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Information technology — Portable Operating System Interface (POSIX) — Test methods for measuring conformance to POSIX —

Part 1: System interfaces

Technologies de l'information — Interface de système de fonctionnement portable (POSIX) — Méthodes d'essai pour mesurer la conformité au POSIX —

Partie 1: Interfaces de système

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International Standard ISO/IEC 14515-1:2000(E)
IEEE Std 2003.1-1992 (Reaff 2000)

Information technology—Portable Operating System Interface (POSIX®)—Test methods for measuring conformance to POSIX—Part 1: System interfaces

Sponsor

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Adopted as an International Standard by the International Organization for Standardization and by the International Electrotechnical Commission

Abstract: ISO/IEC 14515-1:2000(E) (IEEE Std 2003.1-1992) provides a definition of the requirements placed upon providers of POSIX test methods for POSIX.1 (ISO/IEC 9945-1:1990; IEEE Std 1003.1-1990). These requirements consist of a POSIX.1-ordered list of assertions defining those aspects of POSIX.1 that are to be tested and the associated test methods that are to be used in performing those tests. This standard is aimed primarily at POSIX.1 test suite providers and POSIX.1 implementors. This standard specifies those aspects of POSIX.1 that shall be verified by conformance test methods.

Keywords: assertion, assertion test, base assertion, conditional feature, extended assertion, POSIX. POSIX Conformance Document, POSIX Conformance Test Procedure, POSIX Conformance Test Suite, test method, test result code

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— *Part 1: System interfaces*

— *Part 2: Shell and utilities*

Annexes A and B form a normative part of this part of ISO/IEC 14515.

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Introduction

(This introduction is not a normative part of IEEE Std 2003.1-1992, IEEE Standard for Information Technology—Test Methods for Measuring Conformance to POSIX—Part 1: System Interfaces, but is included for information only.)

This standard provides a definition of the requirements placed upon providers of a POSIX test method for the POSIX.1 {3} that are to be tested and the associated test methods that are to be used in performing those tests. This document is aimed primarily at POSIX.1 {3} test suite providers and POSIX.1 {3} implementors.this document specifies those aspects of the standard that shall be verified by conformance test methods.

Organization of This Standard

This document is organized into three portions:

1) Statement of scope, normative references, conformance requirements, and test methods (Section 1.)
2) Conventions and definitions (Section 2.)
3) Assertions to test POSIX.1 {3} interface facilities (Section 2. through 10.)

This introduction, any footnotes, notes accompanying the text, and the *informative* annexes are not considered part of this standard. Annexes A and B are informative.

Related Standards Activities

Activities to extend this stardard to address additional requirements are in progress, and similar efforts can be anticipated in the future.

The following areas are under active consideration at this time, or are expected to become active in the near future:[1]

1) Language-independent service descriptions of POSIX.1 {3}
2) C, Ada, and Fortran language bindings to (1)
3) Verification testing methods
4) Realtime facilities
5) Secure/Trusted System considerations
6) Network interface facilities
7) System Administration
8) Graphical User Interfaces
9) Profiles describing application- or user-specific combinations of Open Systems standards for: supercomputing, multiprocessor, and batch extension; transaction processing; realtime systems; and multiuser systems based on historical models
10) An overall guide to POSIX-based or related Open Systems standards and profiles

Extensions are approved as “amendments” or “revisions” to this document, following IEEE and ISO/IEC procedures.

Approved amendments are published separately until the full document is reprinted and such amendments are incorporated in their proper positions.

If you have an interests in participating in the TCOS working groups addressing these issues, pleasse send your name, address, and phone number to the Secretary, IEEE Standards Board, Institute of Electrical and Electronics Engineers, Inc., P.O. Box 1331, 445 Hoes Lane, Piscataway, NJ 08855-1331, and ask to have this forwarded to the chairperson of the appropriate TCOS working group. If you have interest in participating in this work at the international level, contact your ISO/IEC national body.

[1]A *Standards Status Report* that lists all current IEEE Computer Society standards projects is available from the IEEE Computer Society, 1730 Massachusetts Avenue NW, Washington, DC 20036-1903; Telephone: +1 202 371-0101; FAX: +1 202 728-9614.

IEEE Std 2003.1-1992 was prepared by the P2003.1 working group, sponsored by the Technical Committee on Operating Systems and Application Environments of the IEEE Computer Society. At the time this standard was approved, the membership of the P2003.1 working group was follows:

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With the recommendation and endorsement of the standard developers, this standard is dedicated to the Nicholas Ray Wilkes, who served as vice-chair of IEEE Std 1003.3-1991.

CLAUSE PAGE

INTERNATIONAL STANDARD ISO/IEC 14515-1:2000(E)

Information technology—Portable Operating System Interface (POSIX®)—Test methods for measuring conformance to POSIX—Part 1: System interfaces

1. General

1.1 Scope

This standard defines the general requirements and test methods for measuring conformance to ISO/IEC 9945-1 :1990 (IEEE Std 1003.1-1990) hereinafter referred to as "POSIX.1" {3}.[1] It also defines the test assertions for measuring conformance to POSIX.1 {3}.

This standard is intended for use by

- Developers of POSIX.1 {3} test methods;
- Implementors of POSIX.1 {3} implementations;
- Application writers for POSIX.1 {3} conforming implementations;
- POSIX.1 {3} testing laboratories; and
- Others interested in validating the conformance of a vendor-claimed POSIX.1 {3} implementation

The purpose of this standard is to specify the test assertions and related test methods for measuring conformance of an implementation to POSIX.1 {3}.

Testing conformance of an implementation to a standard includes testing the claimed capabilities and behavior of the implementation with respect to the conformance requirements of the standard. These test methods are intended to provide a reasonable, practical assurance that the implementation conforms to the standard. Use of these test methods will not guarantee conformance of an implementation to POSIX.1 {3}; that normally would require exhaustive testing, which is impractical for both technical and economic reasons.

The technical specifications for a POSIX System Application Program Interface are defined in POSIX.1 {3}. IEEE Std 2003.1-1992 defines a means of measuring conformance to the POSIX.1 {3} technical specifications. Any question of

[1]The numbers in curly braces correspond to those of the references in 1.2.

interpretation of those technical specifications arising from the use of this standard is a question of interpretation of POSIX.1 {3}.

1.2 Normative References

The following standards contain provisions that, through references in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

{1}ISO/IEC 646: 1991 [2] *Information technology—ISO 7-bit coded character set for information interchange.*

{2}ISO/IEC 9899: 1990 *Information technology—Programming languages—C.*

{3}ISO/IEC 9945-1:1990 (IEEE Std 1003.1-1990) [3] *Standard for Information Technology—Portable Operating System Interface (POSIX)—Part 1: System Application Program Interface (API) [C Language].*

{4}IEEE Std 1003.3-1991 *IEEE Standard for Information Technology—Test Methods for Measuring Conformance to POSIX.*

[2]ISO/IEC documents can be obtained from the ISO office, 1, rue de Varembé, Case Postale 56, CH-1211, Genève 20, Switzerland/Suisse.
[3]IEEE documents can be obtained from the The Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, New York 10017, USA.