

IEEE Trial-Use Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA): Exchanging Maintenance Action Information via the Extensible Markup Language (XML)

IEEE Standards Coordinating Committee 20

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3 Park Avenue
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Test and Diagnosis for Electronic Systems**

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Abstract: Interoperability between components of automatic test systems (ATS) is promoted and facilitated. The standard facilitates the capture of maintenance action information (MAI) associated with the removal, repair, and replacement of a particular system component (e.g., unit(s) under test) in order to maintain/support that particular operational system. The MAI schema becomes a class of information that can be used within the SIMICA family of standards. The exchange format utilizes the XML formats.

Keywords: automated test system (ATS), eXtensible markup language (XML), maintenance action information (MAI), Software Interface for Maintenance Information Collection and Analysis (SIMICA), XML schema

The Institute of Electrical and Electronics Engineers, Inc.
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Introduction

This introduction is not part of IEEE Std 1636.2-2010, IEEE Trial-Use Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA): Exchanging Maintenance Action Information via the Extensible Markup Language (XML).

Maintainers of complex systems require the ability to capture and share the maintenance action information (MAI) 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™ SIMICA project. SIMICA's purpose is to specify a software interface for access, exchange, and analysis of product diagnostic and maintenance information. MAI provides a subset of the data needed to satisfy SIMICA 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 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.

It is anticipated that the IEEE 1636.2 schema will be used throughout the automatic test equipment (ATE) industry 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.

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Timothy Wilmering, Co-Chair

Sherif Abdelwahed
Tony Alwardt
Keith Beard
Michael Bodkin
Malcolm Brown
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Anand Jain
Denton Jarvis
Patrick Kalgren
Link Le
Jay Lindsey
Teresa Lopes

David Mills
Scott Misha
Mukund Modi
Ion Neag
Steven O'Donnell
Leslie Orledge
Duy-Huan Phan
Hugh Pritchett
John Ralph
Narayanan Somanandran
Peter Richardson
David Rohacek
William Ross
Mike Seavey
Mark Skiba
Joseph Stanco

In addition, acknowledgement is made of the valuable contributions made by the following:

Kevin Masur

Melissa Romanus

The following members of the individual balloting committee voted on this trial-use standard. Balloters may have voted for approval, disapproval, or abstention.

Anthony Lee Alwardt
Ali Al Awazi
Keith Chow
Tommy Cooper
David Droste
James Dumser
William Frank
Chris Gorringer
Randall Groves
Werner Huelzi
Ashley Hulme
Anand Jain

La. Juhlin
Piotr Karocki
Mark Kaufman
Teresa Lopes
Robert McGarvey
Scott Misha
Mukund Modi
Ion Neag
Charles Ngethe
Leslie Orledge
Ulrich Pohl

John Ralph
David Rohacek
Edward Rowe
Bartien Sayogo
Mike Seavey
John Sheppard
Gil Shultz
Joseph Stanco
Walter Struppler
Thomas Tullia
Timothy Wilmering
Oren Yuen

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Lisa Perry
IEEE Standards Program Manager, Document Development

Soo H. Kim
IEEE Standards Program Manager, Technical Program Development

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1. Overview

1.1 Scope

The scope of this standard is the definition of an exchange format, utilizing XML, for exchanging maintenance action information (MAI) associated with the removal, repair, and replacement of system components to maintain/support an operational system.

1.2 Purpose

The purpose of this standard is to promote and facilitate interoperability between components of a test system and applications in a maintenance environment where MAI needs to be shared. The standard will facilitate the capture and exchange of unit under test (UUT) specific maintenance information, facilitating online and offline analysis of the maintenance process. The maintenance action schema defines a class of information to be used within the SIMICA family of standards.