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

IEEE Standards Coordinating Committee 20

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

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

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

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Abstract: This document provides 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 will support service definitions for creating application programming interfaces (API) for the access, exchange, and analysis of historical diagnostic and maintenance information. This will address the pervasive need of organizations to assess the effectiveness of diagnostics for complex systems throughout the product life cycle. 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.

Keywords: AI-ESTATE, Automated Test Markup Language (ATML), diagnostic maturation, Maintenance Action Information, maintenance data, Software Interface for Maintenance Information Collection and Analysis (SIMICA), Test Results and Session Information

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Introduction

This introduction is not part of IEEE Std 1636-2009 IEEE Trial-Use Standard for Software Interface for Maintenance Information Collection and Analysis (SIMICA).

The requirement for a specification for access and exchange of diagnostic and maintenance product information has arisen due to a pervasive need for the organizations who deliver complex systems to monitor the effectiveness of their product health management solutions in their customers' application domains. Accordingly, The IEEE SCC20 Diagnostic and Maintenance Control (DMC) subcommittee has undertaken the task of developing a standard which fulfills this need. It is envisioned that SIMICA will fulfill this need for all such consumers of diagnostic and maintenance data.

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Publication of this trial-use standard for comment and criticism has been approved by the Institute of Electrical and Electronics Engineers. Trial-use standards are effective for 24 months from the date of publication. Comments for revision will be accepted for 18 months after publication. Suggestions for revision should be directed to the Secretary, IEEE-SA Standards Board, 445 Hoes Lane, Piscataway, NJ 08855-1331, and should be received no later than 19 February 2011. It is expected that following the 24-month period, this trial-use standard, revised as necessary, shall be submitted to the IEEE-SA Standards Board for approval as a full-use standard.

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

1. Overview

1.1 General

This Standard Software Interface for Maintenance Information Collection and Analysis (SIMICA) was developed by the Diagnostic and Maintenance Control Subcommittee of the IEEE Standards Coordinating Committee 20 on Test and Diagnosis for Electronic Systems (SCC20) to provide standard, unambiguous definitions of maintenance information semantics, interrelationships, and access services. This trial-use standard defines a formal conceptual information model to relate maintenance information across concrete information models. These models are related to the maturation of diagnostic systems and as such are directly related to IEEE Std 1232™.[1]. However this trial-use standard, in conjunction with its component standards, can also be used independent of AI-ESTATE.

The goals of the 1636 family of standards are summarized here:

— Provide definitions of maintenance concepts and terminology relevant to the maturation of diagnostic systems.

— Provide a set of information models that will serve as a basis for unambiguous interpretation and communication of such data.

[1] Information on references can be found in Clause 2.