



OGC API - DISCRETE GLOBAL GRID SYSTEMS - PART 1: CORE

STANDARD
Implementation

DRAFT

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ABSTRACT

<Insert Abstract Text here>



KEYWORDS

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

ogcdoc, OGC document, API, openapi, html, ogcapi



PREFACE

NOTE: Insert Preface Text here. Give OGC specific commentary: describe the technical content, reason for document, history of the document and precursors, and plans for future work.

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SECURITY CONSIDERATIONS

No security considerations have been made for this document.



SUBMITTING ORGANIZATIONS

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

- Pangaea Innovations Pty. Ltd.
- Organization Two
- Organization Three
- Organization Four



1

SCOPE

NOTE: Insert Scope text here. Give the subject of the document and the aspects of that scope covered by the document.



2

CONFORMANCE

This standard defines XXXX.

Requirements for N standardization target types are considered:

- AAAA
- BBBB

Conformance with this standard shall be checked using all the relevant tests specified in Annex A (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 site.

In order to conform to this OGC® interface standard, a software implementation shall choose to implement:

- Any one of the conformance levels specified in Annex A (normative).
- Any one of the Distributed Computing Platform profiles specified in Annexes TBD through TBD (normative).

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



3

NORMATIVE REFERENCES

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Identification of Common Molecular Subsequences. Smith, T.F., Waterman, M.S., J. Mol. Biol. 147, 195–197 (1981)

ZIB Structure Prediction Pipeline: Composing a Complex Biological Workflow through Web Services. May, P., Ehrlich, H.C., Steinke, T. In: Nagel, W.E., Walter, W.V., Lehner, W. (eds.) Euro-Par 2006. LNCS, vol. 4128, pp. 1148–1158. Springer, Heidelberg (2006)

The Grid: Blueprint for a New Computing Infrastructure., Foster, I., Kesselman, C.. Morgan Kaufmann, San Francisco (1999).

Grid Information Services for Distributed Resource Sharing. Czajkowski, K., Fitzgerald, S., Foster, I., Kesselman, C. In: 10th IEEE International Symposium on High Performance Distributed Computing, pp. 181–184. IEEE Press, New York (2001)

The Physiology of the Grid: an Open Grid Services Architecture for Distributed Systems Integration. Foster, I., Kesselman, C., Nick, J., Tuecke, S. Technical report, Global Grid Forum (2002)

National Center for Biotechnology Information, <http://www.ncbi.nlm.nih.gov>

ISO: ISO 19101-1:2014, *Geographic information – Reference model – Part 1: Fundamentals.* International Organization for Standardization, Geneva (2014). <https://www.iso.org/standard/59164.html>.

ISO: ISO 19115-1:2014, *Geographic information – Metadata – Part 1: Fundamentals.* International Organization for Standardization, Geneva (2014). <https://www.iso.org/standard/53798.html>.

ISO: ISO 19157:2013, *Geographic information – Data quality.* International Organization for Standardization, Geneva (2013). <https://www.iso.org/standard/32575.html>.

ISO: ISO/TS 19139:2007, *Geographic information – Metadata – XML schema implementation.* International Organization for Standardization, Geneva (2007). <https://www.iso.org/standard/32557.html>.

ISO: ISO/TS 19115-3, *Geographic information – Metadata – Part 3: XML schema implementation for fundamental concepts.* International Organization for Standardization, Geneva <https://www.iso.org/standard/32579.html>.

OGC Geospatial User Feedback Standard: Conceptual Model (2016)

Gerhard Gröger, Thomas H. Kolbe, Claus Nagel, Karl-Heinz Häfele: OGC 12-019, *OGC City Geography Markup Language (CityGML) Encoding Standard*. Open Geospatial Consortium (2012). [https://portal.ogc.org/files/?artifact id=47842](https://portal.ogc.org/files/?artifact%20id=47842).

Jiyeong Lee, Ki-Joune Li, Sisi Zlatanova, Thomas H. Kolbe, Claus Nagel, Thomas Becker: OGC 14-005r3, *OGC® IndoorGML*. Open Geospatial Consortium (2014). <https://docs.ogc.org/is/14-005r3/14-005r3.html>.

Arliss Whiteside Jim Greenwood: OGC 06-121r9, *OGC Web Service Common Implementation Specification*. Open Geospatial Consortium (2010). [https://portal.ogc.org/files/?artifact id=38867](https://portal.ogc.org/files/?artifact%20id=38867).



4

TERMS AND DEFINITIONS

This document uses the terms defined in OGC Policy Directive 49, 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 document and OGC documents do not use the equivalent phrases in the ISO/IEC Directives, Part 2.

This document also uses terms defined in the OGC Standard for Modular specifications (OGC 08-131r3), also known as the ‘ModSpec’. The definitions of terms such as standard, specification, requirement, and conformance test are provided in the ModSpec.

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

This document uses the terms defined in Sub-clause 5.3 of [OGC06-121r9], 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. example term

term used for exemplary purposes

Note 1 to entry: An example note.

Example Here’s an example of an example term.

[SOURCE: ISO 19101-1:2014]



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. Identifiers

The normative provisions in this standard are denoted by the URI

<http://www.opengis.net/spec/{standard}/{m.n}>

All requirements and conformance tests that appear in this document are denoted by partial URIs which are relative to this base.



6

DGGS — CORE CONFORMANCE CLASS

Paragraph

6.1. Clauses not containing normative material sub-clause 1

Paragraph

6.2. Clauses not containing normative material sub-clause 2



7

DGGS — DATA RETRIEVAL CONFORMANCE CLASS

DGGS – DATA RETRIEVAL CONFORMANCE CLASS

Paragraph

7.1. Requirement Class A or Requirement A Example

Paragraph – intro text for the requirement class.

Use the following table for Requirements Classes.

REQUIREMENTS CLASS 1	
Target type	Implementation Specification
Dependency	http://www.example.org/req/blah
Label	http://www.opengis.net/spec/ABCD/m.n/req/data-retrieval

7.1.1. Requirement 1

Paragraph – intro text for the requirement.

Use the following table for Requirements, number sequentially.

REQUIREMENT 1	
Label	/req/data-retrieval/req-name-1
For each UML class defined or referenced in the Relief Package:	
A	The Implementation Specification SHALL contain an element which represents the same concept as that defined for the UML class.
B	The Implementation Specification SHALL represent associations with the same source, target, direction, roles, and multiplicities as those of the UML class.

Dictionary tables for requirements can be added as necessary. Modify the following example as needed.

Table 1

NAMES	DEFINITION	DATA TYPES AND VALUES	MULTIPLICITY AND USE
name 1	definition of name 1	float	One or more (mandatory)
name 2	definition of name 2	character string type, not empty	Zero or one (optional)
name 3	definition of name 3	GML:: Point PropertyType	One (mandatory)



8

DGGS — ZONE QUERY CONFORMANCE CLASS

Paragraph

8.1. Requirement Class A or Requirement A Example

Paragraph – intro text for the requirement class.

Use the following table for Requirements Classes.

REQUIREMENTS CLASS 2	
Target type	Implementation Specification
Dependency	http://www.example.org/req/blah
Dependency	/req/data-retrieval
Label	http://www.opengis.net/spec/ABCD/m.n/req/zone-query

8.1.1. Requirement 1

Paragraph – intro text for the requirement.

Use the following table for Requirements, number sequentially.

REQUIREMENT 2	
Label	/req/zone-query/req-name-1
For each UML class defined or referenced in the Relief Package:	
A	The Implementation Specification SHALL contain an element which represents the same concept as that defined for the UML class.
B	The Implementation Specification SHALL represent associations with the same source, target, direction, roles, and multiplicities as those of the UML class.

Dictionary tables for requirements can be added as necessary. Modify the following example as needed.

Table 2

NAMES	DEFINITION	DATA TYPES AND VALUES	MULTIPLICITY AND USE
name 1	definition of name 1	float	One or more (mandatory)
name 2	definition of name 2	character string type, not empty	Zero or one (optional)
name 3	definition of name 3	GML:: Point PropertyType	One (mandatory)



9

MEDIA TYPES FOR ANY DATA ENCODING(S)

A section describing the MIME-types to be used is mandatory for any standard involving data encodings. If no suitable MIME type exists in <http://www.iana.org/assignments/media-types/index.html> then this section may be used to define a new MIME type for registration with IANA.



A

ANNEX A (INFORMATIVE) CONFORMANCE CLASS ABSTRACT TEST SUITE (NORMATIVE)





ANNEX A

(INFORMATIVE)

CONFORMANCE CLASS ABSTRACT TEST SUITE (NORMATIVE)

NOTE: Ensure that there is a conformance class for each requirements class and a test for each requirement (identified by requirement name and number)

A.1. Conformance Class A

A.1.1. Requirement 1

REQUIREMENT A.1	
Test purpose	Verify that...
Test method	Inspect...

A.1.2. Requirement 2



B

ANNEX B (INFORMATIVE) TITLE



ANNEX B (INFORMATIVE) TITLE

NOTE: Place other Annex material in sequential annexes beginning with “B” and leave final two annexes for the Revision History and Bibliography



ANNEX C (INFORMATIVE) REVISION HISTORY



ANNEX C (INFORMATIVE) REVISION HISTORY

Table C.1

DATE	RELEASE	EDITOR	PRIMARY CLAUSES MODIFIED	DESCRIPTION
2021-05-17	0.1	Matthew Purss	all	initial version



BIBLIOGRAPHY





BIBLIOGRAPHY

NOTE: The TC has approved Springer LNCS as the official document citation type.

Springer LNCS is widely used in technical and computer science journals and other publications

– Actual References:

[n] Journal: Author Surname, A.: Title. Publication Title. Volume number, Issue number, Pages Used (Year Published)

[n] Web: Author Surname, A.: Title, <http://Website-Url>

1. OGC: *OGC Testbed 12 Annex B: Architecture* (2015).