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Industrial automation systems and integration — Integration of life cycle data for process plants including oil and gas production facilities —

Part 10: Conformance testing

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO 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).

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.

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 15926 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

This document demonstrates specified requirements of conformance to ISO 15926.

The target audiences for this document are as follows:

— users of a software product wishing to determine whether a software product deployed and/or a deliverable of the software product fulfils the specified requirements to conform to ISO 15926;

NOTE 1 Users typically include, but are not limited to, plant owners, project management contractors, front end engineering design contractors, engineering procurement construction contractors, original equipment manufacturing suppliers, catalogue providers, commissioning engineers, information technology engineers, and information management engineers.

— implementers wishing to determine whether a software product developed and/or a deliverable of the software product fulfils the specified requirements to conform to ISO 15926.

NOTE 2 Implementers include, but are not limited to, software engineers working for commercial software product development companies, and software engineers working on industrial businesses using their developed software product.

Users of this document are expected to have an understanding of conceptual data models, of the ISO 15926 series, of the ISO/TS 18876 series and of ISO/IEC/IEEE 15288.

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Industrial automation systems and integration — Integration of life cycle data for process plants including oil and gas production facilities —

Part 10: Conformance testing

1 Scope

This document defines the principles and methods for conformance testing of software implementations of ISO 15926.

It provides guidance for developing test cases and testing procedures that cover the requirements specified in the ISO 15926 series and in different industry usage contexts, e.g. data exchange, use of reference data libraries and interface services.

This document provides guidance in addition to the conformance in the parts.

NOTE 1 Guidance on conformance ISO 15926 testing of complex scenarios which represent integrated interoperability is outside the scope of this document.

NOTE 2 Guidance on the development of software that supports the way of file exchange in the simple scenario which represents unified interoperability is outside the scope of this document.

2 Normative references

There are no normative references in this document.

3 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/ui

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

3.1
conformance testing
process to determine whether an implementation meets the requirements of a standard

3.2
specified requirement
need or expectation that is stated

3.3
functional approach
series of three functions that satisfy a need or demand for a demonstration that *specified requirements* (3.2) are fulfilled

Note 1 to entry: The three functions are selection, determination, and review and attestation.

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3.4
software implementation layer
conceptual model that characterizes the software implementation

3.5
information exchange layer
particular conceptual model based on the *software implementation layers* (3.4) that characterizes the information exchange between computing system

3.6
ontology
formal statement of an understanding of the world

Note 1 to entry: An ontology can be represented in any language. It need not be represented in a language specifically designed for ontologies, such as OWL. An ontology can have different representations.

Note 2 to entry: An ontology does not specify what data shall be recorded about the world.

Note 3 to entry: The ontology defined by this part of ISO 15926 is principally concerned with the world outside a computer system.

[SOURCE: ISO/TS 15926-12:2018, 3.1.3]

4 Principles and methods

4.1 Conformance testing

Conformance testing of software implementations of ISO 15926 (conformance to the ISO 15926 series) shall be performed according to the functional approach, which is described in ISO/IEC 17000.

The testing can be done by first, second and/or third party.

NOTE The adoption of ISO/IEC Guide 60 can build the credibility of conformance testing.

4.2 Conformance to the ISO 15926 series

4.2.1 Conformance to ISO 15926-1

Conformance testing of software implementations of ISO 15926 means conformance to ISO 15926-1, if and only if all the requirements stated by the users of a software product and/or the implementer are fulfilled. A statement of conformance shall be prepared to state all means of communicating that the fulfilment of specified requirements has been successfully demonstrated.

ISO 15926-1 describes the activity, activity analysis, and modelling methods. The ISO 15926-1 activity model is shown in Figure 1.

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