

standards reports

Update on POSIX[®] Test Methods

by Barry Hedquist

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As the POSIX era, as we know it, transitions to a new paradigm, it may be worth updating the state of standards that define testing for POSIX conformance.

GENERAL TEST METHODS

IEEE Standard 2003:1997 and the ISO version, ISO/IEC 13210:1999, cover the general requirements for testing conformance to POSIX standards. This document describes how to write the assertions used to specify POSIX test methods, the minimal requirements for a POSIX Conformance Test Suite, and the general criteria for assessing conformance of an implementation to any of the POSIX standards. It provides requirements and guidance to those who write POSIX test methods, develop POSIX test suites, or conduct POSIX conformance testing.

POSIX.1 TEST METHODS

The test methods for the 1990 version of POSIX.1 (System Interfaces) are contained in IEEE Standard 2003.1-1992. This standard was recently reaffirmed by IEEE, and even more recently published by ISO as ISO/IEC 14515-1: 2000. This document is also the basis for the current POSIX Conformance Test Suite developed by NIST and used by IEEE to award a "Certificate of Validation" for POSIX conformance. The standard on which the test methods are based, however, was revised in 1996, and is undergoing another revision by the Austin Group. Therefore, since the test-methods standard is based on another standard

that is more than 10 years old, it has to be completely out-of-date, right? Well, not really. Certainly, there are out-of-date individual test methods, such as one that looks for a hard-coded POSIX version number, but they are well known and documented by the POSIX test labs. The revision of POSIX.1 in 1996 added more features than it changed, such as the addition of real-time extensions. The test methods standard for POSIX.1 is guilty of lacking test methods for the added features, rather than being obsolete. The bulk of the test methods contained in this standard are still applicable to the current POSIX.1.

The IEEE Standards Board approved an amendment to the test methods for POSIX.1 in March 2000, published as IEEE Std 2003.1b:2000. This amendment is based on the initial real-time extensions defined in P1003.4, which were included in the 1996 version of POSIX.1. Like its predecessor, 2003.1b is guilty of lacking coverage for some real-time extension features added to the 1996 version of POSIX.1. Such will always be the case as long as additions to POSIX evolve faster than the test methods.

POSIX.2 TEST METHODS

The test methods for the 1992 version of POSIX.2 (Shell and Utilities) are contained in IEEE Standard 2003.2:1996. Like POSIX.1, POSIX.2 has undergone revisions, mostly in the form of added features, while the test methods have remained unchanged. This situation is not likely to change in either the near or the long term, since it is unlikely that anyone will undertake the effort needed to write test methods. The POSIX.2 test methods will be up for reaffirmation ballot by IEEE later this year.

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