AS/NZS ISO 19165.1:2019
ISO 19165-1:2018

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Australian/New Zealand Standard™

Geographic information — Preservation of digital data and metadata

Part 1: Fundamentals

AS/NZS ISO 19165.1:2019

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Australian Bureau of Meteorology
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First published as AS/NZS ISO 19165.1:2019.

Preface

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

The objective of this Standard is to define a preservation metadata extension of AS/NZS ISO 19115.1. It defines the requirements for the long-term preservation of digital geospatial data. These data also include metadata, representation information, provenance, context and any other content items that capture the knowledge that are necessary to fully understand and reuse the archived data. This Standard also refers to characteristics of data formats that are useful for the purpose of archiving.

Geospatial data are preserved as a geospatial information package (IP). This Standard defines the requirements of the geospatial archival IP and details of the geospatial submission and the dissemination IPs. A geospatial archival IP is fully self-describing and allows a future reconstruction of the data set without external documentation. The functional requirements for a preservation archive are defined in Annex D.

This Standard is identical with, and has been reproduced from, ISO 19165-1:2018, *Geographic information — Preservation of digital data and metadata — Part 1: Fundamentals*.

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

Introduction

Today's information is mostly stored on digital media, which has a shorter lifetime than that of analogue media for a variety of reasons. Unless systematically archived, the storage media will decay and the information is lost. Missing or incorrect metadata describing the format of data can also result in lost digital information. Unfortunately, this daunting scenario occurs often. Consequently, the epoch in which we presently live is sometimes named the "Digital Dark Age".

Traditional archives are facilities or organizations that preserve records, originally generated by or for a government organization, institution, or corporation, for access by public or private communities. The archive accomplishes this task by taking ownership of the records, ensuring they are understandable to the accessing community, and managing them so as to preserve their information content, data integrity and authenticity (ISO 16363/TDR). The major focus for preserving this information has been to ensure that they are on media with long term stability and that access to this media is carefully controlled (ISO 14721).

Geospatial data possess several distinguishing structural characteristics that may include:

— relations to a well-defined section of the Earth;

— exchange by using theme-specific and sophisticated exchange formats;

— links to thematic data (databases);

— transformation between different coordinate reference systems;

— visualization (map output);

— large data volumes;

— existence of several levels-of-detail of the same dataset;

— links between a geospatial dataset and rights.

These distinctive features suggest that geospatial data shall be preserved together with relevant metadata content that fully addresses these structural characteristics.

ISO 14721 defines a reference model for archiving digital information. The application of ISO 14721 is not limited to space data and it is widely used by digital libraries. However, ISO 14721 does not completely cover all the needs for digital data and metadata preservation for geospatial data in general. Therefore, the ISO 19165 series addresses geospatial data, its data model structures, the multiplicity of data formats, and intellectual property rights. ISO 19165 is required by and developed for the geospatial community. ISO/TC 211, Geographic information/Geomatics, has developed the ISO 19100 family of standards dedicated to geographic information. One of them is ISO 19115-1. ISO 19165 is modelled as a specialization of ISO 19115-1. This document is neither a profile nor an implementation of ISO 14721.

Apart from the ISO standards mentioned above, other standards for archival metadata exist. Examples are the provenance family of documents of the W3C[19] and PREMIS, the data dictionary for preservation metadata[17].

Australian/New Zealand Standard

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1 Scope

This document defines a preservation metadata extension of ISO 19115-1.

It defines the requirements for the long-term preservation of digital geospatial data. These data also include metadata, representation information, provenance, context and any other content items that capture the knowledge that are necessary to fully understand and reuse the archived data. This document also refers to characteristics of data formats that are useful for the purpose of archiving.

Geospatial data are preserved as a geospatial information package (IP). This document defines the requirements of the geospatial archival IP and details of the geospatial submission and the dissemination IPs. A geospatial archival IP is fully self-describing and allows a future reconstruction of the dataset without external documentation. The functional requirements for a preservation archive are defined in Annex D.

This document complements standards developed by ISO/TC 211 as well as other ISO standards such as ISO 14721.

2 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.

ISO 14721:2012, *Space data and information transfer systems — Open archival information system (OAIS) — Reference model*

ISO 19110, *Geographic information — Methodology for feature cataloguing*

ISO 19115-1:2014, *Geographic information — Metadata — Part 1: Fundamentals*

ISO/TS 19115-3, *Geographic information — Metadata — XML schema implementation of metadata fundamentals*

ISO 19157:2013, *Geographic information — Data quality*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
access rights information
information that identifies the access restrictions pertaining to the content information, including the legal framework, licensing terms, and access control

Note 1 to entry: Access rights information contains the access and distribution conditions stated within the submission agreement, related to both preservation (by the OAIS) and final usage (by the consumer). It also includes the specifications for the application of rights enforcement measures.