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Ordering Services for Earth Observation Products

Adoption Voting Comments and Answers

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iv. Revision history

Date	Release	Editor	Primary clauses modified	Description
2011-08-11	1.0	D. Marchionni	all	first version
2011-10-17	1.1	D.Marchionni		Added No vote from NOAA

Foreword

This document lists all the No votes received during the TC adoption vote of the OGC 06-141r6 Ordering Services For Earth Observation Products together with the responses from the OSEO SWG.

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1 Ordering Services for Earth Observation Products Public NO votes and Answers

During the Order Service adoption vote, several "No" votes were received:

- 2 No votes from ORACLE and Lockheed Martin, casted during the first voting period.
- 1 No vote from NOAA, casted during the second voting period.

As per OGC policy, the vote was suspended and an adjudication cycle was initiated after the first 2 No votes. The voting was suspended on 29/6 and the required two weeks comments review period was extended by 3 weeks as requested by Lockheed Martin in order to allow them time to properly review the additional documentation provided by the SWG and for supporting the LM point of contact hand over to Bishr Yaser, which has replaced Michael J Maynard. The issue with Lockheed Martin (and also with ORACLE) has been solved and the voting resumed on 18/08/2011:

- Second voting period: 18/8/2011 – 31/08/2011

During the second voting period a further "No" vote has been casted by NOAA.

This document reports all the No votes and the answers provided by the SWG.

1.1 Maynard, Michael (Lockheed Martin) No vote

1.1.1 Comment

Based on Lockheed Martin review of the documentation provided for the "Ordering Services for Earth Observation Products Interface Standard", it is apparent that the specification has not been reviewed by any US Government agencies or US imagery providers. Since the US Government is one of the largest consumers of commercial imagery, their review is essential prior to approval of this specification. Also, in its current state the specification is limited to satellite electro optical imagery and does not cover any satellite SAR, aerial imagery, or LIDAR; which are Earth Observation Products in the opinion of Lockheed Martin. Lockheed suggests that it may be simpler to change the title of the specification to "Ordering Services for Commercial Satellite EO Imagery Products"; however this may not be sufficient as GeoEye and Digital Globe may not agree with the specification. Lockheed Martin recommends that a Technical Exchange Meeting (TEM) be conducted with the appropriate US government and US-based imagery providers in attendance to review and potentially edit this specification.

1.1.1.1 Revised comment

After various conversations with Lockheed staff and the Order SWG, the main issue to be resolved has to do with the positioning of the Order Interface specification, especially in terms of procurement language.

There is also the issue that existing profiles of the Order Interface are for civilian satellites only and has not been implemented for classified (military and intelligence) assets.

Therefore, it is suggested some wording changes that will address the Lockheed concerns. One is to change the wording of the preface. In many ways, the Order Service spec is like the Catalogue Spec. Application profiles, such as Cat-EbRim, are what deployed applications use and procurement language specifies. They do not use or specify the framework (the actual Catalogue standard).

Preface

This OGC™ standard specifies the interfaces, bindings, requirements, conformance classes, and a framework for implementing application profiles that enable complete workflows for ordering Earth Observation (EO) data products. Implementation of this standard requires development of application profiles that support specific EO platforms, such as a specific satellite or airborne sensor. Therefore, this standard shall not be specified in procurement language unless the procurement is to develop a new Order Interface application profile for a given EO platform. Procurement language shall be for specific EO platforms, such as "An Order Interface for the MODIS satellite"

This document expands on the work presented in “Best Practices for Earth Observation Products” OGC-05-057r4, separating the order services from the catalogue services which have been presented in 06-079 and in 06-131. The final goal of the work was agreement on a coherent set of interfaces for ordering of EO products to support access to data from heterogeneous systems dealing with derived data products from satellite based measurements of the earth’s surface and environment.

The content contained in this standard was originally based on the work of the European Space Agency (ESA), the Centre National d’Etudes Spatiales (CNES) and SPOT Image performed in the context of an interoperability experiment performed using the ESA service support environment [SSE] that resulted in an internal specification called EOLIXML [EOLI-XML]. This EOLI-XML specification was extended to support an order interface subsequently adopted by ESA for online ordering from their catalogue.

Subsequently, based on Member and community feedback as well as continued work in the European Heterogeneous Missions Accessibility (HMA) activity (http://earth.esa.int/hma/), the order interface specification was made more generic and the Catalogue aspects were separated into another document. In 2006, the revision to the specification was then re-submitted (and briefed again) to the OGC Members. In mid 2007, there was a motion to release this specification as an OGC Best Practice document. By this time, the specification had been implemented by a number of organizations in the European satellite community. In July, 2007 this document was posted as an OGC Best Practice document.

Scope

This OGC™ standard describes the interfaces, bindings, requirements, conformance classes, and a framework required to implement platform specific order applications for Earth Observation (EO) products in a heterogeneous, distributed environment.

And finally, it is suggested to change the title to reflect that the Order Service candidate standard is a framework for developing application profiles and cannot be used "out of the box":

"A model for defining Earth Observation Order Service Application Profiles"

1.1.2 OSEO SWG Answers

The SWG does not agree that the Order Service Candidate is not an actual protocol, but a framework for defining application profiles that needs to be implemented in order to have a functional specification. In fact the candidate standard is flexible and has been already implemented in a number of projects. The SWG agrees that an improvement on Preface and Scope has to be done and the following is our proposal:

Preface

This OGC™ standard specifies the interfaces, bindings, requirements, conformance classes, and a framework for implementing extensions that enable complete workflows for ordering of 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
- Ordering of future products

The EO products orders can be delivered in several different ways:

- On media via mail
- On file via different online protocols (e.g. ftp, sftp, ftps, etc.)
- Online via online data access protocols (e.g. WCS, WMS, 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 Ordering Services operations. This specification includes a comprehensive list of processing (20 product order options listed in Table 7-6 and 3 subscription options listed in Table 7-7) and scene selection options (14 scene options listed in Table 7-9) derived on the basis of 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.

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.

Procurement Agencies and 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 allows 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".

This document expands on the work presented in "Best Practices for Earth Observation Products" OGC-05-057r4, separating the order services from the catalogue services which have been presented in 06-079 and in 06-131. The final goal of the work was agreement on a coherent set of interfaces for ordering of EO products to support access to data from heterogeneous systems dealing with derived data products from satellite based measurements of the earth's surface and environment.

Regarding the title, the following update is proposed:

Ordering Services Framework for Earth Observation Products Interface Standard

1.2 Herring, John (Oracle USA) No vote

1.2.1 Comment

The Order Service Specification (06-141r5) may technically be correct, but as a standard, it is disorganized and difficult to read and understand. This will probably lead to some level of confusion during implementation, conformance test development and again in

testing. There are 17 conformance classes, making it possible to "satisfy" the standard in 17 different ways. While it is not uncommon to have a number of different options, there really is no technical argument nor business case given as to why this list was decided upon. In particular, this draft standard does not meet OGC Policy on modular structure [08-131r3 -- The Specification Model - A Standard for Modular specifications; in particular Req 6: The requirements shall be grouped together in clauses (numbered sections) of the document in a strictly hierarchical manner, consistent with requirements modules and requirements classes, page 14] and may become a bad example to others trying to pass standards not directly developed in the OGC without making them fit the OGC policy. This also partially defeats the policy's intent to "smooth-out" later implementation and testing. Fixing this problem would require that the document be reorganized so that each requirements class is completely described in its own separate clause. In the introduction of that clause it would be reasonable to descibe the business case for the separation of the functionalty into separate modules.

1.2.2 OSEO SWG Answers

In the following the SWG answer is reported including in red the further answer from ORACLE.

The Order Service candidate standard has a long history in the OGC and was developed by a number of OGC Member organizations and currently is implemented and use by a number of OGC Members and non-Members.

The Order Service specification was first submitted and briefed to the OGC Membership in 2005. From 05-057:

> This document is based on the work of the European Space Agency (ESA), the Centre National d'Etudes Spatiales (CNES) and SPOT Image performed in the context of an interoperability experiment performed using the ESA service support environment [SSE] that resulted in an internal specification called EOLIXML [EOLI-XML]. This EOLI-XML specification was extended to support an order interface subsequently adopted by ESA for online ordering from their catalogue.

Subsequently, based on Member feedback as well as continued work in the European (with input from Canada and Japan) Heterogeneous Missions Accessibility activity (http://earth.esa.int/hma/), the order interface specification was made more generic and the Catalogue aspects were separated into another document. In 2006, the revision to the specification was then re-submitted (and briefed again) to the OGC Members. In mid 2007, there was a motion to release this specification as an OGC Best Practice document. By this time, the specification had been implemented by a number of organizations in the European satellite community. In July 2007 this document was posted as an OGC Best Practice document.

In November 2009, an Ordering Services for Earth Observation Standards Working Group was formed. There was a general call for participation. *Please note that the SWG was formed 10 months before the Modular Spec policy went into effect.*

> ORACLE> That means that the SWG was formed after the Modular Spec was passed, since it contained its own "grandfather clause" allowing for a 12 month grace period. That means that the SWG should have been aware that if they did not submit before the end of the grace period then they would be subject to its requirements. The applicability of the policy is determined by the candidate submission date, not by the SWF formation/charter date.
>
> Secondly, the issue is not it being consistent with the Modular Spec as much as it is logically poorly organized. As said in the comment, the technical content of the candidate standard was not directly called into question, as much as its disorganized presentation and therefore its understandability.

The SWG worked on the candidate standard for some time. In January 2011, the candidate standard was released for the 30-day mandatory public comment period. All comments received were processed and as required the document was edited to reflect the input provided during the comment period.

Regarding the statement about the difficulty of reading and understanding the candidate standard, this is a personal opinion.

> ORACLE> All opinion is personal, both mine and yours. "Difficulty" is opinion, but "disorganized" is empirical. That "disorganized" leads to "difficult" is statistically supported theory.

Regarding the statement, “lead to some level of confusion during implementation, conformance test development the level of confusing during the implementation”, please note that there is already an OSEO V1.0.0 reference implementation and the ETS. You can find the reference implementation and related supporting material on Source Forge: (http://sourceforge.net/projects/opgw/files/OPGW/5.1/).

> ORACLE> If the candidate standard postdates the implementation, then the argument that the candidate standard is sufficient to set requirements for new implementations is not supportable. A reference implementation is not a replacement for nor evidence of a sufficient candidate standard.

Regarding the current set of 17 conformance classes: these conformance classes represent precisely identified functions to which an implementation may wish to comply with.

> ORACLE> The objection is not the content nor number of conformance classes, but their lack of technically sufficient descriptions that would lead to a rational

> understanding of why these classed and not others; of why an implementer would choose any of these. The descriptions below are still inadequate, but the candidate standard does not seem even to contain these or their equivalents. Again, this is a presentation issue, but this time it is linked to a lack of informative content in support of the normative descriptions.

They are many classes because there are many options in the ordering process. Some examples:

- Quotation:
  - Some Satellite operators are not interested in this function at all (e.g. ESA, DLR), whereas some commercial missions are. [Furthermore,] if someone wants just to exchange PDF documents with the customer (e.g. MDA – Radarsat mission), others might be interested in having an online service.
- Order Options:
  - ESA provides to its users many scene selection options (e.g. by strip, by fixed scenes, by floating scenes, …); other commercial missions like Rapid Eye do not provide any scene selection: you can get only what they have in the archive – no customization.
- Delivery Options:
  - Different operators have different needs e.g.: up to now ESA delivered products basically by media; newer missions are instead switching to online download or also to online access via e.g. WCS.
- Cancellation:
  - Only a few missions are able to support order cancellation, then a dedicated class has been defined for those instead providing this function.

Additionally the SWG understands that the current document structure was discussed in the OAB in October of last year and an updated document was sent to OAB for review in November of last year. Much of the OAB guidance was incorporated into the current version of the document.

> ORACLE> Being a member of the OAB, I was present at the discussion, and will freely admit that we made a grave error and not requiring a resubmission of the "fixed" version of the candidate. I doubt that we will make that mistake again.

In conclusion any technical errors (and in your comment I haven't seen any technical issue) shall be corrected but the document will not be restructured. Any significant re-structuring of the document will occur in the next revision of the standard.

> ORACLE> Lack of complete and organized documentation is an extreme technical issue.

1.2.2.1 Conclusion

The SWG agrees to implement the "Structural Part" of ORACLE comments in the next revision of the Standard.

1.3 de La Beaujardiere, Jeff (US National Oceanic and Atmospheric Administration (NOAA) No vote

1.3.1 Comment

The comment has been posted on the Web at the following address:

https://geo-ide.noaa.gov/wiki/index.php?title=Comments_on_OGC_Ordering_Service

for reader's convenience the comment has been reported below.

Additionally, since it regroups several points, then the comment has been slightly reformatted by numbering the different issues.

NOAA comments (2011-08-31) on OGC document #06-141r6, "Ordering Services for Earth Observation Products Interface Standard."

Although this specification is potentially relevant to NOAA, in particular for ordering satellite data products that are not immediately available on spinning disk, NOAA votes No for the reasons below.

Major issues:

1. This specification should include diagrams or text explaining the role of this service within the overall architectural context of OGC Web Services. Does this spec define an Ordering Service that could be layered over existing OGC services that do not provide ordering capabilities (WCS, WMS, SOS)? Or does this spec define an end-to-end service that includes product generation and description functions analogous to WCS GetCoverage and DescribeCoverage?

2. The definition of "Earth Observation Product" is incomplete, and must be made very explicit because it is a core aspect of the specification.

    a. Does a single satellite scene count as a product?

    b. What about a swath?

   c. What about a global mosaic?

   d. Or a time series of all scenes that include a selected location?

   e. Is it possible to produce subsets of a single scene, or to stitch multiple scenes and then subset a bounding box from that?

   f. Are all of the following considered Products: Raw Data Records (RDRs), Sensor Data Records (SDRs), Temperature Data Records (TDRs), Deliverable Intermediate Products (IPs), Environmental Data Records (EDRs), Application Related Products (ARPs)?

   g. Is data from an in situ sensor an EO Product?

3. The essential information that this is a SOAP service should be mentioned much earlier than p.94.

4. Please add material summarizing implementation experience.

   a. Does this service represent entirely new functionality that has never been implemented, or does it codify services already in existence at the submitting organizations?

   b. If services already exist, do they implement all of the conformance classes or only some?

   c. Is a reference implementation available?

   d. Clause E.3.2 says, "The Ordering Service described in this document has been successfully implemented in Java" -- this would be helpful information to provide much earlier to (a) give confidence to other TC members that a "Yes" vote is warranted and (b) give hope to potential implementers that they need not start from scratch to implement this 294-page specification.

Editorial comments:

5. The Requirement Classes could be presented much more readably. A phrase like "specifies the requirements an Order Server shall implement" is repeated in every item, and it would be better to focus the list on what functionality each class actually provides.

6. Replace "has to" with "must" or "shall" throughout the document.

7. Should check the list of Abbreviations and delete terms used only 0 or 1 times, and add any missing terms.

8. Either SOAP 1.1 is permitted or it is forbidden--this sentence contradicts the paragraph above and the reference to mandatory SOAP 1.2 in Clause 7.4.

9. Does OGC require that this general information about UML (Clause 5.2) be included? If not, recommend deletion of these 3-4 pages.

10. Does OGC require that this general information about XML schema notation (Clause 5.3) be included in every spec? If not, recommend deletion.

11. I congratulate the Italian editor on his knowledge of English, which is molto meglio than my knowledge of Italian (I had to use Google Translate to get that last bit.) Nevertheless, a native speaker should review this document carefully and fix the spelling and grammar problems.

1.3.2 OSEO SWG Answers

1. Agreed to enhance the §6 including additional text describing the relationships between this spec and other OGC spec.

   Actually OSEO has relationships with:

   - WCS & WMS, which can be used as delivery options, allowing the users to access the products from the Web without the need of downloading the whole file.

   - SPS EO: in fact OSEO can be used together with SPS in order to issue orders for future products.

   - OGC 06-131, OGC 10-157r2: they are the companion Catalogue specifications. They provide the protocol for searching the EO products that can be ordered via the OSEO specification.

   - OWS, as all other OGC spec.

2. Agreed. Section §4 reports a too short definition of EO Product and then it will be enhanced. Regarding all the questions raised on EO Product concepts, OSEO is rather agnostic with respect to the precise type of the product. In fact for OSEO spec a product is an item having an identifier in the catalogue, on which a set of processing, delivery and scene selection options can be applied. Then OSEO spec allows to order every product matching these requirements.

   a. Yes. To order a scene there are several options:

i. The EO Product catalogue stores already scenes, then the user search them and possibly order them directly

ii. The EO Product catalogue stores strips, but the order service returns scene selection options asking to order scenes for that kind of products.

b. Depends on the definition of swath. If you mean a long acquisition lasting several minutes / several orbits, then it is supported.

c. Yes. As I said before: if the mosaic is a product which metadata is stored in the companion EO Product Catalogue it can be ordered. Probably it will have very specific options (or no options at all: I guess that once a mosaic has been built stitching plenty of products then it cannot be modified).

d. Yes. That kind of order, named also bulk orders in other contexts, can be implemented using the "subscription order" concept. In this case the order item is the identifier of the collection from where the products have to be extracted plus several options specifying the area of interest and the time window. Additionally it is possible to specify "live subscription" in which the order is repeated periodically with certain frequency.

e. **Yes** it is possible to extract a sub product from the parent one (via the scene selection options); **No** it is not possible to stitch and then cut on the specified area. This is a new scenario. Is that used by NOAA?

f. Where are those terms defined? However, as I said before, everything which metadata can be inserted in a companion EO Product Catalogue and for which the ordering details can be represented via processing, scene selection and delivery options then it can be ordered via the OSEO.

g. No

3. Agreed, we can move in section §6, where a general introduction to the specification is reported.

4.

- A: it formalizes via an OGC spec the experience gathered in several ESA and non ESA projects.

- B: there are several operational implementations of the previous spec (OGC 06-141r2 V0.9.4). The current one is a reviewed and improved version.

- C: Yes. Give a look here: http://sourceforge.net/projects/opgw/files/OPGW/5.1
- D: Agreed, this section will be improved and a few references will be put either in the preface or in the section §6.

5. Agreed, section §2 will be improved.
6. Agreed, requirements sentences will be updated putting SHALL
7. Any inputs are much appreciated.
8. Agreed, any reference to SOAP V1.1 will be removed (previous implementations were all SOAP V1.1)
9. Not agreed; notations help the reader.
10. Not agreed; notations help the reader.
11. We have done our best; unfortunately we don't have a native English speaker in the team. Volunteers are very welcome!

