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IEEE Standard for Software Quality Assurance Plans

IEEE Computer Society

Sponsored by the
Software Engineering Standards Committee

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IEEE Standard for Software Quality Assurance Plans

Sponsor

**Software Engineering Standards Committee
of the
IEEE Computer Society**

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Abstract: Uniform, minimum acceptable requirements for preparation and content of Software Quality Assurance Plans (SQAPs) are provided. This standard applies to the development and maintenance of critical software. For noncritical software, or for software already developed, a subset of the requirements of this standard may be applied.

Keywords: critical design review, preliminary design review, software configuration management plan, software design description, software quality assurance plan, software requirements review, software requirements specification, software verification and validation plan

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Introduction

(This introduction is not a part of IEEE Std 730-1998, IEEE Standard for Software Quality Assurance Plans.)

This standard assists in the preparation and content of Software Quality Assurance Plans and provides a standard against which such plans can be prepared and assessed. It is directed toward the development and maintenance of critical software, i.e., where failure could impact safety or cause large financial or social losses.

The readers of this document are referred to IEEE Std 730.1-1995 for recommended approaches to good software quality assurance practices in support of this standard. While IEEE Std 730.1-1995 specifically refers to IEEE Std 730-1984, almost all of its content applies directly to this revision.

The readers of this document are referred to Annex A for guidelines for using this document to meet the requirements of IEEE/EIA 12207.1-1997, IEEE/EIA Guide for Information Technology—Software life cycle processes—Life cycle data.

In this standard, firmware is considered to be software and is to be treated as such.

Footnotes are not part of the standard.

There are three groups to whom this standard applies: the user, the developer, and the public.

- a) The user, who may be another element of the same organization developing the software, has a need for the product. Further, the user needs the product to meet the requirements identified in the specification. The user thus cannot afford a “hands-off” attitude toward the developer and rely solely on a test to be executed at the end of the software development time period. If the product should fail, not only does the same need still exist, but also a portion of the development time has been lost. Therefore, the user needs to obtain a reasonable degree of confidence that the product is in the process of acquiring required attributes during software development.
- b) The developer needs an established standard against which to plan and to be measured. It is unreasonable to expect a complete reorientation from project to project. Not only is it not cost effective, but, unless there exists a stable framework on which to base changes, improvement cannot be made.
- c) The public may be affected by the users’ use of the product. These users include, for example, depositors at a bank or passengers using a reservation system. Users have requirements, such as legal rights, which preclude haphazard development of software. At some later date, the user and the developer may be required to show that they acted in a reasonable and prudent professional manner to ensure that required software attributes were acquired.

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