

Product Standard

**Operating System and Languages:
COE Linux Platform Specifications**

The Open Group

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Product Standard

NAME

COE Linux Platform Specifications

LABEL FOR LOGO

No label.

DESCRIPTION

This Product Standard covers the specifications for which a COE Linux Platform should be demonstrated as being in conformance. An application executing on a conforming COE Linux Platform implementation shall have simultaneous access to all services associated with these standards.

CONFORMANCE REQUIREMENTS

A COE Linux Platform implementation shall be in conformance with the following specifications and requirements.

Human-Computer Interface

- Graphical User Interface:
 - GNOME Human Interface Guidelines, Version 1.0, available at:
<http://developer.gnome.org/projects/gup/hig/1.0>

The following general requirements shall apply:

- The system shall establish global settings for the *XFONTSDIR*, *XAPPLRESDIR*, and *XENVIRONMENT* environment variables.
- The system shall include an HTML browser that supports HTML 3.2. The system browser shall strictly comply with the COE User Interface Specifications¹ for web applications.
- The system browser shall strictly comply with the COE User Interface Specifications, and support the features provided to disadvantaged users from the COE User Interface Specifications.
- The system shall include documentation including manual pages, help files, or HTML-format pages for distribution with the COE Developer's Toolkit.

1. COE User Interface Specifications, Version 4.0, 6 October 1999, CM 27986.

- Command Line Interface:
 - Linux Standard Base Specification 1.3: Section VIII, Commands and Utilities and Section IX, Standard Shell

Portability Interface

- Operating System API:
 - Linux Standard Base Specification 1.3: Section IV, Base Libraries
 - Linux Standard Base Specification 1.3 for *{applicable processor architecture}*: Section V, Base Libraries

The following restrictions on systems implementing the Linux Standard Base are required by this Product Standard for alignment with the former FIPS 151-2² standard:

- a. Implementations shall provide C Standard Language-Dependent System Support (ISO/IEC 9899: 1999, Programming Languages — C) [See ISO/IEC 9945-1: 1996,³ Subclause 1.3.3]
- b. Implementations shall define the ISO/IEC 9945-1: 1996 environment variable, *HOME*, in the environment for the login shell. [See ISO/IEC 9945-1: 1996, Subclause 2.6]
- c. Implementations shall define the ISO/IEC 9945-1: 1996 environment variable, *LOGNAME*, in the environment for the login shell. [See ISO/IEC 9945-1: 1996, Subclause 2.6]
- d. Implementations shall support the ISO/IEC 9945-1: 1996 runtime increasable value, *{NGROUPS_MAX}*, such that the value of *{NGROUPS_MAX}* is greater than or equal to eight (8). [See ISO/IEC 9945-1: 1996, Subclause 2.8.3]
- e. Implementations shall support a minimum value of 25 for the ISO/IEC 9945-1: 1996 variable *{CHILD_MAX}*. [See ISO/IEC 9945-1: 1996, Subclause 2.8.4]
- f. Implementations shall support a minimum value of 20 for the ISO/IEC 9945-1: 1996 variable *{OPEN_MAX}*. [See ISO/IEC 9945-1: 1996, Subclause 2.8.4]
- g. Implementations shall support the functionality associated with *_POSIX_JOB_CONTROL* being defined. [See ISO/IEC 9945-1: 1996, Subclause 2.9.3]
- h. Implementations shall support the functionality associated with *_POSIX_SAVED_IDS* being defined. [See ISO/IEC 9945-1: 1996, Subclause 2.9.3]

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

3. ISO/IEC 9945-1: 1996, Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) [C Language].

- i. Implementations shall support the functionality associated with `_POSIX_CHOWN_RESTRICTED` being defined with a value other than `-1`.
[See ISO/IEC 9945-1: 1996, Subclause 2.9.4]
- j. Implementations shall support the functionality associated with `_POSIX_NO_TRUNC` being defined with a value other than `-1`.
[See ISO/IEC 9945-1: 1996, Subclause 2.9.4]
- k. Implementations shall support the functionality associated with the setting of the group ID of a file (when it is created) to that of its parent directory.
[See ISO/IEC 9945-1: 1996, Subclause 5.3.1.2, 5.4.1.2, and 5.4.2.2]
- l. Implementations shall support, for terminal devices, the functionality associated with an interrupted `read()`, such that the return from `read()` when interrupted by a signal after successfully reading some data returns the number of bytes the system has read.
[See ISO/IEC 9945-1: 1996, Subclause 6.4.1.2]
- m. Implementations shall support, for terminal devices, the functionality associated with an interrupted `write()`, such that the return from `write()` when interrupted by a signal after successfully writing some data returns the number of bytes the system has written.
[See ISO/IEC 9945-1: 1996, Subclause 6.4.2.2]
- n. Implementations shall support the functionality associated with the symbols `CS7`, `CS8`, `CSTOPB`, `PARODD`, and `PARENB` defined for asynchronous general terminal interface devices.
[See ISO/IEC 9945-1: 1996, Subclause 7.1.2.4]

Implementations are not required to support, and Strictly Conforming COE Linux Platform Applications shall not depend on, the presence of any of the options described in ISO/IEC 9945-1:1996, Subclause 2.9.3, with the exception of `_POSIX_JOB_CONTROL` and `_POSIX_SAVED_IDS`.

- Communications Service API:

The RPC, Sockets Interfaces, and IP Address Resolution Interfaces defined in:

- Linux Standard Base Specification 1.3: Section IV, Base Libraries
- Linux Standard Base Specification 1.3 for *{applicable processor architecture}*: Section V, Base Libraries

- Human-Computer Interaction API:

- Linux Standard Base Specification 1.3: Section VI, Graphics Libraries (`libX11`, `libXext`, `libSM`, `libICE`, `libXt`, `libGL`, `libICE`)
- CAE Specification, May 1995, Window Management (X11R5): X Lib - C Language Binding (ISBN: 1-85912-088-1, C508), published by The Open Group
- CAE Specification, May 1995, Window Management (X11R5): X Toolkit Intrinsic (ISBN: 1-85912-089-X, C509), published by The Open Group
- CAE Specification, May 1995, Window Management (X11R5): File Formats and Applications Conventions (ISBN: 1-85912-090-3, C510), published by The Open Group

Programming Language Environment

Not applicable.

Interoperability

A COE Linux Platform implementation shall be in conformance with the following Communications Service Interface specifications and meet the requirements listed:

- IETF Standard No. 3:
 - IETF RFC 1122, Requirements for Internet Hosts — Communication Layers, October 1989
 - IETF RFC 1123, Requirements for Internet Hosts — Application and Support, October 1989

- IETF Standard No. 7:
 - IETF RFC 793, Transmission Control Protocol, September 1981

In addition, TCP shall implement the PUSH flag and the Nagle Algorithm as defined in IETF Standard No. 3.

- IETF RFC 2001, TCP Slow Start, Congestion Avoidance, Fast Retransmit, and Fast Recovery Algorithms, January 1997

- IETF Standard No. 6:
 - IETF RFC 768, User Datagram Protocol, August 1980

The system shall support the UDP protocol such that broadcasts do not interfere with the unrelated behavior of the system.

- IETF Standard No. 5:
 - IETF RFC 791, Internet Protocol, September 1981
 - IETF RFC 950, Internet Standard Subnetting Procedure, August 1985
 - IETF RFC 919, Broadcasting Internet Datagrams, October 1984
 - IETF RFC 922, Broadcasting Internet Datagrams in the Presence of Subnets, October 1984
 - IETF RFC 792, Internet Control Message Protocol, September 1981
 - IETF RFC 1112, Host Extensions for IP Multicasting, August 1989

In addition, all implementations of IP must pass received Type-of-Service (TOS) values up to the transport layer as defined in IETF Standard No. 3.

The following general requirements for the Internet Protocol apply:

- The system shall not require non-standard hostname conventions.
 - The system shall not require any specific IP configuration.
 - The system shall explicitly specify all network services by service name (conventionally in the **/etc/services** file). The system shall not provide any service that is not specified explicitly by name, and all services shall be available by name.
 - The system shall not rename well-defined ports or declare new port names which have the same port number as well-defined ports in the **/etc/services** file or its equivalent.
- IETF Standard No. 13:
 - IETF RFC 1034, Domain Names — Concepts and Facilities, November 1987

- IETF RFC 1035, Domain Names — Implementation and Specification, November 1987
- A system may support IETF RFC 2136, Dynamic Updates in the Domain Name System (DNS Update), April 1997.
 - If the system supports DNS, the system shall be configured to use DNS.
- Remote file system support over Network File System, as both a server and client, as specified in IETF RFC 3010, Network File System (NFS) Version 4 Protocol, December 2000.
- If the system does not support the DNS protocol, the system shall not be affected by the protocol's environmental presence.
- Hypertext Protocol Transfer Services:
 - A conforming system provides a World Wide Web document server using the HTTP protocol. It supports service of documents over both the HTTP protocol, and HTTP encapsulated within the Secure Sockets Layer (SSL) Protocol.
 - IETF RFC 1738, Uniform Resource Locators (URL), December 1994
 - IETF RFC 2616, Hypertext Transfer Protocol — HTTP/1.1, June 1999
 - Secure Sockets Layer (SSL V3.0) Protocol, with support for X.509 certificates
- Print Services based on the Internet Printing Protocol (IPP) specifications:
 - IETF RFC 2911, Internet Printing Protocol/1.1: Model and Semantics, September 2000
 - IETF RFC 2910, Internet Printing Protocol/1.1: Encoding and Transport, September 2000
 - IETF RFC 2569, Mapping between LPD and IPP Protocols, April 1999

OPERATIONAL ENVIRONMENT

Not applicable.

PORTABILITY ENVIRONMENT

Not applicable.

OVERRIDING STANDARDS

Where alternate specifications are called out in the Linux Standard Base specifications, the international standards in the specification shall take precedence.

INDICATORS OF COMPLIANCE

The following lists the Indicators of Compliance for the constituent parts of this Product Standard. In some instances where more than one Indicator of Compliance is available, there are acceptable alternatives listed.

- Human-Computer Interface
 - No test at the present time. It is anticipated that in the future additional tests will be introduced in this area.
- Operating System API
 - An LSB 1.2 or 1.3 Certificate

- Human-Computer Interaction API

Either:

- The Open Group Open Brand Certification for the X Window System

or:

- A Test Report from the latest authorized version of the VSW5 Test Suite with an accompanying Conformance Statement

- Interoperability

- A report from the Network File System (NFS) Validation Procedure

- A report from the World Wide Web (WWW) Interoperability Demonstration Validation Procedure

- A report from the File Transfer Protocol (FTP) Interoperability Demonstration Validation Procedure

- A report from the Simple Mail Transport Protocol (SMTP) Interoperability Demonstration Validation Procedure

MIGRATION

Not applicable.