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Open Geospatial Consortium

OGC DOCUMENT TITLE

COMMUNITY STANDARD

APPROVED

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CONTENTS

LIST OF TABLES

I ABSTRACT

<Insert Abstract Text here>

II KEYWORDS

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

keyword_1, keyword_2, keyword_3, etc.

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.

There are two ways to specify the Preface: “simple clause” or “full clasuse”

If the Preface does not contain subclauses, it is considered a simple preface clause. This one is entered as text after the `.Preface` label and must be placed between the AsciiDoc document attributes and the first AsciiDoc section title. It should not be give a section title of its own.

If the Preface contains subclauses, it needs to be encoded as a full preface clause. This one is recognized as a full Metanorma AsciiDoc section with te title “Preface”, i.e. `== Preface`. (Simple preface content can also be encoded like full preface.)

IV SECURITY CONSIDERATIONS

No security considerations have been made for this Standard.

V SUBMITTERS

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

NAME	AFFILIATION	OGC MEMBER
Steve Liang	University of Calgary, Canada / SensorUp Inc.	Yes

VI SOURCE OF THE CONTENT FOR THIS OGC DOCUMENT

VII VALIDITY OF CONTENT

VIII FUTURE WORK

NOTE: If you need to place any further sections in the preface area use the `[.preface]` attribute.

IX CONTRIBUTORS

Additional contributors to this Standard include the following:

Individual name(s), Organization

1 SCOPE

1 SCOPE

<Insert Scope text here>

NOTE: Give the subject of the document and the aspects of that scope covered by the document.

2 CONFORMANCE

2 CONFORMANCE

<Insert conformance content here>

NOTE: Provide a short description of the content approached in subsequent sections and the main subject of the document

3 NORMATIVE REFERENCES

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)

4 TERMS AND DEFINITIONS

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.

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:**]

5

CONVENTIONS

5 CONVENTIONS

NOTE: This section 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.

5.2. Other conventions

<Place any other convention needed with its corresponding title>

6

CORE

6 CORE

This clause establishes the **Core** Requirements class, with IRI `/req/core`, which has a corresponding Conformance Class, **Core**, with IRI `/conf/core`.

6.1. Class: geosrs:geosrs:CoordinateSystem

The class `geosrs:geosrs:CoordinateSystem` is defined by the following:

6.2. Class: geosrs:geosrs:CartesianCoordinateSystem

The class `geosrs:geosrs:CartesianCoordinateSystem` is defined by the following:

6.3. Class: geosrs:geosrs:EllipsoidalCoordinateSystem

The class `geosrs:geosrs:EllipsoidalCoordinateSystem` is defined by the following:

6.4. Class: geosrs:geosrs:LinearCoordinateSystem

The class `geosrs:geosrs:LinearCoordinateSystem` is defined by the following:

6.5. Class: geosrs:geosrs:OrdinalCoordinateSystem

The class `geosrs:geosrs:OrdinalCoordinateSystem` is defined by the following:

6.6. Class: geosrs:geosrs:ParametricCoordinateSystem

The class `geosrs:geosrs:ParametricCoordinateSystem` is defined by the following:

6.7. Class: geosrs:geosrs:PolarCoordinateSystem

The class `geosrs:geosrs:PolarCoordinateSystem` is defined by the following:

6.8. Class: geosrs:geosrs:SphericalCoordinateSystem

The class `geosrs:geosrs:SphericalCoordinateSystem` is defined by the following:

6.9. Class: geosrs:geosrs:VerticalCoordinateSystem

The class `geosrs:geosrs:VerticalCoordinateSystem` is defined by the following:

6.10. Class: geosrs:geosrs:CoordinateSystemAxis

The class `geosrs:geosrs:CoordinateSystemAxis` is defined by the following:

6.11. Class: geosrs:geosrs:AreaOfUse

The class `geosrs:geosrs:AreaOfUse` is defined by the following:

6.12. Class: geosrs:geosrs:CRS

The class `geosrs:geosrs:CRS` is defined by the following:

6.13. Class: geosrs:geosrs:EngineeringCRS

The class `geosrs:geosrs:EngineeringCRS` is defined by the following:

6.14. Class: geosrs:geosrs:GeodeticCRS

The class `geosrs:geosrs:GeodeticCRS` is defined by the following:

6.15. Class: geosrs:geosrs:GeographicCRS

The class `geosrs:geosrs:GeographicCRS` is defined by the following:

6.16. Class: geosrs:geosrs:ProjectedCRS

The class `geosrs:geosrs:ProjectedCRS` is defined by the following:

6.17. Class: geosrs:geosrs:SingleCRS

The class `geosrs:geosrs:SingleCRS` is defined by the following:

6.18. Class: geosrs:geosrs:SpatialReferenceSystem

The class `geosrs:geosrs:SpatialReferenceSystem` is defined by the following:

6.19. Class: geosrs:geosrs:CoordinateOperation

The class `geosrs:geosrs:CoordinateOperation` is defined by the following:

6.20. Class: geosrs:geosrs:SingleOperation

The class `geosrs:geosrs:SingleOperation` is defined by the following:

6.21. Class: geosrs:geosrs:Transformation

The class `geosrs:geosrs:Transformation` is defined by the following:

6.22. Class: geosrs:geosrs:Conversion

The class `geosrs:geosrs:Conversion` is defined by the following:

6.23. Class: geosrs:geosrs:OperationMethod

The class `geosrs:geosrs:OperationMethod` is defined by the following:

6.24. Class: geosrs:geosrs:OperationParameter

The class `geosrs:geosrs:OperationParameter` is defined by the following:

6.25. Class: geosrs:geosrs:OperationParameterValue

The class `geosrs:geosrs:OperationParameterValue` is defined by the following:

6.26. Class: geosrs:geosrs:Datum

The class `geosrs:geosrs:Datum` is defined by the following:

6.27. Class: geosrs:geosrs:GeodeticDatum

The class `geosrs:geosrs:GeodeticDatum` is defined by the following:

6.28. Class: geosrs:geosrs:PrimeMeridian

The class `geosrs:geosrs:PrimeMeridian` is defined by the following:

6.29. Class: geosrs:geosrs:Ellipsoid

The class `geosrs:geosrs:Ellipsoid` is defined by the following:

6.30. Class: geosrs:geosrs:VerticalDatum

The class `geosrs:geosrs:VerticalDatum` is defined by the following:

7

COORDINATE OPERATION MODULE

7 COORDINATE OPERATION MODULE

This clause establishes the **Co** Requirements class, with IRI `/req/co`, which has a corresponding Conformance Class, **Co**, with IRI `/conf/co`.

8

COORDINATE SYSTEM MODULE

8 COORDINATE SYSTEM MODULE

This clause establishes the **CS** Requirements class, with IRI `/req/cs`, which has a corresponding Conformance Class, **CS**, with IRI `/conf/cs`.

9

DATUM MODULE

9 DATUM MODULE

This clause establishes the **Datum** Requirements class, with IRI `/req/datum`, which has a corresponding Conformance Class, **Datum**, with IRI `/conf/datum`.

10

SRS APPLICATION MODULE

10 SRS APPLICATION MODULE

This clause establishes the **SRSAPP** Requirements class, with IRI `/req/srsapp`, which has a corresponding Conformance Class, **SRSAPP**, with IRI `/conf/srsapp`.

11

PROJECTIONS MODULE

11 PROJECTIONS MODULE

This clause establishes the **PROJ** Requirements class, with IRI `/req/proj`, which has a corresponding Conformance Class, **PROJ**, with IRI `/conf/proj`.

12

PLANET MODULE

12 PLANET MODULE

This clause establishes the **PLANET** Requirements class, with IRI `/req/planet`, which has a corresponding Conformance Class, **PLANET**, with IRI `/conf/planet`.

A

ANNEX A (INFORMATIVE) ALIGNMENTS

A ANNEX A (INFORMATIVE) ALIGNMENTS

Overview

Overview

The prefixes used for the ontologies mapped to in all following sections are given in the following table.

Table A.1 — Alignment: Namespaces

ign:	http://data.ign.fr/def/ignf#
iso19111:	http://def.isotc211.org/iso19112/2019/SpatialReferencingByGeographicIdentifier#
geosrs:	http://www.opengis.net/ont/geosparql#
ifc:	https://standards.buildingsmart.org/IFC/DEV/IFC4/ADD2_TC1/OWL/
owl:	http://www.w3.org/2002/07/owl#
prov:	http://www.w3.org/ns/prov#
rdf:	http://www.w3.org/1999/02/22-rdf-syntax-ns#
rdfs:	http://www.w3.org/2000/01/rdf-schema#

A.1. IGN CRS Ontology

Table A.2 — Alignment: IGN CRS Ontology

FROM ELEMENT	MAPPING RELATION	TO ELEMENT	NOTES
geosrs:CoordinateSystem	owl:equivalentClass	ign:CoordinateSystem	-
geosrs:Datum	owl:equivalentClass	ign:Datum	-
geosrs:Ellipsoid	owl:equivalentClass	ign:Ellipsoid	-

A.2. ISO 19111 Ontology

Table A.3 — Alignment: ISO 19111 Ontology

FROM ELEMENT	MAPPING RELATION	TO ELEMENT	NOTES
geosrs:CoordinateSystem	owl:equivalentClass	iso19111:CoordinateSystem	-
geosrs:Datum	owl:equivalentClass	iso19111:Datum	-
geosrs:Ellipsoid	owl:equivalentClass	iso19111:Ellipsoid	-

A.3. IFCOWL Ontology

Table A.4 — Alignment: IFCOWL Ontology

FROM ELEMENT	MAPPING RELATION	TO ELEMENT	NOTES
geosrs:CRS	owl:equivalentClass	ifc:CoordinateReferenceSystem	-

B

ANNEX B (INFORMATIVE) SHACL SHAPES

B ANNEX B (INFORMATIVE) SHACL SHAPES

Overview

Overview

C

ANNEX C (INFORMATIVE) REVISION HISTORY

ANNEX C (INFORMATIVE) REVISION HISTORY

DATE	RELEASE	AUTHOR	PRIMARY CLAUSES MODIFIED	DESCRIPTION
2016-04-28	0.1	G. Editor	all	initial version

BIBLIOGRAPHY

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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 For citations in the text please use square brackets and consecutive numbers: [1], [2], [3] Actual References: [n] Journal: Author Surname, A.: Title. Publication Title. Volume number, Issue number, Pages Used (Year Published)

[1] ISO: ISO 19142, *Geographic information — Web Feature Service*. International Organization for Standardization, Geneva https://www.iso.org/standard/42136.html.

[2] W3C: **Data Catalog Vocabulary,** W3C Recommendation 16 January 2014, https://www.w3.org/TR/vocab-dcat/

[3] IANA: **Link Relation Types,** https://www.iana.org/assignments/link-relations/link-relations.xml

[4] W3C/OGC: **Spatial Data on the Web Best Practices,** W3C Working Group Note 28 September 2017, https://www.w3.org/TR/sdw-bp/

[5] W3C: **Data on the Web Best Practices,** W3C Recommendation 31 January 2017, https://www.w3.org/TR/dwbp/

[6] Ben-Kiki, O., Evans, C., Ingy döt Net: **YAML Ain't Markup Language,** https://yaml.org/

[7] OGC: **Web Feature Service 2.0,** http://docs.opengeospatial.org/is/09-025r2/09-025r2.html

[8] Berners-Lee, T., Fielding, R., Masinter, L.: **IETF RFC 3986 — Uniform Resource Identifier (URI): Generic Syntax,** http://tools.ietf.org/rfc/rfc3986.txt