reporting the URL for retrieving an OSDD for querying the specified product collection.
 - include at least on instance of OrderOptions/OrderOptionGroup/productDeliveryOptions/onlineData Access/protocol

d) **References:**

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/collection_id
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/collection_id

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/xml/oda>

e) Test type: Capability

11.1.8 GET OrderOptions/osdd/product_id

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions/OSDD/PID

b) Test purpose:

To verify whether the ROSEO Server under test supports HTTP GET method on OrderOptions resource by product identifier and in OSDD format.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to return a non empty response (i.e. it has to specify a supported product id).

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{eo:identifier}/osdd`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OpenSearchDescription (`xmlns:osdd="http://a9.com/-/spec/opensearch/1.1/"`) element is valid against the specification at http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_description_document
 - the returned `osdd:OpenSearchDescription/roseo:OrderOptions` is valid against `roseo.xsd` XML Schema.
 - The number of instances of `OpenSearchDescription/Urlelement` shall be identical to that of `osdd:OpenSearchDescription/roseo:OrderOptions/roseo:OrderOption Group` element.
 - Each `OpenSearchDescription/Url` shall include `@template` attribute set according to §7.3.2.3.3.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/product_id

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url/template>

e) Test type: Capability

11.1.9 GET OrderOptions/osdd/collection_id

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions/OSDD/CID

b) Test purpose:

To verify whether the ROSEO Server under test supports HTTP GET method on OrderOptions resource by collection identifier and in OSDD format.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to return a non empty response (i.e. it has to specify a supported collection id).

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/osdd`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OpenSearchDescription (`xmlns:osdd="http://a9.com/-/spec/opensearch/1.1/"`) element is valid against the specification at http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_description_document
 - the returned `osdd:OpenSearchDescription/roseo:OrderOptions` is valid against `roseo.xsd` XML Schema.
 - The number of instances of `OpenSearchDescription/Urlelement` shall be identical to that of `osdd:OpenSearchDescription/roseo:OrderOptions/roseo:OrderOption Group` element.
 - Each `OpenSearchDescription/Url` shall include `@template` attribute set according to §7.3.2.3.3.

- The returned OpenSearchDescription/Url/@template shall point to an OSDD for querying a product catalogue hosting that collection.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/collection_id
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osd>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osd/Url>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osd/Url/template>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osd/Url/template/collection_id

e) Test type: Capability

11.1.10 GET OrderOptions/non_nominal_conditions

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderOptions-non-nominal

b) Test purpose:

To verify whether the ROSEO Server under test is able to handle incorrect HTTP GET requests to OrderOptions resources.

c) Test method:

Send an incorrect GET request on OrderOptions resource:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/WRONG_PARAM`

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an `ows:ExceptionReport` element set as Table 7-29.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/exception>

e) Test type: Capability

11.1.11 POST Order

a) **Test id:** http://www.opengis.net/spec/ROSEO/1.0/conf/Core/POST_Order

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to manage HTTP POST requests on Order resource (i.e. it is able to create Order resources).

Note that the request message shall be prepared in order to allow the ROSEO Server under test to accept the order (i.e. it has to specify a supported product having valid order options).

c) **Test method:**

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: POST
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`
- HTTP Entity Body:
 - Including `<roseo:Order>` valid against the XML schema `roseo.xsd`;
 - Specifying product order:
 - `Order/orderType = "PRODUCT_ORDER"`
 - Specifying at least 2 Earth Observation Products (in order to test the product retrieval):
 - `Order/orderItem/productId`
 - Setting unique `Order/orderItem/itemId` (within the order itself) for each order item.
 - Setting order options according to `OrderOptions` resource corresponding to the specified product ID:
 - `Order/orderItem/productOrderOptionsId`
 - `Order/orderItem/option`
 - Setting options for online access for both items according to `OrderOptions` resource corresponding to the specified product ID:
 - Either:
 - `Order/deliveryOptions/onlineDataAccess/protocol`
 - Or:
 - `Order/orderItem/deliveryOptions/onlineDataAccess/protocol`
 - Specifying `orderReference` value (in order to be re-used in later order search tests).

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes one instance of <oseo:orderId>:
 - that is valid against roseo.xsd XML Schema;
 - that includes a unique ID;
 - which is also a valid URL composed as follows:


```
http://<hostname>:<port>/<context
path>/ROSEO/1.0.0/order/{order identifier}
```

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/id>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/response>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/content>

e) Test type: Capability

11.1.12 POST Order/non_nominal_conditions

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/POST_Order-non-nominal

b) Test purpose:

To verify whether the ROSEO Server under test is able to handle incorrect HTTP POST request to Order resource.

c) Test method:

Send incorrect POST requests on Order resource:

- HTTP Method: POST
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`

Including several errors:

1. Order element with a wrong tag e.g.: `<roseo:Order>/<wrongTag>`
2. Order with with unsupported product:
 - a. `Order/orderItem/productId/identifier = WRONG_PRODUCT_ID`
3. Message with unsupported item:
 - a. `Order/orderItem/productId/collectionId = WRONG_COLLECTION_ID`
4. Mismatch between order options values and corresponding order options declaration (OrderOptions resource).

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an ows:ExceptionReport element set according to Table 7-41.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception>

e) Test type: Capability

11.1.13 GET Order/ID

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/ID

b) Test purpose:

To verify whether the ROSEO Server under test is able to retrieve a previously created Order resource.

Note that the test must be prepared inserting an existing order id and not using an arbitrary value.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}`

The PATH shall be set using the `<roseo:orderId>` returned by test §11.1.11.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `<roseo:Order>` element;
 - The returned element is valid against `roseo.xsd` XML Schema;
 - The ID of the returned order (`<roseo:Order>/orderId`) matches the one in the request;
 - The returned `<roseo:Order>` element includes all parameters set at order creation (§11.1.11), specifically:
 - `<roseo:Order>/orderType = "PRODUCT_ORDER"`
 - `<roseo:Order>/orderItem/productId`

- The returned <roseo:Order> element shall include all order status information:
 - <roseo:Order>/orderId
 - <roseo:Order>/orderStatusInfo
 - <roseo:Order>/orderDateTime
 - <roseo:Order>/orderItem/orderStatusInfo
- In case the orderItem has been completed then:
 - <roseo:orderItem>/orderItemStatusInfo/status = Completed
 Otherwise the item status can be: Submitted, Accepted, InProduction.
- The returned <roseo:Order> element shall include the download URL: <roseo:Order>/downloadURL
- The returned <roseo:Order>/orderItem shall include:
 - <roseo:Order>/orderItem/itemIdURL
 - <roseo:Order>/orderItem/downloadURL

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/id>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/product>
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/completed_order_item
- http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/not_completed_order_item

e) Test type: Capability

11.1.14 GET Order/orderItem/ID

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/orderItem/ID

b) Test purpose:

To verify whether the ROSEO Server under test is able to retrieve an orderItem of a previously created Order resource.

Note that the test must be prepared inserting an existing order item identifier and not using an arbitrary value.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/{order item identifier}

The PATH shall be set using the <roseo:Order>/orderItem/itemIdURL returned by test §11.1.13.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes <roseo:orderItem> element;
 - The returned element is valid against roseo.xsd XML Schema;
 - The returned <roseo:orderItem> shall include:
 - itemIdURL
 - downloadURL
 - orderStatusInfo
 - The URL of the returned order item (<roseo:orderItem>/itemIdURL) matches the one in the request;
 - The returned <roseo:orderItem> element includes all parameters set at order creation (§11.1.11), specifically:
 - <roseo:Order>/orderType = "PRODUCT_ORDER"
 - <roseo:Order>/orderItem/productId

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/itemId>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/itemId>

e) Test type: Capability

11.1.15 GET Order/LastUpdate

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/search/LastUpdate

b) Test purpose:

To verify whether the ROSEO Server under test is able to search Order resources by LastUpdate criterion.

Make sure there at least 2 orders in the server (e.g. by running test §11.1.11 two times).

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?{filter expression}

{filter expression}: Open Search Template URL including LastUpdate filter:

..... &lu=[{roseos:lastUpdate}]

Setting lastUpdate with an old date in order to get a non empty answer.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes <roseo:Orders>, valid against roseo.xsd XML schema, including at least the orders submitted with test §11.1.11.
 - The returned order(s) has modification date (<roseo:Orders>/Order/orderDateTime) later than that specified in the request.
 - The returned <roseo:Order> elements shall be sorted by <roseo:Orders>/Order/orderDateTime (new orders first).
 - The returned <roseo:Order> elements shall include all order status information:
 - <roseo:Order>/orderId
 - <roseo:Order>/orderStatusInfo
 - <roseo:Order>/orderDateTime
 - <roseo:Order>/orderItem/orderStatusInfo
 - In case the orderItem has been completed then:
 - <roseo:orderItem>/orderItemStatusInfo/status = Completed
 Otherwise the item status can be: Submitted, Accepted, InProduction.
 - The returned <roseo:Order> element shall include the download URL: <roseo:Order>/downloadURL
 - The returned <roseo:Order>/orderItem shall include:
 - <roseo:Order>/orderItem/itemIdURL
 - <roseo:Order>/orderItem/downloadURL

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/lastUpdate>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content>

e) Test type: Capability

11.1.16 GET Order/OrderStatus

a) **Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/search/OrderStatus

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to search Order resources by OrderStatus criterion.

Make sure there at least 2 orders in the server (e.g. by running test §11.1.11 two times).

c) **Test method:**

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?{filter expression}`

{filter expression}: Open Search Template URL including OrderStatus filter:

..... `&ost={roseos:orderStatus}`

Setting orderStatus with the values returned by the previous test §11.1.15 in order to get a non empty answer e.g.

`&ost=Completed,Submitted,Accepted,InProduction`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `<roseo:Orders>`, valid against `roseo.xsd` XML schema, including at least the orders submitted with test §11.1.11.
 - The returned order(s) has order status (`<roseo:Orders>/Order/orderStatusInfo/status`) matching with that specified in the request.
 - The returned `<roseo:Order>` elements shall be sorted by `<roseo:Orders>/Order/orderDateTime` (new orders first).
 - The returned `<roseo:Order>` elements shall include all order status information:
 - `<roseo:Order>/orderId`
 - `<roseo:Order>/orderStatusInfo`
 - `<roseo:Order>/orderDateTime`
 - `<roseo:Order>/orderItem/orderStatusInfo`
 - In case the orderItem has been completed then:

`<roseo:orderItem>/orderItemStatusInfo/status = Completed`

Otherwise the item status can be: Submitted, Accepted, InProduction.

- The returned <roseo:Order> element shall include the download URL:
<roseo:Order>/downloadURL
- The returned <roseo:Order>/orderItem shall include:
 - <roseo:Order>/orderItem/itemIdURL
 - <roseo:Order>/orderItem/downloadURL

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderStatus>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content>

e) Test type: Capability

11.1.17 GET Order/OrderReference

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/search/OrderReference

b) Test purpose:

To verify whether the ROSEO Server under test is able to search Order resources by OrderReference criterion.

Make sure there at least 2 orders in the server (e.g. by running test §11.1.11 two times).

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?{filter expression}

{filter expression}: Open Search Template URL including OrderReference filter:

..... &orr={roseos:orderReference}

Setting orderReference with the values set by the previous test §11.1.11 in order to get a non empty answer.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes <roseo:Orders>, valid against roseo.xsd XML schema, including at least the orders submitted with test §11.1.11.
 - The returned order(s) has order reference (<roseo:Orders>/Order/orderReference) matching with that specified in the request.
 - The returned <roseo:Order> elements shall be sorted by <roseo:Orders>/Order/orderDateTime (new orders first).
 - The returned <roseo:Order> elements shall include all order status information:
 - <roseo:Order>/orderId
 - <roseo:Order>/orderStatusInfo
 - <roseo:Order>/orderDateTime
 - <roseo:Order>/orderItem/orderStatusInfo
 - In case the orderItem has been completed then:
 - <roseo:orderItem>/orderItemStatusInfo/status = Completed
 Otherwise the item status can be: Submitted, Accepted, InProduction.
 - The returned <roseo:Order> element shall include the download URL: <roseo:Order>/downloadURL
 - The returned <roseo:Order>/orderItem shall include:
 - <roseo:Order>/orderItem/itemIdURL
 - <roseo:Order>/orderItem/downloadURL

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderReference>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content>

e) Test type: Capability

11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference

- a) Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/search/LastUpdate&OrderStatus&OrderReference

b) Test purpose:

To verify whether the ROSEO Server under test is able to search Order resources by all criteria.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?{filter expression}`

{filter expression}: Open Search Template URL including LastUpdate, OrderStatus and OrderReference filter:

```
.....
&lu=[{roseos:lastUpdate}&ost={roseos:orderStatus}&orr={roseos:orderReference}] .....
```

Setting search criteria with the values returned by the previous test §11.1.15 in order to get a non empty answer.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `<roseo:Orders>`, valid against `roseo.xsd` XML schema, including at least the orders submitted with test §11.1.11.
 - The returned order(s) has last update, order status and order reference complying with those specified in the request.
 - The returned `<roseo:Order>` elements shall be sorted by `<roseo:Orders>/Order/orderDateTime` (new orders first).
 - The returned `<roseo:Order>` elements shall include all order status information:
 - `<roseo:Order>/orderId`
 - `<roseo:Order>/orderStatusInfo`
 - `<roseo:Order>/orderDateTime`
 - `<roseo:Order>/orderItem/orderStatusInfo`
 - In case the orderItem has been completed then:
 - `<roseo:orderItem>/orderItemStatusInfo/status = Completed`
 Otherwise the item status can be: Submitted, Accepted, InProduction.
 - The returned `<roseo:Order>` element shall include the download URL: `<roseo:Order>/downloadURL`
 - The returned `<roseo:Order>/orderItem` shall include:
 - `<roseo:Order>/orderItem/itemIdURL`
 - `<roseo:Order>/orderItem/downloadURL`

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderReference>

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content>

e) Test type: Capability

11.1.19 GET Order/non_nominal_conditions

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order-non-nominal

b) Test purpose:

To verify whether the ROSEO Server under test is able to handle incorrect HTTP GET requests on Order resource.

c) Test method:

Send incorrect GET requests on Order resource:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`

Including several errors:

1. Incorrect Order identifier:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/INCORRECT_ORDER_ID`

2. Incorrect Order Item identifier:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/INCORRECT_ORDER_ITEM_ID`

3. Incorrect Order Search criteria:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order?wrong_filter=100`

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an `ows:ExceptionReport` element set according to Table 7-41.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception>

e) Test type: Capability**11.1.20 DELETE Order****a) Test id:** http://www.opengis.net/spec/ROSEO/1.0/conf/Core/DELETE_Order**b) Test purpose:**

To verify whether the ROSEO Server under test is able to delete already created orders.

Note that the test must be prepared inserting an existing order identifier and not using an arbitrary value.

c) Test method:

Send the following request:

- HTTP Method: DELETE
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}`

The PATH shall be set using the `<oseo:orderId>` returned by test §11.1.11.

Verify that the returned response:

- HTTP Status Code: 200.
- HTTP Entity Body: empty

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation/response>

e) Test type: Capability**11.1.21 GET Order/cancellation****a) Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_Order/cancellation**b) Test purpose:**

To verify whether the ROSEO Server under test is actually cancelling the order specified at test §11.1.20. The verification is performed checking the order status.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}`

The PATH shall be set using the same path used for cancellation (test §11.1.20).

Verify that the returned response:

- HTTP Status Code: 200.
- HTTP Entity Body:
 - Order/orderId shall be identical to the requested one;
 - Order/orderStatusInfo/status = Cancelled
If the order status is not “Cancelled”, it means that the server has not yet cancelled the order, then repeat the test.
 - Order/orderItem/orderItemStatusInfo/status = Cancelled for at least one item.

The test is successful if after one or more retries:

Order/orderStatusInfo/status = Cancelled

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation>

e) Test type: Capability

11.1.22 DELETE Order/non_nominal_conditions

a) Test id: http://www.opengis.net/spec/ROSEO/1.0/conf/Core/DELETE_Order-non-nominal-conditions

b) Test purpose:

To verify whether the ROSEO Server under test is able to handle incorrect DELETE requests on Order resources.

c) Test method:

Send incorrect DELETE requests on Order resource:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`

Including error:

1. Incorrect Order identifier:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/INCORRECT_ORDER_ID`

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an ows:ExceptionReport element set according to Table 7-41.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception>

e) Test type: Capability

11.1.23 GET OrderedProduct/all

a) Test id:

http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderedProduct/all

b) Test purpose:

To verify whether the ROSEO Server under test is able to manage HTTP GET requests on OrderedProduct resource.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file`

The PATH shall be set using the `<roseo:orderId>` returned by test §11.1.11.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `roseo:OrderedProducts`, which is valid against `roseo.xsd` XML Schema;
 - For each product ready for download one instance of the following element shall be returned:
 - `OrderedProducts/URL`
 - If there are items with limited time availability, then the following element has to be provided:
 - `OrderedProducts/URL/expirationDate`

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL>

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content/expiration>

e) **Test type: Capability**

11.1.24 GET OrderedProduct/orderItem

a) **Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderedProduct/orderItem

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to manage HTTP GET requests on OrderedProduct resource - single order item.

c) **Test method:**

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/{order item identifier}/file`

The PATH shall be set using the `<roseo:Order>/orderItem` returned by test §11.1.13.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `roseo:OrderedProducts`, which is valid against `roseo.xsd` XML Schema;
 - For the ordered item the following element shall be returned:
 - `OrderedProducts/URL`
 - If there are items with limited time availability, then the following element has to be provided:
 - `OrderedProducts/URL/expirationDate`

d) **References:**

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL/item>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content/expiration>

e) **Test type: Capability**

11.1.25 GET OrderedProduct/LastUpdate

a) **Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderedProduct/LastUpdate

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to retrieve the OrderedProducts available since a specified date & time.

c) **Test method:**

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file?{filter expression}`

The PATH shall be set as follows:

- using the `<roseo:orderId>` returned by test §11.1.11;
- setting `{filter expression}` with: `lastUpdate=[<date&time>`

with `date&time` set in order to return only one order Item.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `roseo:OrderedProducts`, which is valid against `roseo.xsd` XML Schema;
 - One instance of `OrderedProducts/URL` shall be set with the product ready since the specified `date&time`.

d) **References:**

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter>
- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter/lastUpdate>

e) **Test type: Capability**

11.1.26 GET OrderedProduct/non_nominal_conditions

a) **Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/Core/GET_OrderedProduct-non-nominal

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to handle incorrect HTTP GET requests on OrderedProduct resource.

c) Test method:

Send incorrect GET requests on OrderedProduct resource:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file`

Including several errors:

1. Incorrect Order identifier:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/INCORRECT_ORDER_ID/file`

2. Incorrect Order Item identifier:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/INCORRECT_ORDER_ITEM_ID/file`

3. Incorrect Order Search criteria:

PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file?wrong_filter=100`

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an `ows:ExceptionReport` element set according to Table 7-50.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProducts/exception>

e) Test type: Capability**11.2 Conformance class: SceneSelection**

(<http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection>)

11.2.1 GET OrderOptions/xml**a) Test****id:**

http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection/GET_OrderOptions/XML

b) Test purpose:

To verify whether the ROSEO Server under test supports scene selection options for at least one product / collection.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to return a non empty response (i.e. it has to specify a supported product id / collection id with non empty scene selection options).

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH:
 - `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{eo:identifier}/xml`
 - or:
 - `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/xml`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OrderOptions is valid against roseo.xsd XML Schema.
 - include OrderOptions/OrderOptionGroup/orderType set with: PRODUCT_ORDER
 - include at least one instance of OrderOptions/OrderOptionGroup/sceneSelectionOption
 - include at least on instance of OrderOptions/OrderOptionGroup/productDeliveryOptions/onlineData Access/protocol

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/OrderOptions/format/xml>

e) Test type: Capability**11.2.2 POST Order**

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection/POST_Order

b) Test purpose:

To verify that the ROSEO Server under test is able to create Order resources with scene selection options.

Note that the request message shall be prepared in order to allow the ROSEO Server under test to accept the order (i.e. it has to specify a supported product having scene selection options).

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: POST
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`
- HTTP Entity Body:
 - Including `<roseo:Order>` valid against the XML schema `roseo.xsd`;
 - Specifying product order:
 - `Order/orderType = "PRODUCT_ORDER"`
 - Specifying at least 1 Earth Observation Product:
 - `Order/orderItem/productId`
 - Setting unique `Order/orderItem/itemId` (within the order itself).
 - Setting order options according to `OrderOptions` resource corresponding to the specified product ID:
 - `Order/orderItem/productOrderOptionsId`
 - `Order/orderItem/option`
 - Setting one scene selection according to `OrderOptions` resource corresponding to the specified product ID:
 - `Order/orderItem/sceneSelection`
 - Setting options for online access according to `OrderOptions` resource corresponding to the specified product ID:
 - Either:
 - `Order/deliveryOptions/onlineDataAccess/protocol`
 - Or:
 - `Order/orderItem/deliveryOptions/onlineDataAccess/protocol`
 - Specifying `orderReference` value.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes one instance of `<oseo:orderId>`:
 - that is valid against `roseo.xsd` XML Schema;

- that includes a unique ID;
- that is also a valid URL composed as follows:
 http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/creation/content>

e) Test type: Capability

11.2.3 POST Order/non_nominal_conditions

- a) Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection/POST_Order-non-nominal

b) Test purpose:

To verify that the ROSEO Server under test is able to handle incorrect HTTP POST request to Order resource having incorrect scene selection.

c) Test method:

Send incorrect POST requests on Order resource:

- HTTP Method: POST
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order

Including the error:

- Mismatch between the roseo:Order/orderItem/sceneSelection element and the scene selection options described by the corresponding OrderOptions resource.

Verify the response message:

- HTTP Status: 400
- HTTP Entity Body:
 - Includes an ows:ExceptionReport element set according to Table 7-41.

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/exception>

e) Test type: Capability

11.2.4 GET Order/ID

a) **Test** id:
http://www.opengis.net/spec/ROSEO/1.0/conf/SceneSelection/GET_Order/ID

b) **Test purpose:**

To verify whether the ROSEO Server under test is able to correctly return an Order having scene selection set.

Note that the test must be prepared inserting an existing order id and not using an arbitrary value.

c) **Test method:**

Send the following request:

- HTTP Method: GET
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}`

The PATH shall be set using the `<roseo:orderId>` returned by test §11.2.2.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes `<roseo:Order>` element;
 - The returned element is valid against `roseo.xsd` XML Schema;
 - The ID of the returned order (`<roseo:Order>/orderId`) matches the one in the request;
 - The returned `<roseo:Order>` element includes all parameters set at order creation (§11.2.2), specifically:
 - `<roseo:Order>/orderType = "PRODUCT_ORDER"`
 - `<roseo:Order>/orderItem/productId`
 - The returned `<roseo:Order>` element shall include all order status information:
 - `<roseo:Order>/orderId`
 - `<roseo:Order>/orderStatusInfo`
 - `<roseo:Order>/orderDateTime`
 - `<roseo:Order>/orderItem/orderStatusInfo`
 - In case the orderItem has been completed then:
 - `<roseo:orderItem>/orderItemStatusInfo/status = Completed`
 Otherwise the item status can be: Submitted, Accepted, InProduction.
 - The returned `<roseo:Order>` element shall include the download URL: `<roseo:Order>/downloadURL`
 - The returned `<roseo:Order>/orderItem` shall include:
 - `<roseo:Order>/orderItem/itemIdURL`

- <roseo:Order>/orderItem/downloadURL
- <roseo:Order>/orderItem/sceneSelection

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/retrieve/response>

e) Test type: Capability

11.3 Conformance class: SubscriptionOrder

(<http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder>)

11.3.1 GET Capabilities

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder/GET_Capabilities

b) Test purpose:

To verify that the ROSEO Server under test correctly supports the HTTP GET method on Capabilities resource and advertises support for Subscription orders.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - complies with the Capabilities element of roseo.xsd schema;
 - Subscription orders are supported:
 - Either
 - Capabilities/Contents/SubscriptionOrders/@supported = true
 - Or at least one element
 - Capabilities/Contents/SupportedCollection/SubscriptionOrders/@supported = true
 - Online Download is supported:
 - Either
 - Capabilities/Contents/DescribeResultAccessCapabilities/@supported = true
 - Or at least one element
 - Capabilities/Contents/SupportedCollection/DescribeResultAccessCapabilities/@supported = true

- Request Cancellation is supported:
 - Either
 - Capabilities/Contents/CancelCapabilities/@supported = true
 - Or at least one element
 - Capabilities/Contents/SupportedCollection/CancelCapabilities/@supported = true

Pass if the assertion is satisfied; fail otherwise.

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Capabilities/resource>

e) Test type: Capability

11.3.2 GET OrderOptions/xml

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder/GET_OrderOptions/XML

b) Test purpose:

To verify whether the ROSEO Server under test supports order options for at least one subscription.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: GET
- PATH:
 - `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/options/{collection identifier}/xml`

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - the returned OrderOptions element is valid against roseo.xsd XML Schema.
 - include OrderOptions/OrderOptionGroup/orderType set with: SUBSCRIPTION_ORDER.
 - include at least on instance of OrderOptions/OrderOptionGroup/productDeliveryOptions/onlineData Access/protocol

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions>
- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions/format/xml>

e) Test type: Capability

11.3.3 POST Order

a) Test **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder/POST_Order

b) Test purpose:

To verify that the ROSEO Server under test is able to create Subscription Orders.

c) Test method:

Verify that the ROSEO Server under test accepts the following request:

- HTTP Method: POST
- PATH: `http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order`
- HTTP Entity Body:
 - Including `<roseo:Order>` valid against the XML schema `roseo.xsd`;
 - Specifying product order:
 - Order/orderType = "SUBSCRIPTION_ORDER"
 - Specifying one Subscription to Earth Observation Products:
 - Order/orderItem/subscriptionId
 - Setting unique Order/orderItem/itemId (within the order itself).
 - Setting order options according to OrderOptions resource corresponding to the specified subscriptionId:
 - Order/orderItem/productOrderOptionsId
 - Order/orderItem/option
 - Setting options for online access according to OrderOptions resource corresponding to the specified subscriptionId:
 - Either:
 - Order/deliveryOptions/onlineDataAccess/protocol
 - Or:
 - Order/orderItem/deliveryOptions/onlineDataAccess/protocol

Verify the response message:

- HTTP Status: 200 OK

- HTTP Entity Body:
 - Includes one instance of <oseo:orderId>:
 - that is valid against roseo.xsd XML Schema;
 - that includes a unique ID;
 - which is also a valid URL composed as follows:
 http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/creation/content>

e) Test type: Capability

11.3.4 GET Order/ID

- a) Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder/GET_Order/ID

b) Test purpose:

To verify whether the ROSEO Server under test is able to correctly return an Order resource that include a Subscription.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}

The PATH shall be set using the <roseo:orderId> returned by test §11.3.3.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes <roseo:Order> element;
 - The returned element is valid against roseo.xsd XML Schema;
 - The ID of the returned order (<roseo:Order>/orderId) matches the one in the request;
 - The returned <roseo:Order> element includes all parameters set at order creation (§11.3.3), specifically:
 - <roseo:Order>/orderType = "SUBSCRIPTION_ORDER"
 - <roseo:Order>/orderItem/subscriptionId
 - The returned <roseo:Order> element shall include all order status information:

- <roseo:Order>/orderId
- <roseo:Order>/orderStatusInfo
- <roseo:Order>/orderDateTime
- <roseo:Order>/orderItem/orderStatusInfo
- In case the orderItem has been completed then:
 - <roseo:orderItem>/orderItemStatusInfo/status = Completed
 - Otherwise the item status can be: Submitted, Accepted, InProduction.
- The returned <roseo:Order> element shall include the download URL: <roseo:Order>/downloadURL
- The returned <roseo:Order>/orderItem shall include:
 - <roseo:Order>/orderItem/itemIdURL
 - <roseo:Order>/orderItem/downloadURL

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/retrieve/response>

e) Test type: Capability

11.3.5 GET OrderedProduct/all

- a) Test** **id:**
http://www.opengis.net/spec/ROSEO/1.0/conf/SubscriptionOrder/GET_OrderedProduct/all

b) Test purpose:

To verify whether the ROSEO Server under test is able to retrieve the OrderProduct(s) corresponding to a Subscription.

c) Test method:

Send the following request:

- HTTP Method: GET
- PATH: http://<hostname>:<port>/<context path>/ROSEO/1.0.0/order/{order identifier}/file

The PATH shall be set using the <roseo:orderId> returned by test §11.3.3.

Verify the response message:

- HTTP Status: 200 OK
- HTTP Entity Body:
 - Includes roseo:OrderedProducts, which is valid against roseo.xsd XML Schema;
 - All ordered products (generated by the subscription) ready for download shall include:
 - OrderedProducts/URL

- **OrderedProducts/URL/itemId** (corresponding to the itemId of the POSTed Order)
- **OrderedProducts/URL/productId**
- OrderedProducts/URL/itemAddress
- OrderedProducts/URL/expirationDate (in case the item has limited time availability)

d) References:

- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/itemId>
- <http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/productId>

e) Test type: Capability

11.4 Traceability Matrix

11.4.1 Requirements vs. Conformance Tests Traceability Matrix

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/Contents	11.1.4 GET Capabilities/Contents
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/exception	11.1.5 GET Capabilities/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/profile	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/resourceURL	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_status	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_options_encoding	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/product_order	11.1.1 GET Capabilities

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/oda	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/cancel	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/schema	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceIdentification	11.1.2 GET Capabilities/ServiceIdentification
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceProvider	11.1.3 GET Capabilities/ServiceProvider
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order	11.1.11 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation	11.1.20 DELETE Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation/response	11.1.20 DELETE Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/cancellation	11.1.21 GET Order/cancellation
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation	11.1.11 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/content	11.1.11 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/response	11.1.11 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception	11.1.12 POST Order/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception	11.1.19 GET Order/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception	11.1.22 DELETE Order/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/id	11.1.11 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/itemId	11.1.14 GET Order/orderItem/ID
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/id	11.1.13 GET Order/ID
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/prod	11.1.13 GET Order/ID

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/retrieve/response/completed_order_item	11.1.13 GET Order/ID
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/retrieve/response/not_completed_order_item	11.1.13 GET Order/ID
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/retrieve/response/itemId	11.1.14 GET Order/orderItem/ID
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search	11.1.15 GET Order/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search	11.1.16 GET Order/OrderStatus
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search	11.1.17 GET Order/OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search	11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/lastUpdate	11.1.15 GET Order/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/orderStatus	11.1.16 GET Order/OrderStatus
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/orderReference	11.1.17 GET Order/OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/orderReference	11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/response	11.1.15 GET Order/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/response/sorting	11.1.15 GET Order/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/response/content	11.1.15 GET Order/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/response	11.1.16 GET Order/OrderStatus
http://www.opengis.net/spec/ROSEO/1.0/req/Order/Order/search/response/sorting	11.1.16 GET Order/OrderStatus

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content	11.1.16 GET Order/OrderStatus
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response	11.1.17 GET Order/OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting	11.1.17 GET Order/OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content	11.1.17 GET Order/OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response	11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting	11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content	11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content	11.1.23 GET OrderedProduct/all
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content/expiration	11.1.23 GET OrderedProduct/all
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content	11.1.24 GET OrderedProduct/orderItem
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/content/expiration	11.1.24 GET OrderedProduct/orderItem
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter	11.1.25 GET OrderedProduct/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/filter/lastUpdate	11.1.25 GET OrderedProduct/LastUpdate
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL	11.1.23 GET OrderedProduct/all
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProduct/URL/item	11.1.24 GET OrderedProduct/orderItem
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderedProducts/exception	11.1.26 GET OrderedProduct/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions	11.1.6 GET OrderOptions/xml/product_id

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions	11.1.7 GET OrderOptions/xml/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions	11.1.8 GET OrderOptions/osdd/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions	11.1.9 GET OrderOptions/osdd/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/collection_id	11.1.7 GET OrderOptions/xml/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/collection_id	11.1.9 GET OrderOptions/osdd/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/exception	11.1.10 GET OrderOptions/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml	11.1.6 GET OrderOptions/xml/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml/product_id	11.1.6 GET OrderOptions/xml/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml/oda	11.1.6 GET OrderOptions/xml/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml	11.1.7 GET OrderOptions/xml/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml/collection_id	11.1.7 GET OrderOptions/xml/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/xml/oda	11.1.7 GET OrderOptions/xml/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd	11.1.8 GET OrderOptions/osdd/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd/Url	11.1.8 GET OrderOptions/osdd/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd/Url/template	11.1.8 GET OrderOptions/osdd/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd	11.1.9 GET OrderOptions/osdd/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd/Url	11.1.9 GET OrderOptions/osdd/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd/Url/template	11.1.9 GET OrderOptions/osdd/collection_id

Requirement URL	Conformance Test
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/format/osdd/Url/template/collection_id	11.1.9 GET OrderOptions/osdd/collection_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/product_id	11.1.6 GET OrderOptions/xml/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/OrderOptions/product_id	11.1.8 GET OrderOptions/osdd/product_id
http://www.opengis.net/spec/ROSEO/1.0/req/Collection/Root	11.1.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/creation/content	11.2.2 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/exception	11.2.3 POST Order/non_nominal_conditions
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/retrieve/response	11.2.4 GET Order/ID
http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/OrderOptions/format/xml	11.2.1 GET OrderOptions/xml
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Capabilities/resource	11.3.1 GET Capabilities
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions	11.3.2 GET OrderOptions/xml
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions/format/xml	11.3.2 GET OrderOptions/xml
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/creation/content	11.3.3 POST Order
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/retrieve/response	11.3.4 GET Order/ID
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/itemId	11.3.5 GET OrderedProduct/all
http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/productId	11.3.5 GET OrderedProduct/all

Table 11-2: Requirements vs. Conformance Tests Traceability Matrix.

11.4.2 Conformance Tests vs. Requirements Traceability Matrix

Conformance Test	Requirement URL
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Root
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/schema
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/profile
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/resourceURL
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_status
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/order_options_encoding
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/product_order
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/oda
11.1.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/resource/cancel
11.1.2 GET Capabilities/ServiceIdentification	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceIdentification
11.1.3 GET Capabilities/ServiceProvider	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/ServiceProvider
11.1.4 GET Capabilities/Contents	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/Contents
11.1.5 GET Capabilities/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Capabilities/exception
11.1.6 GET OrderOptions/xml/product_id	http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions
11.1.6 GET OrderOptions/xml/product_id	http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/product_id

Conformance Test		Requirement URL
11.1.6	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml
11.1.6	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml/product_id
11.1.6	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml/oda
11.1.7	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions
11.1.7	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/collection_id
11.1.7	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml
11.1.7	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml/collection_id
11.1.7	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/xml/oda
11.1.8	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions
11.1.8	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/product_id
11.1.8	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd
11.1.8	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd/Url
11.1.8	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd/Url/template
11.1.9	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions
11.1.9	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/collection_id
11.1.9	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd
11.1.9	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd/Url
11.1.9	GET	http://www.opengis.net/spec/ROSEO/1.0/req/Conformance/OrderOptions/format/osdd/Url/template

Conformance Test	Requirement URL
11.1.9 GET OrderOptions/osdd/collection_id	http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/format/osdd/Url/template/collection_id
11.1.10 GET OrderOptions/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Core/OrderOptions/exception
11.1.11 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order
11.1.11 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/id
11.1.11 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation
11.1.11 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/response
11.1.11 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/creation/content
11.1.12 POST Order/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/exception
11.1.13 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/id
11.1.13 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/prod
11.1.13 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/completed_order_item
11.1.13 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/not_completed_order_item
11.1.14 GET Order/orderItem/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/itemId
11.1.14 GET Order/orderItem/ID	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/retrieve/response/itemId
11.1.15 GET Order/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search
11.1.15 GET Order/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/lastUpdate

Conformance Test	Requirement URL
11.1.15 GET Order/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response
11.1.15 GET Order/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting
11.1.15 GET Order/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content
11.1.16 GET Order/OrderStatus	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search
11.1.16 GET Order/OrderStatus	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderStatus
11.1.16 GET Order/OrderStatus	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response
11.1.16 GET Order/OrderStatus	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting
11.1.16 GET Order/OrderStatus	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content
11.1.17 GET Order/OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search
11.1.17 GET Order/OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderReference
11.1.17 GET Order/OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response
11.1.17 GET Order/OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting
11.1.17 GET Order/OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/content
11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search
11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/orderReference
11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response
11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Core/Order/search/response/sorting

Conformance Test	Requirement URL
11.1.18 GET Order/LastUpdate&OrderStatus&OrderReference	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/search/response/content
11.1.19 GET Order/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/exception
11.1.20 DELETE Order	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/cancellation
11.1.20 DELETE Order	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/cancellation/response
11.1.21 GET Order/cancellation	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/cancellation
11.1.22 DELETE Order/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Content/Order/exception
11.1.23 GET OrderedProduct/all	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/URL
11.1.23 GET OrderedProduct/all	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/content
11.1.23 GET OrderedProduct/all	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/content/expiration
11.1.24 GET OrderedProduct/orderItem	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/URL/item
11.1.24 GET OrderedProduct/orderItem	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/content
11.1.24 GET OrderedProduct/orderItem	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/content/expiration
11.1.25 GET OrderedProduct/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/filter
11.1.25 GET OrderedProduct/LastUpdate	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProduct/filter/lastUpdate
11.1.26 GET OrderedProduct/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/Content/OrderedProducts/exception
11.2.1 GET OrderOptions/xml	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/OrderOptions/format/xml
11.2.2 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/creation/content

Conformance Test	Requirement URL
11.2.3 POST Order/non_nominal_conditions	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/exception
11.2.4 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/SceneSelection/Order/retrieve/response
11.3.1 GET Capabilities	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Capabilities/resource
11.3.2 GET OrderOptions/xml	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions
11.3.2 GET OrderOptions/xml	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderOptions/format/xml
11.3.3 POST Order	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/creation/content
11.3.4 GET Order/ID	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/Order/retrieve/response
11.3.5 GET OrderedProduct/all	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/itemId
11.3.5 GET OrderedProduct/all	http://www.opengis.net/spec/ROSEO/1.0/req/SubscriptionOrder/OrderedProduct/productId

Table 11-3: Conformance Tests vs. Requirements Traceability Matrix.

12. Annex B: ESA Sentinel-1 Order Options

This section analyses ESA Sentinel-1 order options and provides an encoding based on OrderOptions resource defined at §7.3.

Sentinel-1 products are structured by “Native Datasets” (i.e. Collections): each of them has EO Products with specific Metadata Attributes and “Download Options” (i.e. OrderOptions).

The possible Download Options are:

- Processing**, enumerated string with the following allowed values:
 - RAW
 - SLC
 - GRD
 - OCN
- Resolution**, enumerated string with the following allowed values:
 - FR
 - HR
 - MR
- Swath**, enumerated string with the following allowed values:
 - CO_POL
 - CROSS_POL
 - IW1
 - IW2
 - IW3
 - IW1_CO_POL
 - IW1_CROSS_POL
 - IW2_CO_POL
 - IW2_CROSS_POL
 - IW3_CO_POL
 - IW3_CROSS_POL
 - EW1
 - EW2
 - EW3
 - EW4
 - EW5
 - EW1_CO_POL
 - EW1_CROSS_POL
 - EW2_CO_POL
 - EW2_CROSS_POL
 - EW3_CO_POL
 - EW3_CROSS_POL
- Safe**, which is Yes or Not depending on whether the required format is SAFE or NOT.

The important point to note is that the values of the different options are correlated e.g.:

- Resolution** can be specified only when **processing** is GRD;
- Swaths** EW<N> can be specified only for some datasets, while IW<N> can be specified for other datasets
- Etc.

All of these dependencies can be represented via dedicated OrderOptionGroup: each group specifies the possible order options with the correlated allowed values. Once a client has selected a group, then only the corresponding order options and values are returned.

The following table reports:

- All combinations of order options and allowed values for Sentinel-1 collections;
- The reference to the example file reporting the corresponding OrderOptions in XML format.
- The Open Search Template URL including the corresponding order options.

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
S1_SAR_SM_SINGLE_POL	RAW, SLC, OCN	ProcessingLevel	RAW SLC OCN	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}	OrderOptions_S1_SAR_SM_SINGLE_POL.xml
		Format	null SAFE		
	GRD	ProcessingLevel	GRD		
		Resolution	FR HR MR		
		Format	null SAFE		
	S1_SAR_SM_DUAL_POL	RAW, OCN	ProcessingLevel		
Format			null SAFE		
SLC		ProcessingLevel	SLC		
		Swath	CO_POL CROSS_POL		
		Format	null SAFE		
GRD		ProcessingLevel	GRD		
	Swath	CO_POL CROSS_POL			
				Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=FR">http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=FR	

Collection (Sentinel-1 Native Dataset)	productOr derOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
		Resolution	FR HR MR	parameters>&prclv=GRD&frm=SAFE&res=FR&swath=CROSS_POL	
		Format	null SAFE		
S1_SAR_IW_SINGLE_POL	RAW, OCN	ProcessingLevel	RAW OCN	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other>">http://roseo.server.com/<path>?<other> parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}&swath={roseo:Swath}	OrderOptions_S1_SAR_IW_SINGLE_POL
		Format	null SAFE		
	SLC	ProcessingLevel	SLC		
		Swath	IW1 IW2 IW3		
		Format	null SAFE		
	GRD	ProcessingLevel	GRD		
		Resolution	HR MR		
		Format	null SAFE		
	S1_SAR_IW_DUAL_POL	RAW, OCN	ProcessingLevel		
Format			null SAFE		
SLC		ProcessingLevel	SLC		

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File			
		Swath	IW1_CO_POL IW1_CROSS_POL IW2_CO_POL IW2_CROSS_POL IW3_CO_POL IW3_CROSS_POL	rocessingLevel}&frm={roseo: :Format}&res={roseo:Resolu tion}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=CO_POL">http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=CO_POL				
		Format	null SAFE					
	GRD	ProcessingLevel	GRD					
		Resolution	HR MR					
		Swath	CO_POL CROSS_POL					
		Format	null SAFE					
	S1_SAR_EW_SINGLE_POL	RAW, OCN	ProcessingLevel			RAW OCN	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=CO_POL">http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=CO_POL	OrderOptions_S1_SAR_EW_SINGLE_POL.xml
			Format			null SAFE		
SLC		ProcessingLevel	SLC					
		Swath	EW1 EW2 EW3 EW4 EW5					
		Format	null SAFE					
GRD		ProcessingLevel	GRD					

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
		Resolution	HR MR	frm=SAFE&res=MR	
		Format	null SAFE		
S1_SAR_EW_DUAL_POL	RAW, OCN	ProcessingLevel	RAW OCN	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}&res={roseo:Resolution}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=EW1_CO_POL">http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE&res=MR&swath=EW1_CO_POL	OrderOptions_S1_SAR_EW_DUAL_POL.xml
		Format	null SAFE		
	SLC	ProcessingLevel	SLC		
		Swath	EW1_CO_POL EW1_CROSS_POL EW2_CO_POL EW2_CROSS_POL EW3_CO_POL EW3_CROSS_POL EW4_CO_POL EW4_CROSS_POL EW5_CO_POL EW5_CROSS_POL		
		Format	null SAFE		
	GRD	ProcessingLevel	GRD		
		Resolution	HR MR		
		Swath	CO_POL CROSS_POL		
		Format	null SAFE		

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
S1_SAR_WV	RAW, SLC, GRD, OCN	ProcessingLevel	RAW SLC GRD OCN	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}">http://roseo.server.com/<path>?<other parameters>&prclv={roseo:ProcessingLevel}&frm={roseo:Format}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE">http://roseo.server.com/<path>?<other parameters>&prclv=GRD&frm=SAFE</p>	OrderOptions_S1_SAR_WV.xml
S1_SAR_SM_RAW_0S_SINGLE_POL S1_SAR_SM_RAW_0S_DUAL_POL S1_SAR_SM_SLC_1S_SINGLE_POL S1_SAR_SM_GRDF_1S_SINGLE_POL S1_SAR_SM_GRDH_1S_SINGLE_POL S1_SAR_SM_GRDM_1S_SINGLE_POL S1_SAR_SM_OCN_2S_SINGLE_POL S1_SAR_SM_OCN_2S_DUAL_POL S1_SAR_SM_CSS_SS_SINGLE_POL S1_SAR_SM_CSS_SS_DUAL_POL S1_SAR_SM_CSGF_SS_SINGLE_POL S1_SAR_SM_CSGF_SS_DUAL_POL S1_SAR_SM_CSGH_SS_SINGLE_POL	All AsIs products	Format	null SAFE	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&frm=SAFE">http://roseo.server.com/<path>?<other parameters>&frm=SAFE</p>	OrderOptions_AsIs.xml

Collection (Sentinel-1 Native Dataset)	productOr derOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
S1_SAR_SM_CSGH_SS_DUAL_POL S1_SAR_SM_CSGM_SS_SINGLE_POL S1_SAR_SM_CSGM_SS_DUAL_POL S1_SAR_SM_MOS__SS_SINGLE_POL S1_SAR_SM_MOS__SS_DUAL_POL S1_SAR_SM_PSC__SS_SINGLE_POL S1_SAR_SM_PSC__SS_DUAL_POL S1_SAR_IW_GRDH_1S_SINGLE_POL S1_SAR_IW_GRDM_1S_SINGLE_POL S1_SAR_IW_OCN__2S_SINGLE_POL S1_SAR_IW_OCN__2S_DUAL_POL S1_SAR_IW_CSS__SS_SINGLE_POL S1_SAR_IW_CSS__SS_DUAL_POL S1_SAR_IW_CSGH_SINGLE_POL S1_SAR_IW_CSGH_DUAL_POL S1_SAR_IW_CSGM_SS_SINGLE_POL S1_SAR_IW_CSGM_SS_DUAL_POL S1_SAR_IW_MOS__SS_SINGLE_POL S1_SAR_IW_MOS__SS_DUAL_POL S1_SAR_IW_PSC__SS_SINGLE_POL S1_SAR_IW_PSC__SS_DUAL_POL S1_SAR_EW_RAW__0S_SINGLE_POL S1_SAR_EW_RAW__0S_DUAL_POL S1_SAR_EW_GRDH_1S_SINGLE_POL S1_SAR_EW_GRDM_1S_SINGLE_POL S1_SAR_EW_OCN__2S_SINGLE_POL S1_SAR_EW_OCN__2S_DUAL_POL S1_SAR_EW_CSS__SS_SINGLE_POL S1_SAR_EW_CSS__SS_DUAL_POL					

Collection (Sentinel-1 Native Dataset)	productOr derOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
S1_SAR_EW_CSGH_SS_SINGLE_POL S1_SAR_EW_CSGH_SS_DUAL_POL S1_SAR_EW_CSGM_SS_SINGLE_POL S1_SAR_EW_CSGM_SS_DUAL_POL S1_SAR_EW_MOS_SS_SINGLE_POL S1_SAR_EW_MOS_SS_DUAL_POL S1_SAR_EW_PSC_SS_SINGLE_POL S1_SAR_EW_PSC_SS_DUAL_POL S1_SAR_WV_RAW_0S S1_SAR_WV_SLC_1S S1_SAR_WV_GRDM_1S S1_SAR_WV_OCN_2S					
S1_SAR_SM_SLC_1S_DUAL_POL S1_SAR_SM_GRDF_1S_DUAL_POL S1_SAR_SM_GRDH_1S_DUAL_POL S1_SAR_SM_GRDM_1S_DUAL_POL S1_SAR_IW_GRDH_1S_DUAL_POL S1_SAR_IW_GRDM_1S_DUAL_POL S1_SAR_EW_GRDH_1S_DUAL_POL S1_SAR_EW_GRDM_1S_DUAL_POL	CO_CRO SS_ POL Swath	Swath Format	CO_POL CROSS_POL null SAFE	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=CO_POL">http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=CO_POL	OrderOptions_Swath_POL.xml
S1_SAR_IW_RAW_0S_SINGLE_POL S1_SAR_IW_SLC_1S_SINGLE_POL	IW Swath	Swath	IW1 IW2 IW3	Open Search Template URL:	OrderOptions_IWSwath.xml

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
		Format	null SAFE	<a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=IW1">http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=IW1	
S1_SAR_IW_RAW__0S_DUAL_POL S1_SAR_IW_SLC__1S_DUAL_POL	IW Complex Swath	Swath	IW1_CO_POL IW1_CROSS_POL IW2_CO_POL IW2_CROSS_POL IW3_CO_POL IW3_CROSS_POL	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=IW3_CROSS_POL">http://roseo.server.com/<path>?<other parameters>&frm=SAFE&swath=IW3_CROSS_POL	OrderOptions_IWComplexSwath.xml
		Format	null SAFE		
S1_SAR_EW_SLC__1S_SINGLE_POL	S1_SAR_EW_SLC__1S_SINGLE_POL	Swath	EW1 EW2 EW3 EW4 EW5	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other parameters>&frm={roseo:Format}&swath={roseo:Swath}	

Collection (Sentinel-1 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-1 Download Options)	Allowed Values	OSDD URL Example	Example File
		Format	null SAFE	parameters>&frm={roseo:Format}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other>parameters>&frm=SAFE&swath=EW5">http://roseo.server.com/<path>?<other>parameters>&frm=SAFE&swath=EW5	
S1_SAR_EW_SLC__1S_DUAL_POL	S1_SAR_EW_SLC__1S_DUAL_POL	Swath	EW1_CO_POL EW1_CROSS_POL EW2_CO_POL EW2_CROSS_POL EW3_CO_POL EW3_CROSS_POL EW4_CO_POL EW4_CROSS_POL EW5_CO_POL EW5_CROSS_POL	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other>parameters>&frm={roseo:Format}&swath={roseo:Swath}">http://roseo.server.com/<path>?<other>parameters>&frm={roseo:Format}&swath={roseo:Swath} Open Search URL: <a href="http://roseo.server.com/<path>?<other>parameters>&frm=SAFE&swath=EW2_CO_POL">http://roseo.server.com/<path>?<other>parameters>&frm=SAFE&swath=EW2_CO_POL	
		Format	null SAFE		

Table 12-1: Sentinel-1 Order Options definition.

Example: S1_SAR_IW_DUAL_POL order options

```

<?xml version="1.0" encoding="UTF-8"?>
<roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>S1_SAR_IW_DUAL_POL RAW, OCN</oseo:productOrderOptionsId>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="ProcessingLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/ProcessingLevel">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>RAW</swe:value>
                <swe:value>OCN</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="Format">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Format">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>>null</swe:value>
                <swe:value>SAFE</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:productDeliveryOptions>
      <oseo:onlineDataAccess>
        <oseo:protocol>https</oseo:protocol>
      </oseo:onlineDataAccess>
    </oseo:productDeliveryOptions>
    <oseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/S1_SAR_IW_DUAL_POL/osdd</oseo:downloadURL>
  </roseo:OrderOptionGroup>
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>S1_SAR_IW_DUAL_POL SLC</oseo:productOrderOptionsId>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="ProcessingLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/ProcessingLevel">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>SLC</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
  </roseo:OrderOptionGroup>

```

```

        <oseo:option>
          <swe:DataRecord>
            <swe:field name="Swath">
              <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Swath">
                <swe:constraint>
                  <swe:AllowedTokens>
                    <swe:value>IW1_CO_POL</swe:value>
                    <swe:value>IW1_CROSS_POL</swe:value>
                    <swe:value>IW2_CO_POL</swe:value>
                    <swe:value>IW2_CROSS_POL</swe:value>
                    <swe:value>IW3_CO_POL</swe:value>
                    <swe:value>IW3_CROSS_POL</swe:value>
                  </swe:AllowedTokens>
                </swe:constraint>
              </swe:Category>
            </swe:field>
          </swe:DataRecord>
        </oseo:option>
      </oseo:option>
      <oseo:option>
        <swe:DataRecord>
          <swe:field name="Format">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Format">
              <swe:constraint>
                <swe:AllowedTokens>
                  <swe:value>null</swe:value>
                  <swe:value>SAFE</swe:value>
                </swe:AllowedTokens>
              </swe:constraint>
            </swe:Category>
          </swe:field>
        </swe:DataRecord>
      </oseo:option>
      <oseo:productDeliveryOptions>
        <oseo:onlineDataAccess>
          <oseo:protocol>https</oseo:protocol>
        </oseo:onlineDataAccess>
      </oseo:productDeliveryOptions>
      <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/S1_SAR_IW_DUAL_POL/osdd</roseo:downloadURL>
    </roseo:OrderOptionGroup>
  </roseo:OrderOptionGroup>
  <oseo:productOrderOptionsId>S1_SAR_IW_DUAL_POL GRD</oseo:productOrderOptionsId>
  <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
  <oseo:option>
    <swe:DataRecord>
      <swe:field name="ProcessingLevel">
        <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/ProcessingLevel">
          <swe:constraint>
            <swe:AllowedTokens>
              <swe:value>GRD</swe:value>
            </swe:AllowedTokens>
          </swe:constraint>
        </swe:Category>
      </swe:field>
    </swe:DataRecord>
  </oseo:option>
  <oseo:option>
    <swe:DataRecord>
      <swe:field name="Resolution">

```

```

        <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Resolution">
            <swe:constraint>
                <swe:AllowedTokens>
                    <swe:value>HR</swe:value>
                    <swe:value>MR</swe:value>
                </swe:AllowedTokens>
            </swe:constraint>
        </swe:Category>
    </swe:field>
</swe>DataRecord>
<oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
    <swe>DataRecord>
        <swe:field name="Swath">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Swath">
                <swe:constraint>
                    <swe:AllowedTokens>
                        <swe:value>CO_POL</swe:value>
                        <swe:value>CROSS_POL</swe:value>
                    </swe:AllowedTokens>
                </swe:constraint>
            </swe:Category>
        </swe:field>
    </swe>DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:option>
    <swe>DataRecord>
        <swe:field name="Format">
            <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Format">
                <swe:constraint>
                    <swe:AllowedTokens>
                        <swe:value>>null</swe:value>
                        <swe:value>SAFE</swe:value>
                    </swe:AllowedTokens>
                </swe:constraint>
            </swe:Category>
        </swe:field>
    </swe>DataRecord>
    <oseo:grouping>Processing Option</oseo:grouping>
</oseo:option>
<oseo:productDeliveryOptions>
    <oseo:onlineDataAccess>
        <oseo:protocol>https</oseo:protocol>
    </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
    <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/S1_SAR_IW_DUAL_POL/osdd</roseo:
downloadURL>
</roseo:OrderOptionGroup>
</roseo:OrderOptions>

```

Example: Order Submit S1_SAR_IW_DUAL_POL

```

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd">
    <orderReference>example_0001</orderReference>
    <orderRemark>example</orderRemark>
    <option>
        <ParameterData>
            <encoding>XMLEncoding</encoding>

```

```

        <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
            <ns:ProcessingLevel>GRD</ns:ProcessingLevel>
            <ns:Resolution>MR</ns:Resolution>
            <ns:Swath>CROSS_POL</ns:Swath>
            <ns:Format>SAFE</ns:Format>
        </values>
    </ParameterData>
</option>
<deliveryOptions>
    <onlineDataAccess>
        <protocol>https</protocol>
    </onlineDataAccess>
</deliveryOptions>
<orderType>PRODUCT_ORDER</orderType>
<roseo:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>S1_SAR_IW_DUAL_POL GRD</productOrderOptionsId>
    <orderItemRemark>First product</orderItemRemark>
    <payment>
        <paymentMethod>quota</paymentMethod>
        <orderAccount>project_10000</orderAccount>
    </payment>
    <productId>
        <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S1-14121921114570-
3322.XI</identifier>
        <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S1_SAR_IW_DUAL_POL</collectionId>
        </productId>
    </roseo:orderItem>
    <roseo:orderItem>
        <itemId>item_0002</itemId>
        <productOrderOptionsId>S1_SAR_IW_DUAL_POL GRD</productOrderOptionsId>
        <orderItemRemark>Second product</orderItemRemark>
        <payment>
            <paymentMethod>quota</paymentMethod>
            <orderAccount>project_10000</orderAccount>
        </payment>
        <productId>
            <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3-14122021114570-
3322.XI</identifier>
            <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S1_SAR_IW_DUAL_POL</collectionId>
            </productId>
        </roseo:orderItem>
        <roseo:orderItem>
            <itemId>item_0003</itemId>
            <productOrderOptionsId>S1_SAR_IW_DUAL_POL GRD</productOrderOptionsId>
            <orderItemRemark>Third product</orderItemRemark>
            <payment>
                <paymentMethod>quota</paymentMethod>
                <orderAccount>project_10000</orderAccount>
            </payment>
            <productId>
                <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3-14122121114570-
3322.XI</identifier>
                <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S1_SAR_IW_DUAL_POL</collectionId>
                </productId>
            </roseo:orderItem>
</roseo:Order>

```


13. Annex C: ESA Sentinel-2 Order Options

This section analyses ESA Sentinel-2 order options and provides an encoding based on OrderOptions resource defined at §7.3.

Sentinel-2 products are structured by “Native Datasets” (i.e. Collections): each of them has EO Products with specific Metadata Attributes and “Download Options” (i.e. OrderOptions).

The possible Download Options are:

- Band (ROSEO:SpectralBandComposition)**, TBD values.
- pvi**, boolean option specifying whether the PVI image shall be embedded in the product or not.
- auxData**, boolean option specifying whether the auxiliary data files shall be embedded in the product or not.
- metadataLevel**, enumerated string with the following allowed values:
 - BRIEF
 - STANDARD
 - EXPERT
- mergingFlag**, boolean option.
- outputFormat (OSEO:Format)**, enumerated string with the following allowed values:
 - SAFE
 - DIMAP

To be noted that:

- All datasets have the same options;
- One option does not depend on the values of the other ones;
- Sentinel-2 has very specific order options which cannot be made as standard (e.g. pvi, auxData, metadataLevel, mergingFlag).

Then Sentinel-2 order options are much easier than Sentinel-1: a single combination of order options is good for all datasets.

The following table reports:

- All combinations of order options and allowed values for Sentinel-2 collections;
- The reference to the example file reporting the corresponding OrderOptions in XML format.
- The Open Search Template URL including the corresponding order options.

Collection (Sentinel-2 Native Dataset)	productOrderOptions Id	Order Options (Sentinel-2 Download Options)	Allowed Values	OSDD URL Example	Example File
S2_MSI_0 S2_MSI_1A S2_MSI_1B S2_MSI_1C	Sentinel-2 options	SpectralBandComposition	TBD	<p>Open Search Template URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbcc={roseo:SpectralBandColorComposition}&frm={roseo:Format}&pvi={roseo:pvi}&auxData={roseo:auxData}&metalvl={roseo:metadataLevel}&merg={roseo:mergingFlag}">http://roseo.server.com/<path>?<other parameters>&sbcc={roseo:SpectralBandColorComposition}&frm={roseo:Format}&pvi={roseo:pvi}&auxData={roseo:auxData}&metalvl={roseo:metadataLevel}&merg={roseo:mergingFlag}</p> <p>Open Search URL:</p> <p><a href="http://roseo.server.com/<path>?<other parameters>&sbcc=band1,band2,band3&frm=DIMAP&pvi=true&auxData=true&metalvl=EXPERT&merg=true">http://roseo.server.com/<path>?<other parameters>&sbcc=band1,band2,band3&frm=DIMAP&pvi=true&auxData=true&metalvl=EXPERT&merg=true</p>	OrderOptions_S2.xml
		Format	DIMAP SAFE		
		pvi	true false		
		auxData	true false		
		metadataLevel	BRIEF STANDARD EXPERT		
		mergingFlag	true false		

Table 13-1: Sentinel-2 Order Options definition.

Example: S2 order options

```

<?xml version="1.0" encoding="UTF-8"?>
<roseo:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <roseo:OrderOptionGroup>
    <oseo:productOrderOptionsId>Sentinel-2 options</oseo:productOrderOptionsId>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="SpectralBandComposition">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/SpectralBandComposition">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>band1</swe:value>
                <swe:value>band2</swe:value>
                <swe:value>band3</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="Format">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/OGC-EO/0/Format">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>DIMAP</swe:value>
                <swe:value>SAFE</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="metadataLevel">
          <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S2/0/metadataLevel">
            <swe:constraint>
              <swe:AllowedTokens>
                <swe:value>BRIEF</swe:value>
                <swe:value>STANDARD</swe:value>
                <swe:value>EXPERT</swe:value>
              </swe:AllowedTokens>
            </swe:constraint>
          </swe:Category>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
    <oseo:option>
      <swe:DataRecord>
        <swe:field name="pvi">
          <swe:Boolean updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S2/0/pvi"/>
        </swe:field>
      </swe:DataRecord>
      <oseo:grouping>Processing Option</oseo:grouping>
    </oseo:option>
  </roseo:OrderOptionGroup>

```

```

        <oseo:option>
          <swe:DataRecord>
            <swe:field name="auxData">
              <swe:Boolean updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S2/0/auxData"/>
            </swe:field>
          </swe:DataRecord>
          <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:option>
          <swe:DataRecord>
            <swe:field name="mergingFlag">
              <swe:Boolean updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S2/0/mergingFlag"/>
            </swe:field>
          </swe:DataRecord>
          <oseo:grouping>Processing Option</oseo:grouping>
        </oseo:option>
        <oseo:productDeliveryOptions>
          <oseo:onlineDataAccess>
            <oseo:protocol>https</oseo:protocol>
          </oseo:onlineDataAccess>
        </oseo:productDeliveryOptions>

        <roseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/S2_XXX/osdd</roseo:downloadURL>
      </roseo:OrderOptionGroup>
    </roseo:OrderOptions>

```

Example: S2 order submit

```

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:SpectralBandComposition>band1</ns:SpectralBandComposition>
        <ns:Format>DIMAP</ns:Format>
        <ns:metadataLevel>EXPERT</ns:metadataLevel>
        <ns:pvi>true</ns:pvi>
        <ns:auxData>true</ns:auxData>
        <ns:mergingFlag>true</ns:mergingFlag>
      </values>
    </ParameterData>
  </option>
  <deliveryOptions>
    <onlineDataAccess>
      <protocol>https</protocol>
    </onlineDataAccess>
  </deliveryOptions>
  <orderType>PRODUCT_ORDER</orderType>
  <roseo:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>Sentinel-2 options</productOrderOptionsId>
    <orderItemRemark>First product</orderItemRemark>
    <payment>
      <paymentMethod>quota</paymentMethod>
      <orderAccount>project_10000</orderAccount>
    </payment>
    <productId>
      <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S2-14121921114570-
3322.XI</identifier>

```

```
<collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S2_MSI_1B</collectionId>  
  </productId>  
</roseo:orderItem>  
</roseo:Order>
```

14. Annex D: ESA Sentinel-3 Order Options

This section analyses ESA Sentinel-3 order options and provides an encoding based on OrderOptions resource defined at §7.3.

Sentinel-3 products are structured by “Native Datasets” (i.e. Collections): each of them has EO Products with specific Metadata Attributes and “Download Options” (i.e. OrderOptions).

Sentinel-3 does not support any processing, but just the products are delivered as they are so there are not processing options. Nevertheless it support very fine grained sub-setting options i.e. it allows to specify, of the whole bunch of files composing the product only those of interest. This capability is provided via the following “Download Options”:

- mdf – Measurement Data Files download options:** which allows to select either the whole file or only the MDFs of interest. Multiple selections are also possible.
- adf – Annotation Data Files download options:** which allows to select either all annotations or only the annotations of interest. Multiple selections are possible.

Also **mdf** and **adf** are often linked each other: i.e. when a mdf is selected, then only some adf are possible.

Different cases have been noticed for the different datasets:

Collection (Sentinel-3 Native Dataset)	Comment
S3_OLCI_1_EFR S3_OLCI_1_ERR S3_SLSTR_2_LST S3_SYN_2_VGP S3_SYN_2_VG1 S3_SYN_2_V10	<input type="checkbox"/> mdf and adf independent <input type="checkbox"/> multiple selection for mdf <input type="checkbox"/> multiple selection for adf
S3_OLCI_2_LFR S3_OLCI_2_LRR	<input type="checkbox"/> mdf and adf have been made independent by merging a couple of mdf and adf within a single mdf value (OGVI, rc_ogvi → OGVI+rc_ogvi) <input type="checkbox"/> multiple selection for mdf <input type="checkbox"/> multiple selection for adf
S3_SLSTR_1_RBT S3_SYN_1_SYN S3_SYN_2_SYN	<input type="checkbox"/> mdf and adf very dependent: groups of mdf values are linked to specific adf values <input type="checkbox"/> multiple selection for mdf <input type="checkbox"/> multiple selection for adf
	<input type="checkbox"/> mdf and adf independent <input type="checkbox"/> multiple selection for mdf <input type="checkbox"/> multiple selection for adf
S3_SRAL_1_SRA S3_SRAL_2_LAN S3_MWR_1_MWR	No options

Table 14-1: Sentinel-1 order option analysis by Dataset.

Then:

- In case of no options or independent options or options made independent then no problem, just define two order options: mdf and adf (bioth swe:Category) with some predefined values.
- In case of very linked options having several groups of mdf values linked with corresponding group of adf values, then the representation is more complex:

In fact SWECOMMON allows to model restrictions on parameters, but it is supported only for simple values (swe:Category, swe:Count, swe:Quantity, etc..) and not for structured types like swe:DateRecord which instead would be necessary for representing a pair of attributes.

Also we cannot use the OrderOptionGroup for representing correlated values because it should be possible to perform multiple selections, while OrderOptionGroup elements are mutually exclusive.

The envisage solution is to put mdf and adf within a single parameter **mdf_adf** further structured via swe:DataChoice putting in a single choice the group of mdf and adf linked values. For example in case of S3_SLSTR_1_RBT we have:

First group:

- **mdf**: S1_radiance_an or S2_radiance_an or S3_radiance_an
- **adf**: quality_an, flags_an, ...

Second group:

- **mdf**: S1_radiance_ao or S2_radiance_ao or S3_radiance_ao
- **adf**: quality_ao, flags_ao, ...

and so on.

This case has been represented as:

```

<oseo:option>
  <swe:DataArray optional="true" updatable="false">
    <swe:elementCount/>
    <swe:elementType name="mdf_adf">
      <swe:DataChoice>
        <swe:item name="radiance_an">
          <swe:DataRecord>
            <swe:field name="mdf">
              <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S3/0/mdf">
                <swe:constraint>
                  <swe:AllowedTokens>
                    <swe:value>S1_radiance_an</swe:value>
                    <swe:value>S2_radiance_an</swe:value>
                    <swe:value>S3_radiance_an</swe:value>

```

```

</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>
<swe:field name="adf">
  <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S3/0/adf">
    <swe:constraint>
      <swe:AllowedTokens>
        <swe:value>quality_an</swe:value>
        <swe:value>flags_an</swe:value>
        <swe:value>indices_an</swe:value>
        <swe:value>geodetic_an</swe:value>
        <swe:value>cartesian_an</swe:value>
        <swe:value>time_an</swe:value>
        <swe:value>geometry_tn</swe:value>
      </swe:AllowedTokens>
    </swe:constraint>
  </swe:Category>
</swe:field>
</swe>DataRecord>
</swe:item>
<swe:item name="radiance_ao">
  <swe>DataRecord>
    <swe:field name="mdf">
      <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S3/0/mdf">
        <swe:constraint>
          <swe:AllowedTokens>
            <swe:value>S1_radiance_ao</swe:value>
            <swe:value>S2_radiance_ao</swe:value>
            <swe:value>S3_radiance_ao</swe:value>
          </swe:AllowedTokens>
        </swe:constraint>
      </swe:Category>
    </swe:field>
    <swe:field name="adf">
      <swe:Category updatable="false" optional="true"
definition="http://www.opengis.net/def/order/ESA-S3/0/adf">
        <swe:constraint>
          <swe:AllowedTokens>
            <swe:value>quality_ao</swe:value>
            <swe:value>flags_ao</swe:value>
            <swe:value>indices_ao</swe:value>
            <swe:value>geodetic_ao</swe:value>
            <swe:value>cartesian_ao</swe:value>
            <swe:value>time_ao</swe:value>
            <swe:value>geometry_to</swe:value>
          </swe:AllowedTokens>
        </swe:constraint>
      </swe:Category>
    </swe:field>
  </swe>DataRecord>
</swe:field>
</swe>DataRecord>

```



```
</swe:item>  
<swe:item name="radiance_bn">  
  <swe:DataRecord>  
    <swe:field name="mdf">
```

- swe:DataArray** has been used for allowing multiple selections;
- swe:DataChoice** for regrouping the correlated pair of options;
- swe:DataRecord** for defining the pair mdf & adf.

The following table reports:

- All combinations of order options and allowed values for Sentinel-1 collections;
- The reference to the example file reporting the corresponding OrderOptions in XML format.
- The Open Search Template URL including the corresponding order options.

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
S3_OLCI_1_EFR S3_OLCI_1_ERR	S3_OLCI_1_EFR or S3_OLCI_1_ERR	mdf		Oa01_radiance Oa02_radiance Oa03_radiance Oa04_radiance OaXX_radiance Oa21_radiance removedPixels	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf={roseo:mdf}&adf={roseo:adf}">http://roseo.server.com/<path>?<other parameters>&mdf={roseo:mdf}&adf={roseo:adf}	mdf and adf are independent.	OrderOptions_S3_OLCI_1_EFR.xml
		adf		timeCoordinates geoCoordinates tie_geometries tie_meteo instrumentData			
S3_OLCI_2_LFR S3_OLCI_2_LRR	S3_OLCI_2_LFR or S3_OLCI_2	mdf		OGVI OGVI+rc_ogvi OTCI IWV	Open Search Template URL: http://roseo.server.com/	In case of OGVI, the adf has a dedicated value (rc_ogvi); while	OrderOptions_S3_OLCI_2_LFR.xml

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
	_LRR	adf		timeCoordinates geoCoordinates tie_geometries tie_meteo instrumentData	<p><path>?<other parameters>&mdf={roseo:mdf}&adf={roseo:adf}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf=OGVI&mdf=OTCI&adf=timeCoordinates&adf=geoCoordinates">http://roseo.server.com/<path>?<other parameters>&mdf=OGVI&mdf=OTCI&adf=timeCoordinates&adf=geoCoordinates</p>	<p>the other mdfs have not dedicated values and also the other adfs are not related to specific mdf.</p> <p>Then in order to keep the model simple, the specific rc_ogvi adf value has been encoded together with OGVI mdf, but keeping the others separated.</p>	
S3_SLSTR_1_RBT	S3_SLSTR_1_RBT standard options	mdf_adf	radiance_an	<p>mdf sub field: S1_radiance_an S2_radiance_an S3_radiance_an</p> <p>adf sub field: quality_an flags_an indices_an geodetic_an cartesian_an time_an geometry_tn</p>	<p>Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf}">http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf}</p> <p>Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf_adf={radiance_an=mdf:S1_radiance_an}">http://roseo.server.com/<path>?<other parameters>&mdf_adf={radiance_an=mdf:S1_radiance_an</p>	<p>In this case mdf and adf have been packed in a single option: mdf_adf. However the option has been further structured using swe:DataChoice in order to group together correlated mdf and adf. So several choices have been set: radiance_an, radiance_ao, etc..</p>	<p>OrderOptions_S3_SLSTR_1_RBT.xml</p> <p>Order_submit_S3_SLSTR_1_RBT.xml</p>

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
					<pre> ,adf:flags_an } } &mdf_adf={ radiance_an={ mdf:S1_radiance_an ,adf:quality_an } } &mdf_adf={ radiance_an={ mdf:S2_radiance_an } } &mdf_adf={ radiance_an={ mdf:S3_radiance_an } } </pre>		
			radiance_ao	mdf sub field: S1_radiance_ao S2_radiance_ao S3_radiance_ao adf sub field: quality_ao flags_ao indices_ao geodetic_ao cartesian_ao	Open Search Template URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf}">http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf} Open Search URL: <a href="http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf}">http://roseo.server.com/<path>?<other parameters>&mdf_adf={roseo:mdf_adf}	See previous one.	

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
				time_ao geometry_to	<pre> parameters> &mdf_adf={ radiance_ao={ mdf:S1_radiance_ao ,adf:flags_ao } } &mdf_adf={ radiance_ao={ mdf:S1_radiance_ao ,adf:quality_ao } } &mdf_adf={ radiance_ao={ mdf:S2_radiance_ao } } &mdf_adf={ radiance_ao={ mdf:S3_radiance_ao } } </pre>		

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
			radiance_bn	mdf sub field: S1_radiance_bn S2_radiance_bn S3_radiance_bn adf sub field: quality_bn flags_bn indices_bn geodetic_bn cartesian_bn time_bn geometry_tn		See previous one.	
			radiance_bo	mdf sub field: S1_radiance_bo S2_radiance_bo S3_radiance_bo adf sub field: quality_bo flags_bo indices_bo geodetic_bo cartesian_bo time_bo geometry_to		See previous one.	

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
			radiance_cn	mdf sub field: S1_radiance_cn S2_radiance_cn S3_radiance_cn adf sub field: quality_cn flags_cn indices_cn geodetic_cn cartesian_cn time_cn		See previous one.	
			radiance_co	mdf sub field: S1_radiance_co S2_radiance_co S3_radiance_co adf sub field: quality_co flags_co indices_co geodetic_co cartesian_co time_co		See previous one.	

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
			BT_in	mdf sub field: S1_BT_in S2_BT_in S3_BT_in adf sub field: quality_in flags_in indices_in geodetic_in cartesian_in time_in		See previous one.	
			BT_io	mdf sub field: S1_BT_io S2_BT_io S3_BT_io adf sub field: quality_io flags_io indices_io geodetic_io cartesian_io time_io		See previous one.	

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
			FBT_in	mdf sub field: F1_BT_in F2_BT_in adf sub field: quality_in flags_in indices_in geodetic_in cartesian_in time_in		See previous one.	
			FBT_io	mdf sub field: F1_BT_io F2_BT_io adf sub field: quality_io flags_io indices_io geodetic_io cartesian_io time_io		See previous one.	
		adf		met_tx.nc			

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
	S3_SLSTR_1_RBT future options	mdf_adf	radiance_an	mdf sub field: S4_radiance_an S5_radiance_an S6_radiance_an adf sub field: quality_an flags_an indices_an geodetic_an cartesian_an time_an geometry_tn		See previous one.	
			radiance_ao	mdf sub field: S4_radiance_ao S5_radiance_ao S6_radiance_ao adf sub field: quality_ao flags_ao indices_ao geodetic_ao cartesian_ao time_ao geometry_to		See previous one.	

Collection (Sentinel-3 Native Dataset)	productOrderOptionsId	Order Options (Sentinel-3 Download Options)	swe:DataChoice	Allowed Values	OSDD URL Example	Comment	Example File
			radiance_bn	mdf sub field: S4_radiance_bn S5_radiance_bn S6_radiance_bn adf sub field: quality_bn flags_bn indices_bn geodetic_bn cartesian_bn time_bn geometry_tn		See previous one.	
			radiance_bo	mdf sub field: S4_radiance_bo S5_radiance_bo S6_radiance_bo adf sub field: quality_bo flags_bo indices_bo geodetic_bo cartesian_bo time_bo geometry_to		See previous one.	

Table 14-2: Sentinel-3 Order Options definition.

Example S3_SLSTR_1_RBT Order Options:

```

<?xml version="1.0" encoding="UTF-8"?>
<rose:OrderOptions xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd"
xmlns:oseo="http://www.opengis.net/oseo/1.0" xmlns:roseo="http://www.opengis.net/roseo/1.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <rose:OrderOptionGroup>
    <oseo:productOrderOptionsId>S3_SLSTR_1_RBT standard options</oseo:productOrderOptionsId>
    <oseo:orderType>PRODUCT_ORDER</oseo:orderType>
    <oseo:option>
      <swe:DataArray optional="true" updatable="false">
        <swe:elementCount/>
        <swe:elementType name="mdf_adf">
          <swe:DataChoice>
            <swe:item name="radiance_an">
              <swe:DataRecord>
                <swe:field name="mdf">
                  <swe:Category
updatable="false" optional="true" definition="http://www.opengis.net/def/order/ESA-S3/0/mdf">
                    <swe:constraint>
                      <swe:AllowedTokens>
                        <swe:value>S1_radiance_an</swe:value>
                        <swe:value>S2_radiance_an</swe:value>
                        <swe:value>S3_radiance_an</swe:value>
                      </swe:AllowedTokens>
                    </swe:constraint>
                  </swe:Category>
                </swe:field>
                <swe:field name="adf">
                  <swe:Category
updatable="false" optional="true" definition="http://www.opengis.net/def/order/ESA-S3/0/adf">
                    <swe:constraint>
                      <swe:AllowedTokens>
                        <swe:value>quality_an</swe:value>
                        <swe:value>flags_an</swe:value>
                        <swe:value>indices_an</swe:value>
                        <swe:value>geodetic_an</swe:value>
                        <swe:value>cartesian_an</swe:value>
                        <swe:value>time_an</swe:value>
                        <swe:value>geometry_tn</swe:value>
                      </swe:AllowedTokens>
                    </swe:constraint>
                  </swe:Category>
                </swe:field>
              </swe:DataRecord>
            </swe:item>
            <swe:item name="radiance_ao">
              <swe:DataRecord>
                <swe:field name="mdf">
                  <swe:Category
updatable="false" optional="true" definition="http://www.opengis.net/def/order/ESA-S3/0/mdf">
                    <swe:constraint>
                      <swe:AllowedTokens>

```

```

    <swe:value>S1_radiance_ao</swe:value>
    <swe:value>S2_radiance_ao</swe:value>
    <swe:value>S3_radiance_ao</swe:value>
    </swe:AllowedTokens>
    </swe:constraint>
    </swe:Category>
  </swe:field>
  <swe:field name="adf">
    <swe:Category
      </swe:constraint>
      </swe:AllowedTokens>
      <swe:value>quality_ao</swe:value>
      <swe:value>flags_ao</swe:value>
      <swe:value>indices_ao</swe:value>
      <swe:value>geodetic_ao</swe:value>
      <swe:value>cartesian_ao</swe:value>
      <swe:value>time_ao</swe:value>
      <swe:value>geometry_to</swe:value>
      </swe:AllowedTokens>
      </swe:constraint>
      </swe:Category>
    </swe:field>
  </swe>DataRecord>
</swe:item>
<swe:item name="radiance_bn">
  <swe>DataRecord
    <swe:field name="mdf">
      <swe:Category
        </swe:constraint>
        </swe:AllowedTokens>
        <swe:value>S1_radiance_bn</swe:value>
        <swe:value>S2_radiance_bn</swe:value>
        <swe:value>S3_radiance_bn</swe:value>
        </swe:AllowedTokens>
        </swe:constraint>
        </swe:Category>
      </swe:field>
    <swe:field name="adf">
      <swe:Category
        </swe:constraint>
        </swe:AllowedTokens>
        <swe:value>quality_bn</swe:value>
        <swe:value>flags_bn</swe:value>
        <swe:value>indices_bn</swe:value>

```

```

<swe:value>geodetic_bn</swe:value>
<swe:value>cartesian_bn</swe:value>
<swe:value>time_bn</swe:value>
<swe:value>geometry_tn</swe:value>
</swe:AllowedTokens>
</swe:constraint>
</swe:Category>
</swe:field>
</swe:DataRecord>
</swe:item>
.....
</swe:DataChoice>
</swe:elementType>
</swe:DataArray>
<oseo:grouping>Subsetting Option</oseo:grouping>
</oseo:option>
.....
<oseo:productDeliveryOptions>
  <oseo:onlineDataAccess>
    <oseo:protocol>https</oseo:protocol>
  </oseo:onlineDataAccess>
</oseo:productDeliveryOptions>
<oseo:downloadURL>http://some.roseo.server/ROSEO/1.0.0/options/S3_SLSTR_1_RBT/osdd</oseo:downlo
adURL>
</oseo:OrderOptionGroup>
.....
</oseo:OrderOptions>

```

Example S3_SLSTR_1_RBT Order:

```

<roseo:Order xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.opengis.net/oseo/1.0"
xmlns:roseo="http://www.opengis.net/roseo/1.0" xmlns:sps="http://www.opengis.net/sps/2.0"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:gml="http://www.opengis.net/gml"
xsi:schemaLocation="http://www.opengis.net/roseo/1.0 ../roseo.xsd">
  <orderReference>example_0001</orderReference>
  <orderRemark>example</orderRemark>
  <option>
    <ParameterData>
      <encoding>XMLEncoding</encoding>
      <values xmlns:ns="http://www.opengis.net/oseo/1.0/dataset">
        <ns:mdf_adf>
          <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>
            <ns:adf>quality_an</ns:adf>
          </ns:radiance_an>
        </ns:mdf_adf>
        <ns:mdf_adf>
          <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>
            <ns:adf>flags_an</ns:adf>
          </ns:radiance_an>
        </ns:mdf_adf>
        <ns:mdf_adf>
          <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>

```

```

                <ns:adf>indices_an</ns:adf>
            </ns:radiance_an>
        </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>
            <ns:adf>geodetic_an</ns:adf>
        </ns:radiance_an>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>
            <ns:adf>cartesian_an</ns:adf>
        </ns:radiance_an>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_an>
            <ns:mdf>S1_radiance_an</ns:mdf>
            <ns:adf>time_an</ns:adf>
        </ns:radiance_an>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_an>
            <ns:mdf>S2_radiance_an</ns:mdf>
        </ns:radiance_an>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_an>
            <ns:mdf>S3_radiance_an</ns:mdf>
        </ns:radiance_an>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_a0>
            <ns:mdf>S1_radiance_a0</ns:mdf>
        </ns:radiance_a0>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_bn>
            <ns:mdf>S1_radiance_bn</ns:mdf>
        </ns:radiance_bn>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_bo>
            <ns:mdf>S1_radiance_bo</ns:mdf>
        </ns:radiance_bo>
    </ns:mdf_adf>
    </ns:mdf_adf>
        <ns:radiance_bo>
            <ns:mdf>S2_radiance_bo</ns:mdf>
        </ns:radiance_bo>
    </ns:mdf_adf>
    </values>
</ParameterData>
</option>
<deliveryOptions>
    <onlineDataAccess>
        <protocol>https</protocol>
    </onlineDataAccess>
</deliveryOptions>
<orderType>PRODUCT_ORDER</orderType>
<roseo:orderItem>
    <itemId>item_0001</itemId>
    <productOrderOptionsId>S3_SLSTR_1_RBT standard options</productOrderOptionsId>
    <orderItemRemark>First product</orderItemRemark>
    <payment>
        <paymentMethod>quota</paymentMethod>
        <orderAccount>project_10000</orderAccount>
    </payment>
</productId>

```

```

<identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3-14121921114570-
3322.XI</identifier>

  <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3_SLSTR_1_RBT</collectionId>
  </productId>
</roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0002</itemId>
  <productOrderOptionsId>S3_SLSTR_1_RBT standard options</productOrderOptionsId>
  <orderItemRemark>Second product</orderItemRemark>
  <payment>
    <paymentMethod>quota</paymentMethod>
    <orderAccount>project_10000</orderAccount>
  </payment>
</productId>
  <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3-14122021114570-
3322.XI</identifier>

  <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3_SLSTR_1_RBT</collectionId>
  </productId>
</roseo:orderItem>
<roseo:orderItem>
  <itemId>item_0003</itemId>
  <productOrderOptionsId>S3_SLSTR_1_RBT standard options</productOrderOptionsId>
  <orderItemRemark>Third product</orderItemRemark>
  <payment>
    <paymentMethod>quota</paymentMethod>
    <orderAccount>project_10000</orderAccount>
  </payment>
</productId>
  <identifier>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3-14122121114570-
3322.XI</identifier>

  <collectionId>http://www.opengis.net/def/EOP/ESA/0/ESA.EECF.S3_SLSTR_1_RBT</collectionId>
  </productId>
</roseo:orderItem>
</roseo:Order>

```


15. Annex E: Revision history

Date	Release	Author	Paragraph modified	Description
2013-05-14	0.9.1	D. Marchionni		First issue

16. Annex F: Bibliography