Product Standard

Operating System and Languages:

Internationalized System Calls and Libraries Extended V3

The Open Group

Product Standard

Operating System and Languages: Internationalized System Calls and Libraries Extended V3

Document Number: X03SD

Published in the U.K. by The Open Group, April 2003.

Any comments relating to the material contained in this document may be submitted to:

    The Open Group
    Apex Plaza
    Forbury Road
    Reading
    Berkshire, RG1 1AX
    United Kingdom

or by Electronic Mail to:

    OGSpecs@opengroup.org

Product Standard

NAME

Internationalized System Calls and Libraries Extended V3

LABEL FOR LOGO

No label.

DESCRIPTION

This Product Standard is the foundation for conformance to the UNIX 03 Product Standard. It is a substantially enhanced version of the Internationalized System Calls and Libraries Extended V2 Product Standard, which is the foundation for the UNIX 98 Product Standard. It is updated to align with The Open Group Base Specifications, Issue 6, which are technically identical to IEEE Std 1003.1-2001 and ISO/IEC 9945: 2002.[1]

The principal enhancements are as follows:

- Alignment of interfaces with ISO/IEC 9899: 1999 (C Language)[2]

- Addition of new functionality for alignment with ISO/IEC 9899: 1999

- Addition of Networking interfaces, including the Sockets interface and Address Resolution interfaces, and optional support for the Internet Protocol, Version 6 (IPv6); these are incorporated from XNS, Issue 5.2[3]

- Incorporation of corrections and additions to the core POSIX system interfaces derived from the P1003.1a[4] draft standard

- Incorporation of realtime interfaces from IEEE Std 1003.1d-1999[5] and IEEE Std 1003.1j-2000,[6] including barriers, monotonic clock support, typed memory, advisory information, spawn functions, timeout functions, and spin locks

_____

1. IEEE Std 1003.1-2001, IEEE Standard for Information Technology — Portable Operating System Interface (POSIX), identical to ISO/IEC 9945: 2002.

2. ISO/IEC 9899: 1999, Programming Languages — C.

3. Technical Standard, January 2000, Networking Services (XNS), Issue 5.2 (ISBN: 1-85912-241-8, C808), published by The Open Group.

4. P1003.1a, Standard for Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) — (C Language) Amendment.

5. IEEE Std 1003.1d-1999, IEEE Standard for Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) — Amendment 4: Additional Realtime Extensions [C Language].

6. IEEE Std 1003.1j-2000, IEEE Standard for Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) — Amendment 5: Advanced Realtime Extensions [C Language].

- Incorporation of a tracing facility from IEEE Std 1003.1q-2000[7]

- Incorporation of parts of IEEE Std 1003.1g-2000,[8] notably the *pselect*( ) and *sockatmark*( ) functions, and the **<sys/socket.h>** header.

- Incorporation of corrections arising from IEEE PASC Interpretations and The Open Group Corrigenda and Resolutions

The following Option Groups are defined:

- Realtime (derived originally from the POSIX Realtime Extension and the IEEE Std 1003.1i Technical Corrigendum[9])

- Realtime Threads

- Advanced Realtime

- Advanced Realtime Threads

- Encryption

- Legacy

- XSI STREAMS

CONFORMANCE REQUIREMENTS

Human-Computer Interface

Base Definitions, Issue 6,[10] Section 6.1, Portable Character Set, Table 6-1, Portable Character Set.

Portability Interface

System Interfaces, Issue 6[11] and Base Definitions, Issue 6, with the following Option Groups defined as optional:

- Realtime

- Realtime Threads

- Advanced Realtime

- Advanced Realtime Threads

- Encryption

- Legacy

- XSI STREAMS

—————————

7. IEEE Std 1003.1q-2000, IEEE Standard for Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) — Amendment 7: Tracing [C Language].

8. IEEE Std 1003.1g-2000, IEEE Standard for Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) — Amendment 6: Protocol-Independent Interfaces (PII).

9. ANSI/IEEE Std 1003.1b-1993 and 1003.1i-1995, incorporated in ISO/IEC 9945-1: 1996 (POSIX-1).

10. Technical Standard, December 2002, Base Definitions, Issue 6 (ISBN: 1-931624-18-6, C954), published by The Open Group.

11. Technical Standard, December 2002, System Interfaces, Issue 6 (ISBN: 1-931624-19-4, C955), published by The Open Group.

Programming Language Environment

C Language. Dialect ISO C. ISO C source programs invoking the services of this Product Standard must be supported by the registered product.

Interoperability

- Data Interchange Formats

  None.

- Communications Interfaces and Protocols

  Products conforming to this Product Standard shall be available in configurations that support the following socket domains:

  — AF_INET, with at least the SOCK_STREAM and SOCK_DGRAM socket types

  — AF_UNIX, with at least the SOCK_STREAM socket type

  Guidance on the Internet Protocol Suite, required for support of AF_INET domain sockets, may be found in the Guide to the Internet Protocol Suite.[12]

OPERATIONAL ENVIRONMENT

Not applicable.

PORTABILITY ENVIRONMENT

None.

OVERRIDING STANDARDS

The Base Specifications, Issue 6 are technically identical to IEEE Std 1003.1-2001 and ISO/IEC 9945: 2002 (they are the same documents) and are maintained by the Austin Group, a joint working group of the IEEE, The Open Group, and ISO/IEC SC22 WG15.[13]

ISO/IEC 9899: 1999 (C Language)

This Product Standard is also fully aligned with the former NIST FIPS 151-2,[14] although it does not defer to it. All the NIST FIPS 151-2 options are mandated by this Product Standard.

----

12. Guide, April 1991, Guide to the Internet Protocol Suite (ISBN: 1-872630-08-1, G110), published by The Open Group.

13. The referenced Technical Standards were developed by the Austin Group, and are technically identical to IEEE Std 1003.1-2001 and ISO/IEC 9945: 2002. IEEE Std 1003.1-2001 supersedes both IEEE Std 1003.1-1990 and its amendments and IEEE Std 1003.2-1992 and its amendments.

   The organization of IEEE Std 1003.1-2001 and ISO/IEC 9945: 2002 is as a series of volumes and parts, respectively. The correspondence of the volumes and parts to The Open Group Technical Standards is shown below:

The Open Group Technical Standard	IEEE Std 1003.1-2001	ISO/IEC 9945: 2002
Base Definitions, Issue 6	Base Definitions Volume of IEEE Std 1003.1-2001	ISO/IEC 9945-1: 2002
System Interfaces, Issue 6	System Interfaces Volume of IEEE Std 1003.1-2001	ISO/IEC 9945-2: 2002
Shell and Utilities, Issue 6	Shell and Utilities Volume of IEEE Std 1003.1-2001	ISO/IEC 9945-3: 2002
Rationale, Issue 6	Rationale Volume of IEEE Std 1003.1-2001	ISO/IEC 9945-4: 2002

14. Federal Information Procurement Standards (FIPS) 151-2, Portable Operating System Interface (POSIX)— Part 1: System Application Program Interface (API) [C Language]. Now withdrawn.

INDICATORS OF COMPLIANCE

Test reports for the Portability Interface from currently authorized releases of the VSX4, VSX5, VSU5, and VSTH Test Suites, and the read-write locks section of the VSART Test Suite, and optionally:

- If the product supports the Realtime Option Group, a test report is also required from the VSRT Test Suite.

- If the product supports the Tracing Option Group, a test report is also required from the VSTRC Test Suite.

- If the product supports either the Advanced Realtime Option Group or the Advanced Realtime Threads Option Group, then test reports from both the VSART and VSRTE Test Suites are also required.

MIGRATION

As this Product Standard is primarily a superset of Internationalized System Calls and Libraries Extended V2, there are very few incompatibility issues in migrating applications from systems registered as conformant to the Internationalized System Calls and Libraries Extended V2 Product Standard, unless they use the functionality associated with XSI STREAMS which is now an option in this Product Standard, and thus may not be available on all systems.

The few incompatibilities arise from alignment with the ISO C standards and the withdrawal of interfaces and features marked as obsolescent or legacy in System Interfaces and Headers, Issue 5.[15]

Detailed migration information can be found in The Authorized Guide to Version 3 of the Single UNIX Specification.[16]

––––––––––––––

15. Technical Standard, February 1997, (System Interfaces and Headers (XSH), Issue 5 (ISBN: 1-85912-181-0, C606), published by The Open Group.

16. The Single UNIX Specification, Authorized Guide to Version 3, March 2002 (ISBN: 1-85912-277-9, G906), published by The Open Group.