IEC 61636

Edition 2.0 2021-06

INTERNATIONAL STANDARD

IEEE Std 1636™

colour inside

Software Interface for Maintenance Information Collection and Analysis (SIMICA)

IEC 61636:2021-06(en) IEEE Std 1636-2018

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2018 IEEE

All rights reserved. IEEE is a registered trademark in the U.S. Patent & Trademark Office, owned by the Institute of Electrical and Electronics Engineers, Inc. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the IEC Central Office. Any questions about IEEE copyright should be addressed to the IEEE. Enquiries about obtaining additional rights to this publication and other information requests should be addressed to the IEC or your local IEC member National Committee.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue
New York, NY 10016-5997
United States of America
stds.info@ieee.org
www.ieee.org

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

AVA Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

IEC 61636

Edition 2.0 2021-06

INTERNATIONAL STANDARD

IEEE Std 1636™

colour inside

Software Interface for Maintenance Information Collection and Analysis (SIMICA)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 25.040.01; 35.060

IEEE (PDF) STD24777

ISBN 978-2-8322-9804-6
ISBN 978-1-5044-7671-3

Warning! Make sure that you obtained this publication from an authorized distributor.

® Registered trademark of the International Electrotechnical Commission

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

Contents

1. Overview 9
General 9
1.1 Scope 9
1.2 Application 10
1.3 Precedence 11
1.4 Conventions used in this document 11

2. Normative references 11

3. Definitions, acronyms, and abbreviations 12
3.1 Definitions 12
3.2 Acronyms and abbreviations 12

4. Diagnostic maturation 12

5. The SIMICA family component standards 13
5.1 Common elements 13
5.2 Test results and session information—IEEE Std 1636.1 14
5.3 Maintenance action information—IEEE Std 1636.2 14

6. Conformance 14

7. XML schema extensibility 14

8. OWL ontology and XML schema names and locations 15

9. Use of the OWL ontologies, XML schemas, and EXPRESS models associated with the SIMICA family of standards and their publication revisions 16

Annex A (normative) XML schema and OWL ontology 18

Annex B (informative) Bibliography 43

Annex C (informative) IEEE List of participants 44

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

SOFTWARE INTERFACE FOR MAINTENANCE INFORMATION COLLECTION AND ANALYSIS (SIMICA)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC document(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation.

   IEEE Standards documents are developed within IEEE Societies and Standards Coordinating Committees of the IEEE Standards Association (IEEE SA) Standards Board. IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of IEEE and serve without compensation. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards. Use of IEEE Standards documents is wholly voluntary. *IEEE documents are made available for use subject to important notices and legal disclaimers (see* http://standards.ieee.org/ipr/disclaimers.html *for more information).*

   IEC collaborates closely with IEEE in accordance with conditions determined by agreement between the two organizations. This Dual Logo International Standard was jointly developed by the IEC and IEEE under the terms of that agreement.

2) The formal decisions of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees. The formal decisions of IEEE on technical matters, once consensus within IEEE Societies and Standards Coordinating Committees has been reached, is determined by a balanced ballot of materially interested parties who indicate interest in reviewing the proposed standard. Final approval of the IEEE standards document is given by the IEEE Standards Association (IEEE SA) Standards Board.

3) IEC/IEEE Publications have the form of recommendations for international use and are accepted by IEC National Committees/IEEE Societies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC/IEEE Publications is accurate, IEC or IEEE cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications (including IEC/IEEE Publications) transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC/IEEE Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC and IEEE do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC and IEEE are not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or IEEE or their directors, employees, servants or agents including individual experts and members of technical committees and IEC National Committees, or volunteers of IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE SA) Standards Board, for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC/IEEE Publication or any other IEC or IEEE Publications.

8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that implementation of this IEC/IEEE Publication may require use of material covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. IEC or IEEE shall not be held responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patent Claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

IEC 61636/IEEE Std 1636 was processed through IEC technical committee 91: Electronics assembly technology, under the IEC/IEEE Dual Logo Agreement. It is an International Standard.

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

The text of this International Standard is based on the following documents:

IEEE Std	FDIS	Report on voting
1636 (2018)	91/1716/FDIS	91/1728/RVD

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

The language used for the development of this International Standard, is English.

The IEC Technical Committee and IEEE Technical Committee have decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

IEEE Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA)

Sponsor

IEEE Standards Coordinating Committee 20 on Test and Diagnosis for Electronic Systems

Approved 27 September 2018

IEEE-SA Standards Board

Documents
Document Sharing Hub

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Full document details: IEC 61636-2021 (IEEE Std 1636)

Abstract: Promoting and facilitating interoperability between components of automatic test systems where test results and/or maintenance actions need to be shared is addressed in this standard. The standard defines the common elements between both test results data and maintenance action data. The common schema becomes a class of information that shall be used within the SIMICA family of standards.

Keywords: automated test system (ATS), extensible markup language (XML), IEEE 1636™, maintenance action information, OWL ontology, Software Interface for Maintenance Information Collection and Analysis (SIMICA), test results and session information, XML schema

Documents
Document Sharing Hub

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Full document details: IEC 61636-2021 (IEEE Std 1636)

Important Notices and Disclaimers Concerning IEEE Standards Documents

IEEE documents are made available for use subject to important notices and legal disclaimers. These notices and disclaimers, or a reference to this page, appear in all standards and may be found under the heading "Important Notices and Disclaimers Concerning IEEE Standards Documents." They can also be obtained on request from IEEE or viewed at http://standards.ieee.org/ipr/disclaimers.html.

Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents

IEEE Standards documents (standards, recommended practices, and guides), both full-use and trial-use, are developed within IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association ("IEEE-SA") Standards Board. IEEE ("the Institute") develops its standards through a consensus development process, approved by the American National Standards Institute ("ANSI"), which brings together volunteers representing varied viewpoints and interests to achieve the final product. IEEE Standards are documents developed through scientific, academic, and industry-based technical working groups. Volunteers in IEEE working groups are not necessarily members of the Institute and participate without compensation from IEEE. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

IEEE Standards do not guarantee or ensure safety, security, health, or environmental protection, or ensure against interference with or from other devices or networks. Implementers and users of IEEE Standards documents are responsible for determining and complying with all appropriate safety, security, environmental, health, and interference protection practices and all applicable laws and regulations.

IEEE does not warrant or represent the accuracy or content of the material contained in its standards, and expressly disclaims all warranties (express, implied and statutory) not included in this or any other document relating to the standard, including, but not limited to, the warranties of: merchantability; fitness for a particular purpose; non-infringement; and quality, accuracy, effectiveness, currency, or completeness of material. In addition, IEEE disclaims any and all conditions relating to: results; and workmanlike effort. IEEE standards documents are supplied "AS IS" and "WITH ALL FAULTS."

Use of an IEEE standard is wholly voluntary. The existence of an IEEE standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard.

In publishing and making its standards available, IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity nor is IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing any IEEE Standards document, should rely upon his or her own independent judgment in the exercise of reasonable care in any given circumstances or, as appropriate, seek the advice of a competent professional in determining the appropriateness of a given IEEE standard.

IN NO EVENT SHALL IEEE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO: PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE PUBLICATION, USE OF, OR RELIANCE UPON ANY STANDARD, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE AND REGARDLESS OF WHETHER SUCH DAMAGE WAS FORESEEABLE.

Documents
Document Sharing Hub

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Full document details: IEC 61636-2021 (IEEE Std 1636)

Translations

The IEEE consensus development process involves the review of documents in English only. In the event that an IEEE standard is translated, only the English version published by IEEE should be considered the approved IEEE standard.

Official statements

A statement, written or oral, that is not processed in accordance with the IEEE-SA Standards Board Operations Manual shall not be considered or inferred to be the official position of IEEE or any of its committees and shall not be considered to be, or be relied upon as, a formal position of IEEE. At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position of IEEE.

Comments on standards

Comments for revision of IEEE Standards documents are welcome from any interested party, regardless of membership affiliation with IEEE. However, IEEE does not provide consulting information or advice pertaining to IEEE Standards documents. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Since IEEE standards represent a consensus of concerned interests, it is important that any responses to comments and questions also receive the concurrence of a balance of interests. For this reason, IEEE and the members of its societies and Standards Coordinating Committees are not able to provide an instant response to comments or questions except in those cases where the matter has previously been addressed. For the same reason, IEEE does not respond to interpretation requests. Any person who would like to participate in revisions to an IEEE standard is welcome to join the relevant IEEE working group.

Comments on standards should be submitted to the following address:

Secretary, IEEE-SA Standards Board
445 Hoes Lane
Piscataway, NJ 08854 USA

Laws and regulations

Users of IEEE Standards documents should consult all applicable laws and regulations. Compliance with the provisions of any IEEE Standards document does not imply compliance to any applicable regulatory requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

IEEE draft and approved standards are copyrighted by IEEE under US and international copyright laws. They are made available by IEEE and are adopted for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practices and methods. By making these documents available for use and adoption by public authorities and private users, IEEE does not waive any rights in copyright to the documents.

Documents
Document Sharing Hub
Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.
Full document details: IEC 61636-2021 (IEEE Std 1636)

Photocopies

Subject to payment of the appropriate fee, IEEE will grant users a limited, non-exclusive license to photocopy portions of any individual standard for company or organizational internal use or individual, non-commercial use only. To arrange for payment of licensing fees, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; +1 978 750 8400. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.

Updating of IEEE Standards documents

Users of IEEE Standards documents should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. A current IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect.

Every IEEE standard is subjected to review at least every 10 years. When a document is more than 10 years old and has not undergone a revision process, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE standard.

In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit IEEE Xplore at http://ieeexplore.ieee.org/ or contact IEEE at the address listed previously. For more information about the IEEE-SA or IEEE's standards development process, visit the IEEE-SA Website at http://standards.ieee.org.

Errata

Errata, if any, for all IEEE standards can be accessed on the IEEE-SA Website at the following URL: http://standards.ieee.org/findstds/errata/index.html. Users are encouraged to check this URL for errata periodically.

Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken by the IEEE with respect to the existence or validity of any patent rights in connection therewith. If a patent holder or patent applicant has filed a statement of assurance via an Accepted Letter of Assurance, then the statement is listed on the IEEE-SA Website at http://standards.ieee.org/about/sasb/patcom/patents.html. Letters of Assurance may indicate whether the Submitter is willing or unwilling to grant licenses under patent rights without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination to applicants desiring to obtain such licenses.

Essential Patent Claims may exist for which a Letter of Assurance has not been received. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patents Claims, or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from the IEEE Standards Association.

Documents
Document Sharing Hub
Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.
Full document details: IEC 61636-2021 (IEEE Std 1636)

Introduction

This introduction is not part of IEEE Std 1636-2018, IEEE Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA).

Maintainers of complex systems require the ability to capture and share test result and or maintenance action 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 Std 1636, Software Interface for Maintenance Information Collection and Analysis (SIMICA) family. SIMICA's purpose is to specify a software interface for access, exchange, and analysis of product diagnostic and maintenance information.

This document provides the description of the common elements the SIMICA family component (e.g., 'dot') standards shall each utilize.

IEEE Standards downloads and executable files

Files are available in the IEEE 1636-2018 directory located at: https://standards.ieee.org/downloads.

Documents
Document Sharing Hub

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Full document details: IEC 61636-2021 (IEEE Std 1636)

IEEE Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA)

1. Overview

General

Software Interface for Maintenance Information Collection and Analysis (SIMICA) is a family of IEEE standards, associated web ontologies (OWL), and extensible markup language (XML) schemas which allow automatic test system (ATS), test result and session information, and maintenance action information to be exchanged in a common format adhering to the OWL and XML standards.

The SIMICA family of standards has been developed and is being maintained under the guidance of IEEE Standards Coordinating Committee 20 (SCC20) to serve as a comprehensive environment for integrating test results, test session information, and maintenance action information, while allowing this unit under test (UUT) related data to be interchanged between heterogeneous systems.

The SIMICA family of standards is organized as a base Standard (IEEE Std 1636™— this document) and two (2) family component standards:

— Test results and session information (IEEE Std 1636.1™)

— Maintenance action information (IEEE Std 1636.2™)

The SIMICA family 'dot' standards and their relationship to this document are depicted in Figure 1.

This document specifically defines the common complex types, elements and groups that are utilized by both IEEE Std 1636.1 and IEEE Std 1636.2 OWL ontologies and XML schemas.

1.1 Scope

This standard is an implementation-independent specification for a software interface to information systems containing data pertinent to the diagnosis and maintenance of complex systems consisting of hardware, software, or any combination thereof. These interfaces support service definitions for creating application programming interfaces (API) for the access, exchange, and analysis of historical diagnostic and maintenance information.

Documents
Document Sharing Hub
Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.
Full document details: IEC 61636-2021 (IEEE Std 1636)

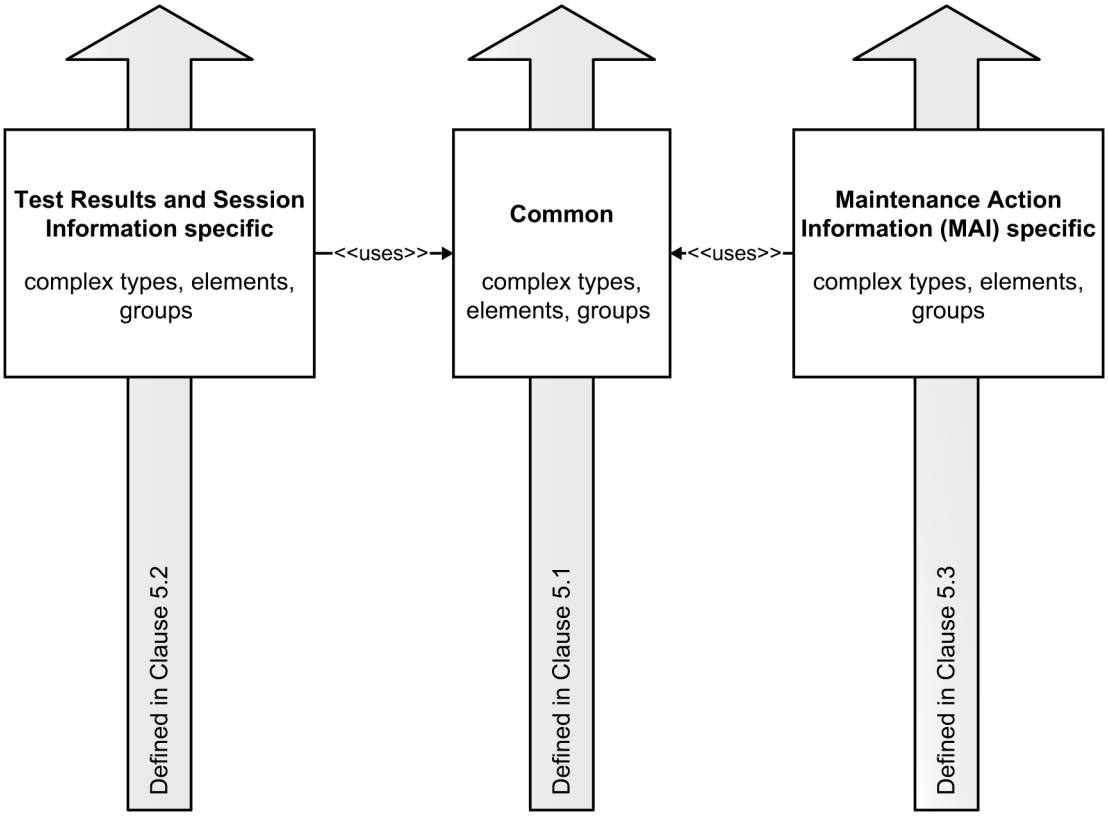

Figure 1—Relationship of the SIMICA family of standards

1.2 Application

1.2.1 Of this document

This document provides formal specifications of the information required for the development of shared maintenance data and the results of testing.

Anticipated users of this standard include the following:

a) System developers

b) System maintainers

c) Test program set (TPS) developers

d) TPS maintainers

e) Automatic test equipment (ATE) system developers

f) ATE systems maintainers

g) Test instrument developers

h) Reliability, maintainability, and diagnostic analytical applications

1.2.2 Of this document's annexes

This document includes two annexes. Of these two, one is normative (Annex A).

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

Annex A contains descriptive information about each of the SIMICA common XML schema and OWL ontology elements and types.

Annex B contains the bibliography. This is informative, and thus is provided strictly as information, for both users and maintainers of this document.

1.3 Precedence

In the event of conflict between this document and a normatively referenced standard (see Clause 2), the normatively referenced standard, as it applies to the information being produced, shall take precedence.

In the event of conflict between this document and another SIMICA family component standard, this document shall take precedence.

1.4 Conventions used in this document

1.4.1 General

All groups, complex types, simple types, and attribute groups are listed in Annex A. Descriptive information for each is provided.

Where there are references to groups, complex types, simple types, and attribute groups within the associated XML schema or OWL ontology (Simica.xsd and Simica.owl), the convention of [name] at [element] is used to indicate where the user can locate the data within either the Simica.xsd or Simica.owl files.

Example: The 1636-2018 download at: https://standards.ieee.org/downloads indicates the user is to open the Simica.xsd schema at the location provided and find *Example* for the schema definition.

The namespace prefix "c:" identifies that the type or attribute group associated with this document.

All specifications for OWL and XML within this document are given in the *Courier* type font and italicized.

1.4.2 Word usage

In this document, the word "shall" is used to indicate a mandatory requirement. The word "should" is used to indicate a recommendation. The word "may" is used to indicate a permissible action. The word "can" is used for statements of possibility and capability.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

World Wide Web Consortium, (W3C) extensible Markup Language (XML), 1.0 (Fifth Edition) Proposed Edited Recommendation.[1]

World Wide Web Consortium, (W3C) OWL Web Ontology Language (OWL 2), W3C Recommendation Definitions, acronyms and abbreviations.

[1]Available at: https://www.w3.org/.

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)

3. Definitions, acronyms, and abbreviations

3.1 Definitions

For the purposes of this document, the following terms and definitions apply. The *IEEE Standards Dictionary Online* should be consulted for terms not defined in this clause.[2]

diagnostic maturation: The process of monitoring diagnostic system predicted versus actual performance to identify and implement corrective actions. The goal is to enhance diagnostic effectiveness throughout the product life cycle. Diagnostic elements that may benefit from the maturation process include (but are not limited to) diagnostic models, system performance models, test programs, and product design.

ontologies: A formal way to define the structure of knowledge.

system: **(A)** A collection of entities to be processed by applying a top-down, hierarchical approach **(B)** A collection of elements forming a collective, functioning entity **(C)** A collection of hardware or software components necessary for performing a function.

3.2 Acronyms and abbreviations

API	application program interface
ATE	automatic test equipment
ATS	automatic test system
GUID	globally unique identifier
OWL	web ontology language
SCC20	Standards Coordinating Committee 20
SIMICA	software interface to maintenance information collection and analysis
TPS	test program set
URL	universal resource locator
UUID	universal unique identifier
UUT	unit under test
W3C	World Wide Web Consortium
XML	extensible markup language

4. Diagnostic maturation

The process of maturing a system diagnostic design begins in the system's conceptual design phase and continues throughout the system life cycle. Generally, diagnostic design is demonstrated prior to delivery of the first unit to meet the diagnostic and health management requirements that have been levied. However, once a system is fielded and used in an operational environment, unexpected and unplanned system level design interactions, operational and environmental stresses, performance characteristics of tests and monitors, and other influences tend to reveal deficiencies in the diagnostic capabilities. When such deficiencies result in a system readiness/availability or cost of ownership problem, remedial actions shall be taken:

— The performance issue must be clearly characterized in terms of scope, impact, and ownership.

[2]The *IEEE Standards Dictionary Online* can be found at: available at: http://dictionary.ieee.org.

Published by IEC under licence from IEEE. © 2018 IEEE. All rights reserved.

Documents
Document Sharing Hub

Full document details: IEC 61636-2021 (IEEE Std 1636)