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Software Interface for Maintenance Information Collection and Analysis (SIMICA): Common Information Elements

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SOFTWARE INTERFACE FOR MAINTENANCE INFORMATION COLLECTION AND ANALYSIS (SIMICA): COMMON INFORMATION ELEMENTS

FOREWORD

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The text of this standard is based on the following documents:

IEEE Std	FDIS	Report on voting
1636.99 (2013)	91/1361/FDIS	91/1372/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The IEC Technical Committee and IEEE Technical Committee have decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
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IEEE Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA): Common Information Elements

Sponsor

IEEE Standards Coordinating Committees on Test and Diagnosis for Electronic Systems (SCC20)

Approved 23 August 2013

IEEE-SA Standards Board

Abstract: This standard is intended to promote and facilitate interoperability between components of SIMICA. The standard defines EXPRESS information models and XML schemas that together define the common information elements supporting these interfaces.

Keywords: automated test system (ATS), eXtensible markup language (XML), IEEE 1636.99™, session information, Software Interface for Maintenance Information Collection and Analysis (SIMICA), test results, XML schema

IEEE Introduction

This introduction is not part of IEEE Std 1636.99™-2013, IEEE Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA): Common Information Elements.

Maintainers of complex systems require the ability to capture and share historical test and maintenance-related information in a way that supports such activities as performance analysis, post-production product improvement, maintenance process improvement, and diagnostic maturation. Principal stakeholders of this project include but are not limited to maintenance organizations within various Departments/Ministries of Defense, the commercial airlines, the automotive industry, and the telecommunications industry. This standard is being developed as a component of the IEEE 1636™ Software Interface for Maintenance Information Collection and Analysis (SIMICA) project. SIMICA's purpose is to specify a software interface for access, exchange, and analysis of product diagnostic and maintenance information. Maintenance action information provides a subset of the data needed to satisfy SIMICIA requirements.

The use of formal information models will facilitate exchanging historical maintenance information between information systems and analysis tools. The models will facilitate creating open system software architectures for maturing system diagnostics.

The XML schema described in this standard where appropriate utilizes and references components of the IEEE Std 1671™ schema set.

It is anticipated that these schemas will be used throughout industries that utilize diagnostic and maintenance data as an exchange format that can be understood by humans or machines. In order to ensure wide acceptance throughout the user community, the schemas have been designed to encompass a broad range of use cases. To accommodate use cases beyond the released design, the schemas provide means for user extensibility.

Software Interface for Maintenance Information Collection and Analysis (SIMICA): Common Information Elements

1. Overview

1.1 General

This standard, which is a component of the Software Interface for Maintenance Information Collection and Analysis (SIMICA) standard, was developed by the Diagnostic and Maintenance Control Subcommittee of the IEEE Standards Coordinating Committee 20 (SCC20) on Test and Diagnosis for Electronic Systems to provide standard, unambiguous definitions of common SIMICA element semantics, and interrelationships.

This standard specifically describes a set of formal specifications consisting of the logical representation of the information that is common between IEEE Std 1636.1™ and IEEE Std 1636.2™, which may be used during related diagnostic and maintenance processes. The information model contained in this document provides a normative formal specification of the information concepts and precise semantics that support the unambiguous exchange of information between producers and consumers in a platform-independent manner.

The schemas described in this document are intended to be shared by all SIMICA "dot" standards. The Express schema in this standard is based on ISO 10303-11:1994 [B9][1]. The XML schema associated with this standard is based on the W3C eXtensible Markup Language (XML) 1.0 Recommendation [B1][2].

1.2 Application of this documents annexes

This document includes three annexes. Of these three, two are normative (Annex A and Annex B).

Annex A contains the description of each of the XML schema elements and types.

Annex B contains the description of the EXPRESS and EXPRESS-G model elements.

Annex C is informative, and thus is provided strictly as information, for both users and maintainers of this document.

1.3 Scope

The SIMICA family of standards provides an implementation-independent software interfaces to information systems containing data pertinent to the diagnosis and maintenance of complex systems consisting of hardware, software, or any combination thereof. This standard defines EXPRESS information models and XML schemas that together define the common information elements supporting these interfaces.

1.4 Referenced IEEE Standards

SIMICA Common makes reference to IEEE Std 1671™-2010 Annex B.1. This normatively referenced IEEE standard, when utilized, is therefore considered part of the SIMICA definition.

1.5 Application

This standard provides a specification for information shared by SIMICA "dot" standards (e.g., IEEE Std 1636.1, IEEE Std 1636.2). Anticipated users of this standard include the following:

a) System developers

b) System maintainers

c) Reliability, maintainability, and diagnostic analytical applications

1.6 Conventions used in this document

1.6.1 General

In accordance with *IEEE Standards Style Manual* [B3], any schema examples will be shown in `Courier` font. In cases where instance document examples are necessary to depict clearly use of a schema type or element, such examples will also be shown in `Courier` font. When the characters "..." appear in an example, it indicates that the example component is incomplete.

[1] The numbers in brackets correspond to those of the bibliography in Annex C.
[2] W3C is a registered trademark of the World Wide Web Consortium.