

IEEE Recommended Practice for Software Design Descriptions

Sponsor

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of the
IEEE Computer Society**

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Abstract: The necessary information content and recommendations for an organization for Software Design Descriptions (SDDs) are described. An SDD is a representation of a software system that is used as a medium for communicating software design information. This recommended practice is applicable to paper documents, automated databases, design description languages, or other means of description.

Keywords: software design, software design description, software life cycle process

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Introduction

(This introduction is not a part of IEEE Std 1016-1998, IEEE Recommended Practice for Software Design Descriptions.)

Purpose

This recommended practice specifies the necessary information content and recommends an organization for Software Design Descriptions (SDDs). This document does not explicitly support, nor is it limited to, any particular software design methodology or descriptive technology. It will guide the production of anything from paper design documents to an automated database of design information. For an organization in the process of developing a design description standard, use of this document will help the new standard meet the needs of all of its users. For an organization with a mature design description standard, it should prove useful in evaluating and modifying that standard in light of the informational and organizational needs of the design description user community.

This practice can be applied to commercial, scientific, and military software. Applicability is not restricted by size, complexity, or criticality of the software. This practice considers both the software and its system operational environment. It can be used where software is the system or where software is part of a larger system that is characterized by hardware and software components and their interfaces.

Overview

This document consists of six clauses. Clause 1 defines the scope of the recommended practice and Clause 2 references other standards that should be followed when applying this practice. Clause 3 provides definitions of terms within the context of the practice. Clause 4 places the SDD into the framework of the software development life cycle. Clause 5 describes the minimum information that shall be included in an SDD and Clause 6 gives a recommended organization for SDDs. Annex A shows a sample table of contents for an SDD. Annex B provides guidelines for using this standard to meet the requirements of IEEE/EIA 12207.1-1997, IEEE/EIA Guide for Information Technology—Software life cycle processes—Life cycle data.

Audience

This document is intended for those in technical and managerial positions who prepare and use SDDs. It will guide a designer in the selection, organization, and presentation of design information. It will help standards developers ensure that a design description is complete, concise, and well organized.

SDDs play a pivotal role in the development and maintenance of software systems. During its lifetime, a given design description is used by project managers, quality assurance staff, configuration managers, software designers, programmers, testers, and maintainers. Each of these users has unique needs, both in terms of required design information and optimal organization of that information. Hence, a design description must contain all the design information needed by those users.

Terminology

This recommended practice follows the *IEEE Standards Style Manual*. In particular, the word *shall* and the imperative form identify mandatory material within the recommended practice. The words *should*, *might*, and *may* identify advisory material.

Limitations

This standard assumes a functional decomposition approach to design understanding. This may limit its utility with object-oriented approaches.

History

The project authorization request (PAR) for development of this recommended practice was approved by the IEEE Standards Board on 22 September 1983. Modification of the authorization request to change the title and scope was approved on 13 March 1986. A series of 10 meetings were held within the United States and internationally between March 1983 and March 1986. These meetings produced the draft submitted for balloting in April 1986. The first edition of this recommended practice was approved by the IEEE Standards Board on 12 March 1987 and reaffirmed on 2 December 1993. The PAR for this revision, which added a new Annex B, was approved by the IEEE Standards Board on 16 September 1997.

Suggestions for the improvement of this practice will be welcome. They should be sent to

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