Product Standard

Operating System and Languages:
Internationalized System Calls and Libraries Extended V2

The Open Group

Copyright © January 1998, The Open Group

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owners.

Motif,® OSF/1,® UNIX,® and the ‘‘X Device’’® are registered trademarks and IT DialTone™ and The Open Group™ are trademarks of The Open Group in the U.S. and other countries.

Product Standard

Operating System and Languages: Internationalized System Calls and Libraries Extended V2

Document Number: X98SI

Published in the U.K. by The Open Group, January 1998.

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
U.K.

Or by email to:

OGSpecs@opengroup.org

Product Standard

NAME

Internationalized System Calls and Libraries Extended V2

LABEL FOR LOGO

No label.

DESCRIPTION

This Product Standard is the foundation for conformance to the UNIX 98 Product Standard. It is a substantially enhanced version of the Internationalized System Calls and Libraries Extended Product Standard, which is the foundation for the UNIX 95 Product Standard.

The principal enhancements are as follows:

- Threads interfaces, fully aligned with the POSIX Threads Extension,[1] together with a set of X/Open-defined threads extensions.
- Multibyte Support Extension (MSE), aligned with ISO/IEC 9899:1990/Amendment 1:1995 (E),[2] to further support internationalized applications.
- Large File Support extensions to permit UNIX systems to support files of arbitrary sizes.
- Dynamic Linking extensions to permit applications to share common code.
- Changes to remove any hardware data-length dependencies or restrictions. This is known as Data Size Neutral (or N-bit clean). It is of particular relevance to the ongoing move to 64-bit CPUs.
- Year 2000 changes to minimize the impact of the millennium rollover.
- The interfaces previously defined in the Shared Memory, Enhanced Internationalization, and the POSIX2 C-Language Binding Feature Groups are now mandatory in System Interfaces and Headers, Issue 5.[3] This is not a change, since the Internationalized System Calls and Libraries Extended Product Standard already required that these Feature Groups be supported.

---

1. ANSI/IEEE Std. 1003.1c-1995, incorporated in ISO/IEC 9945-1:1996 (POSIX-1).
2. ISO/IEC 9899:1990, Programming Languages — C, including Amendment 1:1995, Multibyte Support Extension (MSE) for ISO C.
3. CAE Specification, January 1997, System Interfaces and Headers, Issue 5 (ISBN: 1-85912-181-0, C606).

Four optional Feature Groups are defined:

- Realtime (aligned with the POSIX Realtime Extension and the 1003.1i technical corrigendum[4])
- Realtime Threads
- Encryption
- Legacy

CONFORMANCE REQUIREMENTS

Human-Computer Interface

System Interface Definitions, Issue 5,[5] Section 4.1, Portable Character Set, Table 4-1, glyphs.

Portability Interface

System Interfaces and Headers, Issue 5 and System Interface Definitions, Issue 5, with the following Feature Groups defined as optional:

- Realtime
- Realtime Threads
- Encryption
- Legacy

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

  None.

4. ANSI/IEEE Std. 1003.1b-1993 and 1003.1i-1995, incorporated in ISO/IEC 9945-1:1996 (POSIX-1).
5. CAE Specification, January 1997, System Interface Definitions, Issue 5 (ISBN: 1-85912-186-1, C605).

OPERATIONAL ENVIRONMENT

Not applicable.

PORTABILITY ENVIRONMENT

None.

OVERRIDING STANDARDS

ISO/IEC 9945-1: 1996 (POSIX-1).[6]

ISO/IEC 9945-2: 1993 (POSIX-2)[7] for the POSIX-2 C Language binding calls.

ISO/IEC 9899: 1990 (C Language).[8]

This Product Standard is also fully aligned with NIST FIPS 151-2,[9] although it does not defer to it. All the NIST FIPS 151-2 options are mandated by this Product Standard.

INDICATORS OF COMPLIANCE

Test Reports for the Portability Interface from currently authorized releases of the VSX4, VSX5, VSU5, and VSTH Test Suites. Also, the VSRT Test Suite if the product supports the Realtime Feature Group.

MIGRATION

As this Product Standard is primarily a superset of Internationalized System Calls and Libraries Extended, there are very few incompatibility issues in migrating applications from systems registered as conformant to the Internationalized System Calls and Libraries Extended Product Standard. The few incompatibilities arise from alignment with the formal standards.

Detailed migration information can be found in Go Solo 2.[10]

---

6. ISO/IEC 9945-1: 1996, Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) [C Language] (identical to ANSI/IEEE Std 1003.1-1996). Incorporating ANSI/IEEE Stds 1003.1-1990, 1003.1b-1993 (Realtime), 1003.1c-1995 (Threads) and 1003.1i-1995 (also Realtime).
7. ISO/IEC 9945-2: 1993, Information Technology — Portable Operating System Interface (POSIX) — Part 2: Shell and Utilities, User Portability Extension (identical to IEEE Std. 1003.2-1992).
8. ISO/IEC 9899: 1990, Programming Languages — C (technically identical to ANSI standard X3.159-1989), including Amendment 1: 1995, Multibyte Support Extension (MSE) for ISO C.
9. Federal Information Procurement Standards (FIPS) 151-2.
10. Go Solo 2, May 1997 (ISBN: 0-13-575689-8, X909P).