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Industrial automation systems and integration — JT file format specification for 3D visualization —

Part 1: Overview and fundamental principles

Systèmes d'automatisation industrielle et integration — Spécification de format de fichier JT pour visualisation 3D. —

Partie 1: Aperçu et Principes Fondamentaux

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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 Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

A list of all parts in the ISO 14306 series 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.

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Introduction

The ISO 14306 series describes a file format which is used in industry for the representation of computer-interpretable 3D product data. The objective of the industrial user when using data contained in the format described in the ISO 14306 format is 3D visualization to enable collaboration, validation and information sharing throughout the extended enterprise.

The file format description is flexible in design focusing on compression for compact and efficient 3D data representations. Computer Aided Design (CAD) models, represented as data according to the ISO 14306 format are significantly smaller than the size of the original authored CAD data. Software applications that use this description focus on workflows requiring high-performance, both capturing and repurposing of lightweight 3D data that includes content such as product assembly structure and product and manufacturing information (PMI) independent of the original CAD authoring application.

A typical screenshot display of the Product Assembly Structure and PMI data is shown in Figure 1.

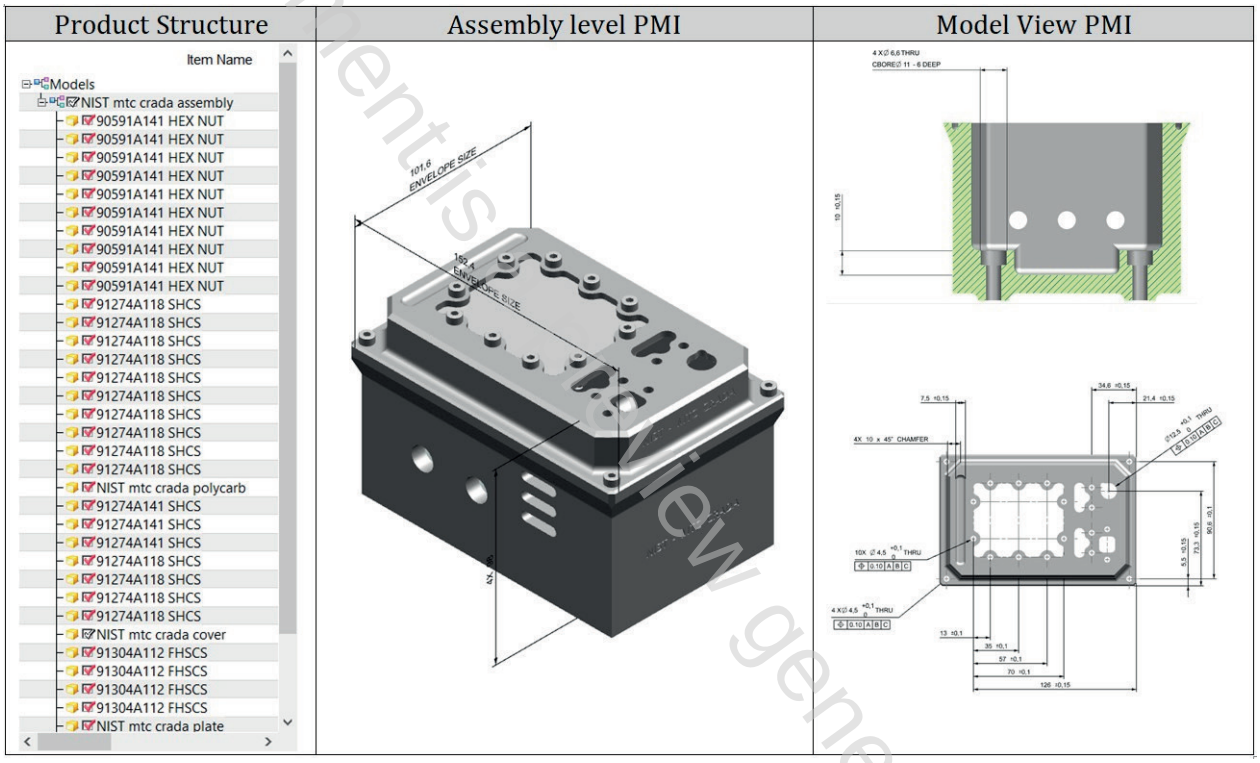

Figure 1 — Example screenshot showing Product Structure and PMI images

The ISO 14306 format file is stored on disk with a file extension of ".jt".

Beyond the data contents description of the ISO 14306 format, the overall organization of the format is designed to support operations such as:

— offline optimizations of the data contents, therefore file granularity and flexibility, are optimized to meet the needs of enterprise data sharing solutions

— asynchronous streaming of content, therefore viewing optimizations such as view frustum;

— occlusion culling and fixed-framerate display modes

— layers, and layer filters

Annex A contains an identifier that conforms to ISO/IEC 8824-1. The identifier unambiguously identifies this document in an open information system.

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Industrial automation systems and integration — JT file format specification for 3D visualization —

Part 1: Overview and fundamental principles

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1 Scope

This document provides an overview and defines the purpose and fundamental principles of the ISO 14306 series as well as the structure of the various parts within the series and an overview of the conformance for files created consistent with the standard.

The ISO 14306 series defines a binary file format description that is a representation of product information with the definitions necessary to enable 3D visualization among different computer systems and environments associated with a complete product lifecycle.

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 14306-2:2023, *Industrial automation systems and integration – JT file format specification for 3D visualization – Part 2: Vocabulary*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14306-2 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

CAD Computer Aided Design

URL Uniform Resource Locator

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