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Geographic information - Metadata - Part 3: XML schema implementation for fundamental concepts (ISO 19115-3:2023)

Geoinformation - Metadaten - Teil 3: XML Implementierungsschema für Metadaten-Grundsätze (ISO 19115-3:2023)

Information géographique - Métadonnées - Partie 3 : Mise en oeuvre par des schémas XML (ISO 19115-3:2023)

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Information géographique - Métadonnées - Partie 3 :
Mise en oeuvre par des schémas XML (ISO 19115-
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Geoinformation - Metadaten - Teil 3: XML
Implementierungsschema für Metadaten-Grundsätze
(ISO 19115-3:2023)

This European Standard was approved by CEN on 18 July 2022.

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European foreword

This document (EN ISO 19115-3:2023) has been prepared by Technical Committee ISO/TC 211 "Geographic information/Geomatics" in collaboration with Technical Committee CEN/TC 287 "Geographic Information" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2024, and conflicting national standards shall be withdrawn at the latest by February 2024.

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**Geographic information —
Metadata —**

**Part 3:
XML schema implementation for
fundamental concepts**

Information géographique — Métadonnées —

Partie 3: Mise en oeuvre par des schémas XML

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces the first edition (ISO/TS 19115-3:2016), which has been technically revised.

The main changes are as follows:

- cross-references to other documents have been updated; in particular, ISO 19139:2007 has been updated to ISO/TS 19139-1:2019;
- components have been reallocated to the relevant primary International Standards, notably ISO 19115-1:2014, ISO 19115-2:2019 and ISO 19103:2015;
- additional packages and namespaces derived by the aggregation of packages defined in ISO 19115-1:2014 and ISO 19115-2:2009¹⁾ have been removed;
- tables have been consolidated in order to reduce repetition of information and to collocate information concerning requirements, conformance tests and the clauses to which they refer;
- elements in the XML schemas for ISO 19115-1:2014 and ISO 19115-2:2019 have been reordered in order to align with the order of attributes in the associated data dictionaries. Appropriate XML stylesheets (XSLT) have been generated to assist in the transformation of XML records from records conforming to previous versions of the schemas. The conceptual models in the HMMG have been

1) Cancelled and replaced by ISO 19115-2:2019.

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augmented to include the attribute ordering as set out in the data dictionaries in ISO 19115-1:2014 plus ISO 19115-1:2014/Amd 1:2018 and ISO 19115-1:2014/Amd 2:2020 and ISO 19115-2:2019.

A list of all parts in the ISO 19115 series can be found on the ISO website.

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Introduction

0.1 Metadata models for geographic information resources

ISO 19115-1 and ISO 19115-2 collectively provide conceptual models that describe geographic information resources. These models represent metadata of geographic information resources.

ISO 19115-1 explains the importance of metadata, specifies a model for describing geographic information resources by defining metadata entities, elements and terminology, and establishing an extension procedure for additional metadata content. It also incorporates metadata elements describing web services defined in ISO 19119:2005²⁾ and ISO 19119:2005/Amd 1:2008³⁾, where those elements are no longer included in ISO 19119:2016 as they have been supplanted by more detailed metadata elements for geographic data types and data quality defined in other ISO geographic information standards (e.g. ISO 19110:2016 and ISO 19157:2013).

NOTE ISO 19115-1:2014, Annex G describes the revisions from ISO 19115:2003⁴⁾.

ISO 19115-2 extends ISO 19115-1 by adding models for acquisition information and extending the models for metadata (MD_Metadatas), data quality (DQ_DataQuality, now in ISO 19157:2013), spatial representation (MD_SpatialRepresentation), and content information (MD_ContentInformation).

0.2 XML encoding of metadata models

As ISO 19115-1 and ISO 19115-2 define conceptual models for metadata content, these models are independent of any particular encoding scheme. To use these models in XML requires the development of an XML encoding that implements the conceptual models.

In the past, ISO 19115:2003, the predecessor of ISO 19115-1 and ISO 19115-2, has been provided with an XML encoding defined by ISO/TS 19139:2007⁵⁾ and ISO/TS 19139-2:2012⁶⁾, called “gmd”.

With the advent of ISO 19115-1 and ISO 19115-2, a new XML encoding is needed. This document fulfils that role by providing integrated XML schemas for ISO 19115-1 and ISO 19115-2 metadata content, effectively replacing ISO/TS 19139:2007 and ISO/TS 19139-2:2012.

0.3 Integrated schemas

The integrated schemas provided by this document make it possible to use concepts from ISO 19115-1:2014 and ISO 19115-2:2019 together in metadata instance documents, and enable automated validation and interchange of metadata content using standard software tools.

The integrated schemas have been derived from ISO 19115-1 and ISO 19115-2 conceptual models using the rules defined in ISO/TS 19139-1:2019 applied to an adapted implementation-ready UML version of the conceptual models as described in [Clause 10](#). The implementation approach enables modularization and eases reuse of elements of the conceptual models.

Abstract classes were added to the ISO geographic information harmonized model, without altering the semantics, to create an implementation model that was used for this XML implementation (see [Clause 10](#) for details).

0.4 Intent and usage

The primary use case envisioned for this XML implementation is the exchange of geographic metadata in a client-server environment exemplified by the World Wide Web, in which the internal management

2) Cancelled and replaced by ISO 19119:2016.

3) Cancelled and replaced by ISO 19119:2016.

4) Cancelled and replaced by ISO 19115-1:2014.

5) Cancelled and replaced by ISO/TS 19139-1:2019.

6) Withdrawn.

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and structure of metadata content is independent of the encoding used for the exchange of metadata information.

Adoption of this geographic metadata XML schema within an information-sharing community will garner the benefits of standardization for resource discovery, access, use and understanding.

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