

IEEE Standards Interpretations for IEEE Std 1003.2-1992

Circuits and Devices

Communications Technology

IEEE Computer Society

Sponsored by the
Portable Applications Standards Committee

*Electromagnetics and
Radiation*

Energy and Power

Industrial Applications

*Signals and
Applications*

*Standards
Coordinating
Committees*

IEEE Std 1003.2-1992/INT, March 1994 Edition



Published by the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017, USA.

May 2, 1994

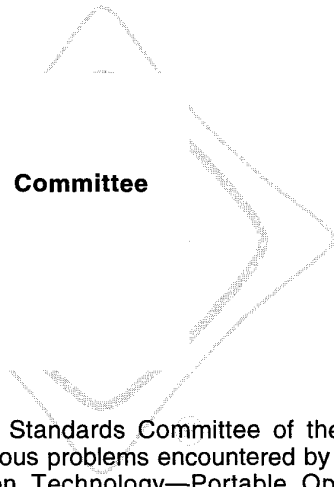
SH17178

IEEE Standards Interpretations

for IEEE Std 1003.2-1992

Sponsor

**Portable Applications Standards Committee
of the
IEEE Computer Society**



Abstract: The Portable Applications Standards Committee of the IEEE Computer Society carried out a series of analyses of various problems encountered by users of IEEE Std 1003.2-1992, IEEE Standard for Information Technology—Portable Operating System Interface (POSIX)—Part 2: Shell and Utilities. The results of its deliberations are presented in this document. The intent is to give the POSIX community reasonable ways of interpreting unclear portions of the standard.

Keywords: computer, computer environments, interfaces, interpretations, portable operating system interface, POSIX, shell, utilities

The Institute of Electrical and Electronics Engineers, Inc.
345 East 47th Street, New York, NY 10017-2394, USA

Copyright © 1994 by the Institute of Electrical and Electronics Engineers, Inc.
All rights reserved. Published 1994. Printed in the United States of America.

ISBN 1-55937-411-X

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.



Full document details: IEEE 1003.2/INT-1994

IEEE Standards Interpretations

Occasionally, questions may arise regarding the meaning of portions of standards as they relate to specific applications. Such requests for interpretations should ask for clarifications of the exact nature of the contents of the standard.

Questions relating to such interpretations are reviewed and evaluated by a balance of members representing the specific committee interests. This officially formed interpretations subgroup creates and circulates a draft interpretation among its members. It transmits a final interpretation to the party initiating the request only after consensus has been achieved. The interpretation is also given to the standards-developing committee to consider addressing it in a supplement or the next revision to the standard.

Interpretations are issued to explain and clarify the intent of the standard and are not intended to constitute an alteration to the original standard or to supply consulting information. The interpretations subgroup cannot make new rules to fit situations not yet covered in the standard, even if the investigations of the subgroup lead it to conclude that the requirement is incomplete or in error. Changes to the standard are made only through revisions or supplements to the standard.

It is recognized that requests are frequently received that are partially or totally requests for information rather than requests for an interpretation. It is inappropriate to issue an official interpretation to answer such requests. The interpretations subgroup may, however, find from its research that the literal printing of the standards text is not identical to that approved by the standards developers and may issue an editorial correction as a part of its interpretation.

The original interpretations requests in this document have been lightly edited to remove extraneous matter and to focus on the problem presented. Some illustrations have been redrawn for publication. With these exceptions, requests are in the form received.



Procedure for Requesting an Interpretation

Requests for interpretations should be addressed to

Secretary, IEEE Standards Board
IEEE Standards Department
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331

Requests for interpretations should include

- a) The specific designation of the standard, including the year of publication.
- b) The specific subsection being questioned.
- c) The applicable conditions for the case in question.

Line drawings should be black ink or excellent black pencil originals. Photos should be black-and-white glossy prints. These illustrations must be reproduced for committee circulation and eventually will be used to supplement the text of the next edition. Clear diagrams and pictures will make the work of interpretation easier and more valuable to users.

Requests, including all supplementary material, must be in a form that is easily reproducible. If suitable for consideration, requests will be sent to the interpretations subgroup. After consideration by the subcommittee, which may involve many exchanges of correspondence, the inquirer will be notified of the decision of the subgroup. Decisions will be published from time to time in cumulative form and may be ordered from the IEEE.

Introduction

After approval and publication of a standard, questions may arise regarding the meaning of portions of standards as they relate to users of the standard. In the case of IEEE Std 1003.2-1992, these questions arose from both system implementors and application authors. When a need for interpretation is brought to the attention of the IEEE, the Institute initiates action to prepare appropriate responses.

IEEE Std 1003.2-1992 (POSIX.2) was developed by the Portable Applications Standards Committee (PASC) of the IEEE Computer Society. Each interpretation request is forwarded to the members of the PASC interpretations group and a subgroup is invited to generate a draft interpretation for review. The draft interpretation is made available to the whole interpretations group for review and comment. When consensus has been reached within the interpretations group, the IEEE transmits the final interpretation to the party initiating the request.

It is recognized that requests are frequently received that are partially or totally requests for information rather than requests for interpretation. The IEEE considers it inappropriate to issue an official interpretation to answer such requests. This includes requests for advice as to the means by which particular facilities described in the standard could be implemented.

Every IEEE standard is subjected to review at least every five years for revision or reaffirmation. The revision process takes input from a wide variety of sources in order to develop a revised standard. One of these sources is the interpretations that have been issued against the extant version of the standard. It is not to be expected that the text of the interpretation will appear in the revised standard, but rather that the revision will address the issues raised by the interpretation request through the consensus process. The revision process is allowed to resolve ambiguities in the original standard through textual change; this capability is not allowed within the interpretations process.

This document contains a compilation of all of the interpretations completed against IEEE Std 1003.2-1992 as of February 1994. The IEEE will provide details of interpretation requests received that have not yet appeared in a publication. Where a formal interpretation has been completed, this will include the text of the interpretation.

At the time that this compilation of interpretations was published, the following members had participated in the IEEE Std 1003.2-1992 interpretations group:

Portable Applications Standards Committee

Chair:	Jim Isaak
Vice-Chair, Interpretations:	Andrew Josey

Keith Bostic	Eric Horner	David Rowley
Mark Brown	Hal Jespersen	Thomas Shem
Dawn Burnett	William King	Scott Sutter
Don Cragun	Bob Korn	Marc Teitelbaum
Dave Decot	David Korn	Alex White
John Farley	Shane McCarron	David Willcox
Mark Funkenhauser	Gary Miller	David Williams
Jeff Haemer	Martha Nalebuff	Jeff Zado

Mary Lynne Nielsen
IEEE Standards Project Editor

iii



IEEE

Interpretation Number: 1
Topic: Symbolic limit macros
Relevant Clauses: 2.13
Classification: Editorial defect

Interpretation request

In B.2, the standard states:

The following subclauses list the names of macros that C-language applications can use to obtain minimum and current values for limits defined in 2.13.1.

Then in B.2.3, Table B-5 lists C-language macros with names strikingly similar to POSIX.2 optional facility configuration parameters, defined in 2.13.2. Table B-5 misses the configuration parameter {POSIX2_C_BIND}.

Is the intent of the standard that all the variables in 2.13.2 as well as 2.13.1 should have corresponding variables in the C binding, since seven of these variables are listed in Table B-5?

Interpretation for IEEE Std 1003.2-1992

As the standard does not list `_POSIX2_C_BIND` among the symbols in Table B-5, a conforming implementation is not required to support this symbol in the manner described by B.2.3. This should not be construed to prohibit conforming implementations from supporting `_POSIX2_C_BIND` in the manner described, as an extension. Concerns about this are being referred to the sponsor.

Rationale for interpretation

In B.2, the intent of the standard is made clear, that the symbols from 2.13.1 are to be listed here as well. It appears that the exclusion of this one symbol is an editing defect in the standard.

Interpretation Number: 2
Topic: Regular expressions (REs)
Relevant Clauses: B.5.2
Classification: No change required

Interpretation request

In B.5.2, the standard states that the *re_nsub* member of the *regex_t* structure represents the number of parenthesized subexpressions found in *pattern*.

The standard then states (page 728, lines 328–336) that

the *pmatch* argument shall point to an array with at least *nmatch* elements, and *regexexec()* shall fill in the elements of that array with offsets of the substrings of *string* that correspond to the parenthesized subexpressions of *pattern*: The byte offset of the beginning shall be *pmatch[i].rm_so*, and *pmatch[i].rm_eo* shall be one greater than the byte offset of the end of substring *i*. (Subexpression *i* begins at the *i*th matched open parenthesis, counting from 1.) Offsets in *pmatch[0]* shall identify the substring that corresponds to the entire regular expression.

Thus, if *pmatch[]* contains *nmatch* elements, it can only hold *nmatch*–1 parenthesized subexpressions of *string*, since *pmatch[0]* represents the entire regular expression.

The standard also states that “if there are more than *nmatch* subexpressions in *pattern* (*pattern* itself counts as a subexpression), then *regexexec()* [...] shall record only the first *nmatch* substrings.”

Lines 336–338 appear to contradict lines 328–336; the latter talks about parenthesized subexpressions, while the former mentions plain subexpressions. Is the intent of the standard to allow the *re_nsub* member to include the subexpression representing the entire regular expression in the count (since it is considered a subexpression on page 728, lines 328–336), or does it only count explicitly parenthesized subexpressions? This may be the easiest way to rectify the ambiguity.

Interpretation for IEEE Std 1003.2-1992

The subexpression representing the entire RE is to be included in the count represented in the *re_nsub* member. No change in wording is necessary.

Rationale for interpretation

The section quoted in the request contains the phrase “(*pattern* itself counts as an expression),” which the committee considers key to interpreting this apparent conflict.

Interpretation Number: 3
Topic: dd
Relevant Clauses: 4.16.2
Classification: Ambiguous

Interpretation request

In 4.16 (page 245, lines 3053–3054), the standard states that “if the `swab` conversion is specified, each pair of input data bytes shall be swapped. If there are an odd number of bytes in the input block, the results are unspecified.”

Then, on page 247, lines 3133–3135, the standard contradicts itself, saying the `swab` conversion means “swap every pair of input bytes. If the current input record is an odd number of bytes, the last byte in the input record shall be ignored.”

Which of these two passages is valid?

Interpretation for IEEE Std 1003.2-1992

This is a conflict in the standard (and neither section matches historical practice). In this case, the implementation is allowed to choose either behavior. Concerns about this have been referred to the sponsor of the standard for possible amendment.

Rationale for interpretation

None.

Interpretation Number: 4
Topic: dd
Relevant Clauses: 4.16.4
Classification: Ambiguous

Interpretation request

In 4.16.4, the standard states that the `conv=swab` conversion should “swap every pair of bytes. If the current input record is an odd number of bytes, the last byte in the input record shall be ignored.”

Does the standard mean that the last byte is ignored with respect to the conversion, or ignored completely (thus making the output file shorter than the original)?

Interpretation for IEEE Std 1003.2-1992

The resolution for this request is within the same scope as Interpretation #3, and that resolution shall apply.

Rationale for interpretation

None.