



**International
Standard**

ISO/IEC 23090-24

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

**Part 24:
Conformance and reference
software for scene description**

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

*Partie 24: Conformité et logiciel de référence pour la description
de scènes*

**First edition
2025-05**



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

| | |
|---|-----------|
| Foreword | iv |
| Introduction | v |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Reference software for ISO/IEC-23090-14 MPEG-I scene description | 1 |
| 4.1 General | 1 |
| 4.2 Description | 2 |
| 4.3 Dependencies | 3 |
| 4.3.1 Spatial audio | 3 |
| 4.3.2 OpenXR | 3 |
| 4.4 Usage | 4 |
| 4.4.1 Installation | 4 |
| 4.5 Support for MIV content | 4 |
| 4.5.1 Build instructions | 5 |
| 4.5.2 Run instructions | 5 |
| 4.5.3 Location | 6 |
| 4.6 Support for the Haptics extension | 6 |
| 4.7 Support for AR scene playback | 6 |
| 4.8 Issues | 6 |
| 4.9 License | 7 |
| 5 ISO/IEC-23090-14 MPEG-I scene description conformance | 7 |
| 5.1 Overview | 7 |
| 5.2 glTF and MPEG extension schema validation | 8 |
| 5.2.1 General | 8 |
| 5.2.2 JSON schema validation | 8 |
| 5.2.3 Binary buffer validation | 8 |
| 5.2.4 Source image validation | 8 |
| 5.2.5 Audio validation | 9 |
| 5.3 Scene description metadata sample conformance | 9 |
| 6 Conformance software for ISO/IEC 23090-14 MPEG-I scene description | 9 |
| 6.1 Overview | 9 |
| 6.2 glTF-validator | 9 |
| 6.2.1 Overview | 9 |
| 6.2.2 Software repository | 10 |
| 6.3 Carriage library | 10 |
| 6.3.1 Overview | 10 |
| 6.3.2 Software repository | 11 |
| 7 Test vectors | 11 |
| 7.1 Overview | 11 |
| 7.2 MIV bitstream | 11 |
| Bibliography | 13 |

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take 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 and IEC 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 and <https://patents.iec.ch>. ISO and IEC 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. In the IEC, see www.iec.ch/understanding-standards.

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*.

A list of all parts in the ISO/IEC 23090 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

Introduction

The conformance and reference software of ISO/IEC 23090-14 serves following main purposes:

- Validation of the written specification of the parts of ISO/IEC 23090-14;
- Clarification of the written specification of the parts of ISO/IEC 23090-14;
- Conformance testing for checking interoperability for the various applications against the reference software which aims to be compliant with ISO/IEC 23090-14.

Information technology — Coded representation of immersive media —

Part 24: Conformance and reference software for scene description

1 Scope

This document specifies the conformance and reference software for ISO/IEC 23090-14.

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 23090-14:2023, *Information technology — Coded representation of immersive media — Part 14: Scene description*

ISO/IEC 12113, *Information technology — Runtime 3D asset delivery format — Khronos glTF™ 2.0*