



**International  
Standard**

**ISO 16684-4**

**Graphic technology — Extensible  
metadata platform (XMP)  
specification —**

**Part 4:  
Use of XMP for semantic units**

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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 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](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Document file formats, EDMS Systems and authenticity of information*.

A list of all parts in the ISO 16684 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Traditional concepts and uses of metadata have been applied to describe a file or a collection, but this approach cannot meet the needs of flexible, sub-file and across-file level information exchange and sharing. Researchers, publishers, readers and machines require new approaches to describe content in flexible and multi-faceted ways for data sharing and data exchange (e.g. chapter, figure, image, table, formula). Specifically, in the linked data (either open or closed) web environment, any piece of information can be described, referenced and linked with or without relationships with any other data, objects, and/or files.

By implementing this document, textual and non-textual content can be described, used and shared at an atomic level, file level and across-file level. This information can be used for multiple purposes, including content access, digital preservation, scientific research and publishing. Recent developments in computer vision and machine learning make it possible to create, link and capture semantics from documents, videos and audios. Machines can learn and create meaningful metadata using a variety of artificial intelligence (AI) machine learning models. This enhances existing resources description and creates new opportunities in content generation, content use and content re-use. For instance, the general public benefits from semantic-rich content through enhanced knowledge access, discovery and integration (e.g. see the use cases in the [Annex A](#)), while scholars can utilize semantic-rich content for content discovery, integration and scholarly communication. For business, the availability of semantic-rich content creates new opportunities for lower cost, higher productivity, and better user satisfaction. Machines can also utilize semantic-rich content and metadata for a variety of purposes.



# Graphic technology — Extensible metadata platform (XMP) specification —

## Part 4: Use of XMP for semantic units

### 1 Scope

This document:

- a) introduces the concept of the semantic unit (SU);
- b) provides requirements and guidance on how to define the target resource(s) in an SU by adopting the “target” syntax from the Web Annotation Model;
- c) provides requirements and guidance on the extensible metadata platform (XMP) serialization syntaxes for SU.

This document broadens the concept of XMP specified in ISO 16684-1 so that XMP can be used to describe an SU. A new flexible way of defining and describing SUs aims to bring innovation to textual and non-textual content, metadata, linked data, big data and artificial intelligence.

### 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 16684-1:2019, *Graphic technology — Extensible metadata platform (XMP) — Part 1: Data model, serialization and core properties*

ISO 16684-3:2021, *Graphic technology — Extensible metadata platform (XMP) specification — Part 3: JSON-LD serialization of XMP*

Web Annotation Data Model *W3C Recommendation*, 2017, <https://www.w3.org/TR/annotation-model/>

### 3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>