



IEEE Standard for Software Reviews and Audits

IEEE Computer Society

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Software & Systems Engineering Standards Committee

1028TM

IEEE
3 Park Avenue
New York, NY 10016-5997, USA
15 August 2008

IEEE Std 1028TM-2008
(Revision of
IEEE Std 1028-1997)

IEEE Standard for Software Reviews and Audits

Sponsor

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

Approved 16 June 2008

IEEE-SA Standards Board

Abstract: Five types of software reviews and audits, together with procedures required for the execution of each type, are defined in this standard. This standard is concerned only with the reviews and audits; procedures for determining the necessity of a review or audit are not defined, and the disposition of the results of the review or audit is not specified. Types included are management reviews, technical reviews, inspections, walk-throughs, and audits.

Keywords: audit, inspection, review, walk-through

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3 Park Avenue, New York, NY 10016-5997, USA

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PDF: ISBN 978-0-7381-5768-9 STD95806
Print: ISBN 978-0-7381-5769-6 STDPD95806

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Introduction

This introduction is not part of IEEE Std 1028-2008, IEEE Standard for Software Reviews and Audits.

This introduction provides the user with the rationale and background of the reviews and audits outlined in this standard and their relationships to other IEEE standards.

Purpose

This standard defines five types of software reviews and audits, together with procedures required for the execution of each type. This standard is concerned only with the reviews and audits; it does not define procedures for determining the necessity of a review or audit, nor does it specify the disposition of the results of the review or audit. Review types include management reviews, technical reviews, inspections, and walk-throughs.

This standard is meant to be used either in conjunction with other IEEE software engineering standards or as a stand-alone definition of software review and audit procedures. In the latter case, local management must determine the events that precede and follow the actual software reviews and audits.

The need for reviews and audits is described in several other IEEE standards, as well as standards prepared by other standards-writing organizations. IEEE Std 1028-2008 is meant to support these other standards. In particular, reviews and audits required by the standards listed in Annex B can be executed using the procedures described herein. The use of IEEE Std 1044-1993 [B8]^a is encouraged as part of the reporting procedures for this standard.

General application intent

This standard applies throughout the scope of any selected software life-cycle model and provides a standard against which software review and audit plans can be prepared and assessed. Maximum benefit can be derived from this standard by planning for its application early in the project life cycle.

This standard for software reviews and audits was written in consideration of both the software and its system operating environment. It can be used where software is the total system entity or where it is part of a larger system. Care should be taken to integrate software review and audit activities into any total system life-cycle planning; software reviews and audits should exist in concert with hardware and computer system reviews and audits to the benefit of the entire system.

Reviews and audits carried out in conformance with this standard may include both personnel internal to the project and customers or acquirers of the product, according to local procedures. Suppliers may also be included if appropriate.

The information obtained during software reviews (particularly inspections) may be of benefit for improving the user's software acquisition, supply, development, operation, and maintenance processes. The use of review data for process improvement is required for inspections.

History

Major changes were made to the structure and content of IEEE Std 1028 during the last complete revision in 1997. This version was reaffirmed in 2001. As part of the reaffirmation, many balloters submitted comments. The reaffirmation was approved by the IEEE Standards Board with the proviso that the reaffirmation comments be addressed during the next revision.

^a The numbers in brackets correspond to those of the bibliography in Annex B.

That was the context for the current revision: consider all the comments from the reaffirmation vote. Structural changes were not to be part of this effort. The Working Group considered all comments from the reaffirmation, whether accompanying negative or affirmative votes, as well as additional clarification concerns that arose during the revision.

With one exception, no structural change occurred. That exception was intended to clarify the difference between inspections and walk-throughs by requiring process improvement to be mandatory for inspections (see 6.9), and to eliminate process improvement from walk-throughs. As a result, there is a clear progression in formality from the most formal, audits, followed by management and technical reviews, then to the less formal inspections, and finishing with the least formal, walk-throughs.

Development procedure

This standard was developed by the Software Engineering Review Working Group. The entire standards writing procedure was carried out via electronic mail.

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The final conditions for approval of this standard were met on 16 June 2008. This standard was conditionally approved by the IEEE-SA Standards Board on 12 June 2008, with the following membership:

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1. Overview

1.1 Scope

This standard provides minimum acceptable requirements for systematic software reviews, where “systematic” includes the following attributes:

- Team participation
- Documented results of the review
- Documented procedures for conducting the review

Reviews that do not meet the requirements of this standard are considered to be non-systematic reviews. The standard is not intended to discourage or prohibit the use of non-systematic reviews.

The definitions, requirements, and procedures for the following five types of reviews are included within this standard:

- a) Management reviews
- b) Technical reviews
- c) Inspections
- d) Walk-throughs
- e) Audits