IEEE Standards Interpretation for IEEE Std 1003.1™-1990 IEEE Standard for Information Technology--Portable Operating System Interfaces (POSIX®)

Interpretation Request #52

Topic: timestamps on read-only filesystems **Relevant Sections:** 2.2.2.69, 2.3.5 **Classification:** No Change

POSIX.1-1990 Section 2.2.2.69 defines "read only file system": A file system that has implementation defined characteristics restricting modifications. POSIX.1-1990 Section 2.3.5 "file times update" states: Updates are not done for files on read-only file systems. Is it permissible for an implementation to update the st_atime attribute held in-core but yet prevent the update of that attribute for the file on the read-only filesystem?

Interpretation Response

No, such an implementation is not conforming.

Rationale for Interpretation

The statement that a read-only filesystem has implementation-defined restrictions on modification does not prevent the standard itself from specifying restrictions. Subclause 2.3.5 states that st_atime shall not be updated for a file on a read-only file system. Subclause 2.2.2.69 says that there are implementation-defined restrictions restricting modification, but these are in addition to any restrictions imposed by the standard. Note that read() marks the file for update, even on a read-only filesystem, but the update is never done. This distinction is not particularly relevant to an application, since there is no way to find out that a time is "marked" but not "updated."

Editorial note (not part of the interpretation)

It would improve readability if these two subclauses referenced each other, but the fact that they don't doesn't change what is required.