IEEE P1003.2a Draft 8 – December 1991

Annex E
(informative)
Rationale and Notes

This annex summarizes the deliberations of the IEEE P1003.2 working group, the committee charged by the IEEE Computer Society's Technical Committee on Operating Systems and Application Environments with devising an interface standard for a shell and related utilities to support and extend POSIX.1 {8}.

The annex is being published along with the standard to assist in the process of review. It contains historical information concerning the contents of the standard and why features were included or discarded by the working group. It also contains notes of interest to application programmers on recommended programming practices, emphasizing the consequences of some aspects of the standard that may not be immediately apparent.

Just as this standard relies on the knowledge of architecture, history, and definitions from the POSIX.1 {8}, so does this annex. The reader is referred to the Rationale and Notes appendix of POSIX.1 {8} for background material and bibliographic information about UNIX systems in general and POSIX specifically, which will not be duplicated here.

Editor's Note: The text of most of the Rationale has been temporarily located in Sections 1 through 5, adjacent to the text it is explaining. The text will return to this annex after the completion of balloting.

E.4 Excluded Utilities

Many utilities were evaluated by the developers of the standard; more utilities were excluded from the standard than included. The following list contains some common UNIX system utilities that were considered by the developers, but not included as part of the UPE or POSIX.2.

Editor's Note: This list will eventually be integrated with Annex E.4 in the base standard.

`SCCS` Both SCCS and RCS were originally considered as part of a version control utilities portion of the scope. However, this aspect of the UPE was abandoned by the working group. Their was broad consensus that SCCS was the most widely implemented system and that it had some technical advantages over RCS (other than its difficult user interface). Some of the implementors objected to the notion of rewriting the very complicated SCCS utilities strictly from a standard description and indicated that they would oppose any such utilities in the standard unless their original author would put the source code into the public domain. The author was unwilling to do so. The IEEE may form a working group in the future to address this issue separately from the UPE.

`compress`, `uncompress`, `zcat`
These were proposed for an earlier draft, but met with too many objections to be included. The complex algorithm in historical implementations was expressed in the draft in terms of a C-language program, but many objections were raised concerning its accuracy and exact duplication of historical output (including one common historical ‘‘bug’’). Other objections stated that a C program was insufficient as a specification and that a detailed description in the Output Files subclause was needed instead. Consideration was given to removing just the algorithm and saying that `compress` was defined only at the user interface and was not necessarily portable between systems, but straw polls indicated that that would cause other objections as well. The working group found that it could not adequately address the requirements of the balloters on these points. In order to achieve consensus on an expeditious basis, these three utilities have been removed and could be considered for a future version of the standard; however, it is more likely that they would be part of the application portability sections, and not user portability.

`emacs` The community of `emacs` editing enthusiasts was quite adamant that the full `emacs` editor not be included in POSIX.2, because it was concerned that an attempt to standardize this very powerful environment would encourage vendors to ship versions conforming strictly to the standard, but lacking the extensibility required by the community. The author of the original `emacs` program also expressed his desire to omit the program. Furthermore, there were a number of historical UNIX systems that did not include `emacs`, or included it without supporting it, but there were very few that did not include and support `vi`. Since `emacs` is not in any of the four base documents, this finished any arguments concerning its inclusion.

`lint` This was proposed for an earlier draft, in the form of a `lint89` utility, but met with too many objections to be included. This technology is of declining importance because of the introduction of prototypes in the C Standard {7}. In particular, it is hard to specify the degree of checking for possible error conditions in programs in any compiler and specifying what `lint` would do in these cases is equally difficult.

It is fairly easy to specify what a compiler does. It requires specifying the language, what it does with that language, and stating that the interpretation of any incorrect program is unspecified. Unfortunately, with `lint`, it is required to specify what to do with erroneous programs. Since the number of possible errors and questionable programming practices is infinite, one cannot require `lint` to detect all errors of any given class. As the text of the drafts was tightened up, it was found that fewer and fewer useful statements could be made about `lint`.

Additionally, some vendors complained that since many compilers are distributed in a binary form without a `lint` facility (because the C Standard {7} does not require one), building the UPE from scratch will be much harder. Rather than being able to plug in a standard compiler component (simply by providing `c89` as an interface), source to that compiler would most likely need to be modified to provide the `lint` functionality. This was considered a major burden on system providers for a very small gain to developers (users).

`m4` The working group did not find that this macro processor had sufficiently wide usage for standardization. It is used in a small number of application installation tools and specialized applications, but it is rarely used by interactive users. Thus, it was omitted from this supplement as being out of the scope of work. There seems to be some interest within ISO to include `m4` in the final ISO version of POSIX.2, so it will be evaluated as part of the working group's P1003.2b revision effort.

`passwd` This utility was proposed for an earlier draft, but met with too many objections to be included. There were various reasons:

— Changing a password should not be viewed as a command, but as part of the login sequence. Changing one's password should only be done while a trusted path is in effect.

— Even though the text in previous drafts was intended to allow a variety of implementations to conform, the security policy for one site may differ from another site running with identical hardware and software. One site might use password authentication while the other did not. Vendors could not supply a `passwd` utility that would conform to the standard for all sites using their system.

— This is really a subject for the POSIX.7 system administration working group or POSIX.6 security working group.

`sdiff` This ''side-by-side diff'' utility has little portable application use and it was excluded from the UPE because it did not meet the requirement that it be part of one of the base documents.

`shar` Any of the numerous ‘‘shell archivers’’ were excluded from the UPE because they did not meet the requirement that they be parts of one of the base documents. Early drafts contained a `pshar` (‘‘POSIX shar’’) utility, but that was dropped in the face of the base document requirement (as well as considerable opposition to its complexity).

Annex F
(informative)

Balloting Instructions

This annex will not appear in the final standard. It is included in the draft to provide instructions for balloting that cannot be separated easily from the main document, as a cover letter might.

If you have received a copy of this draft before February 1992 it is important that you read this annex, whether you are an official member of the P1003.2a Balloting Group or not; comments on this draft are welcomed from all interested technical experts. **Your ballot is due to the IEEE office by 24 January 1992. This is not the date to postmark it—it is the date of receipt.**

Summary of Draft 8 Instructions

This is the third ''recirculation draft'' of P1003.2a. The recirculation procedure is 8
described in this annex. For this recirculation, we are accepting objections against any normative changes that occurred from Draft 7 to Draft 8 and the contents of the Unresolved Objections List, provided as a separate document from the draft.

Send your ballot and/or comments to:

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It would also be very helpful if you sent us your ballot in machine-readable form. Your official ballot must be returned via mail to the IEEE office; if we receive only the e-mail or diskette version, that version will not count as an official document. However, the online version would be a great help to ballot resolution. We can accept e-mail to the following address:

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or IBM PC 3.5-inch/720K diskette (plain file) or Macintosh 3.5-inch diskette (plain text file [preferred], Word, or Write) or Sun-style QIC-24 cartridge tapes to: