

First edition  
2022-05

---

---

# Information technology — Computer graphics, image processing and environment data representation — Object/environmental representation for image-based rendering in virtual/mixed and augmented reality (VR/MAR)

*Technologies de l'information — Infographie, traitement d'images et représentation des données environnementales — Représentation d'objets/environnements pour l'habillage à partir d'images réelles dans la réalité virtuelle/mixte et augmentée (VR/MAR)*



Reference number  
ISO/IEC 23488:2022(E)

© ISO/IEC 2022



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2022

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO/IEC 23488:2022". Click here to purchase the full version from the ANSI store.

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions and abbreviated terms</b> .....	<b>1</b>
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	2
<b>4 Domain and concepts</b> .....	<b>2</b>
4.1 General.....	2
4.2 Domain.....	2
4.3 Concepts.....	3
4.4 Basic components.....	4
4.4.1 General.....	4
4.4.2 Image set.....	4
4.4.3 3D model.....	5
4.4.4 3D model — Image set integration.....	6
4.4.5 XML based object model.....	6
<b>5 Image-based representation usage example</b> .....	<b>8</b>
5.1 General.....	8
5.2 Image-based rendering.....	8
5.3 Multi-object representation.....	9
<b>6 Conformance</b> .....	<b>9</b>
6.1 Objective.....	9
6.2 Minimum requirements.....	10
<b>Annex A (informative) Working example of the proposed information model</b> .....	<b>11</b>
<b>Bibliography</b> .....	<b>15</b>

## 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](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC 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](http://www.iso.org/patents)) or the IEC list of patent declarations received (see <https://patents.iec.ch>).

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). In the IEC, see [www.iec.ch/understanding-standards](http://www.iec.ch/understanding-standards).

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 24, *Computer graphics, image processing and environmental data representation*.

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) and [www.iec.ch/national-committees](http://www.iec.ch/national-committees).

This is a preview of "ISO/IEC 23488:2022". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

As virtual reality (VR) and augmented reality (AR) expand to applications in entertainment and education industries, many methods of augmenting reality to virtual space have been developed. Because of this expansion, the technology of capturing and representing objects in real environments is in high demand.

One of the proposed methods of capturing the real world is image-based representation. Image-based representation is a technique that can be used in various applications that require 3D model rendering at an arbitrary viewpoint, including virtual reality, augmented reality and video stabilization. Since image-based representation is a predominant alternative to using 3D models in the growing VR/MAR market, due to its realism, scalability, accuracy and efficiency, creating a standard for image-based representation is required.