

Australian/New Zealand Standard™

**Geographic information—Imagery,
gridded and coverage data framework**



AS/NZS ISO 19129:2011

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PREFACE

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

The objective of this document is to define the framework for imagery, gridded and coverage data. This framework defines a content model for the content type imagery and for other specific content types that can be represented as coverage data.

This document is identical with, and has been reproduced from ISO/TS 19129:2009, *Geographic information—Imagery, gridded and coverage data framework*.

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<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
ISO		AS/NZS	ISO
19107	Geographic information—Spatial schema	19107	Geographic information—Spatial schema
19109	Geographic information—Rules for application schema	19109	Geographic information—Rules for application schema
19115	Geographic information—Metadata	19115	Geographic information—Metadata
19115-2	Part 2: Extensions for imagery and gridded data	19115.2	Part 2: Extensions for imagery and gridded data
19118	Geographic information—Encoding	19118	Geographic information—Encoding
19123	Geographic information—Schema for coverage geometry and functions	19123	Geographic information—Schema for coverage geometry and functions

The terms ‘normative’ and ‘informative’ have been used in this Standard 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.

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INTRODUCTION

Gridded data, including imagery, is a major form of geographic information. Over the past two decades many, largely incompatible, standards have been developed that are widely used for the interchange of geographic imagery and gridded data. These include standards developed by ISO, as well as those developed by other organizations. With so many different imagery and gridded data standards, each standard aimed at different but overlapping information communities, there is a considerable legacy problem. Working with data encoded using different formats is often difficult because all of the necessary information for interworking has not been recorded using some of these standards. It is not possible to develop a new comprehensive standard to replace what exists or to simply endorse one existing standard (or industrial specification) to “solve” the interworking problem, because very large volumes of data exist in the various formats already in use. The Technical Report ISO/TR 19121:2000 identified the existing work on imagery and gridded data that had been ongoing in ISO and external technical organizations. What is required is a structure that allows for the specification of the content in a manner independent of and compatible with the various different encoding standards.

The area of imagery, gridded and coverage data is one of the most challenging within the field of geographic information. The data appears to be simple; however, there is significant structural complexity. While most data is organized in simple grids, there are many different traversal methods for grids and structures that support the distribution of attributes over a space. Sensor information and associated georeferencing are an important aspect of imagery, gridded and coverage geographic information.

This Technical Specification endeavours to address the harmonization of the broad legacy of existing imagery and gridded data. The approach specified is *not* to build a very flexible standard that encompasses everything with a broad array of options, since that does not create compatibility. One can be fooled into thinking things are standardized, because two data sets use incompatible subsets of the same set of general standards. All that would be accomplished would be to give an ISO label to the existing diversity and incompatibility. Compatibility is required for the underlying structure and primary elements of information content, regardless of how that information content is expressed. The purpose of this Technical Specification is to provide a framework within which interworking can occur. The approach used is to define a set of a few common information content structures for geographic imagery, gridded data and certain types of coverage data, which can be expressed using different encoding mechanisms and different interchange standards. The compatibility results from the common underlying content models that are expressed as a *generic set of UML patterns for application schemas*.

This Technical Specification recognizes that there are many overlapping imagery and gridded data specifications in wide use that differ significantly in how the information content is structured for encoding and in what choices of information form the content model. Different types of encoding may be appropriate in different situations. However, differences in content are difficult to reconcile. The existing different encoding standards do not necessarily conflict because they represent different ways of providing the same information in different contexts. Differences in content are also permitted for different situations, but the content definition must be the same in similar situations for interchange to be achieved without loss of information.

Most of the existing specifications for imagery and gridded data used in industry specify how content is to be expressed, rather than the content itself. They relate content to encoding, encapsulation and transfer of data. Those content descriptions that do appear to vary from one specification to another may not be in conflict or incompatible but reflect different real world situations that require different treatments.

This Technical Specification combines a number of well-defined content structures in accordance with ISO 19123, the International Standard for coverage geometry and functions together with metadata, spatial referencing and other aspects of imagery, gridded and coverage data into a framework. This will foster a convergence at the content model level for existing imagery, gridded and coverage data while allowing for backward compatibility with the identified suite of existing standards.

AUSTRALIAN/NEW ZEALAND STANDARD

Geographic information—Imagery, gridded and coverage data framework**1 Scope**

This Technical Specification defines the framework for imagery, gridded and coverage data. This framework defines a content model for the content type imagery and for other specific content types that can be represented as coverage data. These content models are represented as a set of generic UML patterns for application schemas.

2 Conformance

Any application schema or profile claiming conformance with this Technical Specification shall pass the requirements described in the abstract test suite, presented in Annex A.

The abstract test suite indicates what is required for an application schema to comply with the framework established in this Technical Specification.

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 19107, *Geographic information — Spatial schema*

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

ISO 19115, *Geographic information — Metadata*

ISO 19115-2, *Geographic information — Metadata — Part 2: Extensions for imagery and gridded data*

ISO 19118, *Geographic information — Encoding*

ISO 19123, *Geographic information — Schema for coverage geometry and functions*

4 Terms and definitions**4.1 Terms**

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

4.1.1**application schema**

conceptual schema for data required by one or more applications

[ISO 19101:2002]