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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

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ISO/PAS 17506 was prepared by the Khronos Group (as COLLADA Digital Asset Schema Release 1.5.0 Specification, April 2008) and was adopted by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

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

1 Scope

This Publicly Available Specification 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.

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2 Requirements

Requirements are indicated using “must” in the following publication (reproduced on the following pages), which is adopted as a Publicly Available Specification:

COLLADA Digital Asset Schema Release 1.5.0 Specification, April 2008.

Pages i to xii of COLLADA Digital Asset Schema Release 1.5.0 Specification, April 2008, are for information only.

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COLLADA – Digital Asset Schema Release 1.5.0

Specification

April 2008

Editors: Mark Barnes and Ellen Levy Finch, Sony Computer Entertainment Inc.

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About This Manual

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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 “Appendix A”.

Audience

This document is public. The intended audience is programmers who want to create applications, or plug-ins for applications, that can utilize the COLLADA schema.

Readers of this document should:

- Have knowledge of XML and XML Schema.
- Be familiar with shading languages such as NVIDIA® Cg or Pixar RenderMan®.
- Have a general knowledge and understanding of computer graphics and graphics APIs such as OpenGL®.

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Content of this Document

This document consists of the following chapters:

Chapter/Section	Description
Chapter 1: Design Considerations	Issues concerning the COLLADA design.
Chapter 2: Tool Requirements and Options	COLLADA tool requirements for implementors.
Chapter 3: Design Considerations	A general description of the schema and its design, and introduction of key concepts necessary for understanding and using COLLADA.
Chapter 4: Programming Guide	Detailed instructions for some aspects of programming using COLLADA.
Chapter 5: Core Elements Reference	Detailed reference descriptions of the core elements in the COLLADA schema.
Chapter 6: Physics Reference	Detailed reference descriptions of COLLADA Physics elements.
Chapter 7: Getting Started with FX	Concepts and usage notes for COLLADA FX elements.
Chapter 8: FX Reference	Detailed reference descriptions of COLLADA FX elements.
Chapter 9: B-Rep Reference	Detailed reference descriptions of COLLADA B-Rep elements.
Chapter 10: Kinematics Reference	Detailed reference descriptions of COLLADA Kinematics elements.
Chapter 11: Types	Definitions of some simple COLLADA types.
Appendix A: COLLADA Example	An example COLLADA instance document.
Appendix B: Profile GLSL and GLES2 Example	A detailed example of the COLLADA FX `<profile_GLSL>` element.
Glossary	Definitions of terms used in this document, including XML terminology.

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