



**International
Standard**

ISO/IEC 23090-18

**Information technology — Coded
representation of immersive
media —**

**Part 18:
Carriage of geometry-based point
cloud compression data**

*Technologies de l'information — Représentation codée de média
immersifs —*

*Partie 18: Transport des données de compression des nuages de
points basée sur la géométrie*

**First edition
2024-01**



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Published in Switzerland

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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Introduction

Advances in 3D capturing and rendering technologies have unleashed a new wave of innovation in Virtual/Augmented/Mixed reality (VR/AR/MR) content creation and communication. Point clouds have arisen as one of the main representations for such applications. Geometry-based point cloud compression data is used for representing sparse dynamically varying point clouds such as those used in vehicular LiDAR or 3D mapping, as well as dense static point clouds used in cultural heritage, and industrial applications.

This document addresses technologies defining the carriage of geometry-based point cloud compression data for storage and delivery purposes. This document includes (but is not limited to):

- Storage of geometry-based point cloud compression data and the associated metadata using the ISO Base Media File Format (ISO/BMFF) as specified in ISO/IEC 14496-12;
- Storage of non-timed geometry-based point cloud compression data and the associated metadata using HEVC Image File Format (HEIF) as specified in ISO/IEC 23008-12;
- Encapsulation, signalling, and streaming of geometry-based compression data in a media streaming system, for example, dynamic adaptive streaming over HTTP (DASH) as specified in ISO/IEC 23009-1 or MPEG media transport (MMT) as specified in ISO/IEC 23008-1.

Information technology — Coded representation of immersive media —

Part 18: Carriage of geometry-based point cloud compression data

1 Scope

This document specifies a media format that enables the storage and delivery of geometry-based point cloud compression data. The geometry-based point cloud compression data can be timed or non-timed. It supports flexible extraction of geometry-based point cloud compression data at delivery or decoding time.

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/IEC 9834-1, (Rec. ITU-T X.660), *Information technology — Procedures for the operation of object identifier registration authorities — Part 1: General procedures and top arcs of the international object identifier tree*

ISO/IEC 9834-8, (Rec. ITU-T X.667), *Information technology — Procedures for the operation of object identifier registration authorities — Part 8: Generation of universally unique identifiers (UUIDs) and their use in object identifiers*

ISO/IEC 14496-12, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format*

ISO/IEC 23008-1:2023, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 1: MPEG media transport (MMT)*

ISO/IEC 23008-12:2022, *Information technology — MPEG systems technologies — Part 12: Image File Format*

ISO/IEC 23009-1:2022, *Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats*

ISO/IEC 23090-9:2023, *Information technology — Coded representation of immersive media (MPEG-I) — Part 9: Geometry-based point cloud compression*

IEEE 754-2019, *IEEE Standard for Floating-Point Arithmetic*.

W3C Recommendation, *XML schema part 1: Structures*

W3C Recommendation, *XML schema part 2: Datatypes*