AS/NZS ISO 19118:2006
ISO 19118:2005

AS/NZS ISO 19118:2006

Australian/New Zealand Standard™

Geographic information—Encoding

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-004, Geographical Information/Geomatics. It was approved on behalf of the Council of Standards Australia on 11 January 2006 and on behalf of the Council of Standards New Zealand on 27 January 2006.
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The following are represented on Committee IT-004:

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Association of Crown Research Institutes New Zealand
Australasian Fire Authorities Council
Australian Antarctic Division
Australian Bureau of Statistics
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Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

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Australian/New Zealand Standard™

Geographic information—Encoding

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-004, Geographical Information/Geomatics.

This Standard is identical with, and has been reproduced from ISO 19118:2005, *Geographic information—Encoding*.

The objective of this Standard is to provide information system designers and analysts with the requirements for defining encoding rules to be used for interchange of geographic data within the ISO 19100 series of International Standards, including: requirements for creating encoding rules based on UML schemas, requirements for creating encoding services, and an informative XML based encoding rule for neutral interchange of geographic data.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
ISO 8601	Data elements and interchange formats—Information interchange—Representation of dates and times	AS/NZS ISO 8601	Data elements and interchange formats—Information interchange—Representation of dates and times
19109	Geographic information—Rules for application schema	19109	Geographic information—Rules for application schema
ISO/IEC 10646	Information technology—Universal multiple-octet coded character set (UCS)	—	
ISO/TS 19103	Geographic information—Conceptual schema language	19103	Geographic information—Conceptual schema language

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INTRODUCTION

This International Standard specifies the requirements for defining encoding rules to be used for interchange of geographic data within the ISO 19100 series of International Standards. An encoding rule allows geographic information defined by application schemas and standardized schemas to be coded into a system-independent data structure suitable for transport and storage. The encoding rule specifies the types of data to be coded and the syntax, structure and coding schemes used in the resulting data structure. The resulting data structure may be stored on digital media or transferred using transfer protocols. It is intended to be read and interpreted by computers, but may be in a form that is human readable.

The choice of one encoding rule for neutral data interchange does not exclude application domains and individual nations from defining and using their own encoding rules that can be platform dependent or more effective with regards to data size or processing complexity. XML is a subset of ISO/IEC 8879 and has been chosen because it is independent of computing platform and interoperable with the World Wide Web.

This International Standard is divided into three logical sections. The requirements for creating encoding rules based on UML schemas are specified in Clauses 6 to 8. The requirements for creating encoding service are specified in Clause 9, and the XML based encoding rule is specified in Annex A.

The XML based encoding rule is intended to be used for neutral data interchange. It relies on the Extensible Markup Language (XML) and the ISO/IEC 10646 character set standards. Introductions to XML and ISO/IEC 10646 are given in Annexes C and D, respectively. Annex E contains examples of the application of this International Standard.

The geographic information standards are organized in the ISO 19100 series of International Standards. The background, the overall structure of this series of International Standards and the fundamental description techniques are defined in ISO 19101, ISO/TS 19103 and ISO 19104.

Users of this International Standard will develop application schemas to capture the semantics of geographic information. An application schema is compiled by integrating elements from a set of standardized conceptual schemas developed in ISO 19107, ISO 19108, ISO 19110, ISO 19111, ISO 19112, ISO 19113, ISO 19115 and ISO 19117, including eventually new standardized conceptual schemas. How this integration will take place is described in ISO 19109. The ISO 19100 series of International Standards also defines a set of common services that shall be available when developing geographic information applications. The common services are generally defined in ISO 19119 and will cover access to and processing of geographic information according to the common information model. Two service areas are defined more closely in ISO 19116 and ISO 19117. ISO 19105, ISO 19106, ISO 19114 and this International Standard cover implementation issues.

AUSTRALIAN/NEW ZEALAND STANDARD

Geographic information — Encoding

1 Scope

This International Standard specifies the requirements for defining encoding rules to be used for interchange of geographic data within the ISO 19100 series of International Standards.

This International Standard specifies

— requirements for creating encoding rules based on UML schemas,

— requirements for creating encoding services,

— an informative XML based encoding rule for neutral interchange of geographic data.

This International Standard does not specify any digital media, it does not define any transfer services or transfer protocols, nor does it specify how to encode inline large images.

2 Conformance

Two conformance levels are defined for this International Standard. The conformance levels are defined in the abstract test suite in Annex B.

3 Normative references

The following referenced documents are indispensable for the application 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.

ISO/IEC 10646, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/TS 19103:2005, *Geographic information — Conceptual schema language*

ISO 19109:2005, *Geographic information — Rules for application schema*

Extensible Markup Language (XML) 1.0 (Second Edition), W3C Recommendation 6 October 2000. Available at <http://www.w3.org/TR/REC-xml>

XML Schema Part 1: Structures, W3C Recommendation 2, May 2001. Available at <http://www.w3.org/TR/xmlschema-1/>

XML Schema Part 2: Datatypes, W3C Recommendation 2, May 2001. Available at <http://www.w3.org/TR/xmlschema-2/>