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Industrial automation systems and integration — COLLADA digital asset schema specification for 3D visualization of industrial data

Systèmes d'automatisation industrielle et intégration — Spécifications du schéma des actifs numériques COLLADA pour la visualisation 3D des données industrielles

ICS: 25.040.40

Member bodies are requested to consult relevant national interests in ISO/IEC JTC 1/SC 24 before casting their ballot to the e-Balloting application.

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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).

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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.

This document was prepared by the Khronos Group and was adopted by the joint working group (JWG 16) of Technical Committee ISO/TC 184, Automation systems and integration, Subcommittee SC 4, Industrial data and Joint Technical Committee 1 JTC 1, Subcommittee SC 24, Computer graphics, image processing and environmental data representation.

This second edition cancels and replaces the first edition (ISO/PAS 17506:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Document format and structure are changed to match ISO document template.

A file of the ISO 17506:2021(E) 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.

Introduction

This document describes the COLLADA schema. COLLADA is a COLLAborative Design Activity that defines an XML-based schema to enable 3D authoring applications to freely exchange digital assets without loss of information, enabling multiple software packages to be combined into extremely powerful tool chains.

The purpose of this document is to provide a specification for the COLLADA schema in sufficient detail to enable software developers to create tools to process COLLADA resources. In particular, it is relevant to those who import to or export from digital content creation(DCC) applications, 3D interactive applications and tool chains, prototyping tools, real-time visualization applications such as those used in the video game and movie industries, and CAD tools.

This document covers the initial design and specifications of the COLLADA schema, as well as a minimal set of requirements for COLLADA exporters. A short example of a COLLADA instance document is presented in Annex A.

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Industrial automation systems and integration — COLLADA digital asset schema specification for 3D visualization of industrial data

1 Scope

This document describes the COLLADA schema. COLLADA is a COLLAborative Design Activity that defines an XML-based schema to enable 3D authoring applications to freely exchange digital assets without loss of information, enabling multiple software packages to be combined into extremely powerful tool chains.

The purpose of this Publicly Available Specification is to provide a specification for the COLLADA schema in sufficient detail to enable software developers to create tools to process COLLADA resources. In particular, it is relevant to those who import to or export from digital content creation (DCC) applications, 3D interactive applications and tool chains, prototyping tools, real-time visualization applications such as those used in the video game and movie industries, and CAD tools.

This document covers the initial design and specifications of the COLLADA schema, as well as a minimal set of requirements for COLLADA exporters.

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.

Extensible Markup Language (XML) 1.0. Fifth Edition. World Wide Web Consortium (W3C), *November 2008*

XML Pointer Language (XPointer) 1.0, World Wide Web Consortium (W3C), *January 2001*

XML Path Language (XPath) 3.1, World Wide Web Consortium (W3C), *March 2017*

XML Schema Definition Language (XSD) 1.1, World Wide Web Consortium (W3C), *April 2012*

Uniform Resource Identifier (URI), RFC3986, IETF, *January 2005*

3 Terms and definitions

3.1 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:

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

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