

An American National Standard

**IEEE Standard for
Software User Documentation**



Sponsor

**Software Engineering Standards Subcommittee of the
Technical Committee on Software Engineering of the
IEEE Computer Society**

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Foreword

(This Foreword is not a part of IEEE Std 1063-1987, IEEE Standard for Software User Documentation.)

Two factors motivated the development of this standard: The concern of the software user communities over the poor quality of much user documentation, and a need for requirements expressed by producers of documentation.

This standard applies only to traditional documentation, either printed on paper or stored in some other medium in the format of a printed document and used in a manner analogous to the way a printed document is used. On-line documentation is not addressed (documentation designed for interactive access via computer) because such information is processed and used differently from printed documents.

This standard does not cover the actual writers and publishers of user documentation. The responsibility for ensuring that satisfactory software user documentation is produced rests with the organization that generates the software. Responsibility for ensuring that software user documentation is satisfactorily updated rests with the organization that repairs or modifies the software. Configuration management of the documentation is outside the scope of this standard.

Sections 4 and 5 are written as directions. An audit checklist for compliance with this standard can be compiled by identifying each direction and setting up a "yes/no/nonapplicable" condition for the direction. For example, this standard states "identify and describe all data required for the correct processing of each function," in 5.7.2.4. A checklist entry for this condition would then be as follows:

All data is identified and described:		
yes	no	nonapplicable

A successful user document is the result of proper audience determination, careful document planning, and good writing style, in addition to the contents requirement addressed by this standard. However, the ultimate test of any software document is that it is easily usable by its intended audience for its intended purpose.

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IEEE Standard for Software User Documentation

1. Scope

This standard provides minimum requirements on the structure and information content of user documentation. It addresses editorial and stylistic considerations only when they impact structure and content. It applies primarily to technical substance rather than to style. Users of this standard may want to develop a style manual for use within their own organizations to complement the guidance provided in the standard. They may also select an industry-recognized style manual such as the *Chicago Manual of Style* [2]¹ or the *GPO Style Manual* [3].

Adherence to the standard does not preclude the application of additional, more stringent requirements or standards, or the inclusion of additional topics or materials not required by this standard.

1.1 Applicability. This standard applies to documentation that guides users in installing, operating, and managing software of any size, and conducting those aspects of software maintenance that do not involve modification of the software source code.

This standard does not apply to the following:

- (1) Requirements, design, development, and manufacturing specifications
- (2) Marketing materials
- (3) Specialized course materials intended primarily for use in formal training programs
- (4) User materials to be presented interactively via terminals, and other nontraditional media, such as videotape or slide presentations with recorded narration
- (5) Instructions needed to install hardware or prepare it for operation
- (6) Configuration management of software user documentation
- (7) Verification of software user documentation

1.2 Organization. The six sections in this standard cover the following topics:

Section 1 describes the scope of this standard, including its applicability.

Section 2 defines terms used in this standard.

Section 3 covers how to determine required document sets by defining product and audience, and describes how to determine usage modes.

Section 4 gives the requirements for information inclusion.

Section 5 covers what shall be contained in each document, including topics such as placement of title page, list of illustrations, etc.

Section 6 covers how to present material in document sets so that user documents are easy to read and understand.

2. Definitions

Certain key terms used in this standard are defined in this section. Other key terms used in this standard are defined generally in ANSI/IEEE Std 729-1983 [1], or in *Webster's Third New International Dictionary of the English Language (unabridged)* [4].

action. Step a user takes to complete a task; a step that cannot be subdivided further. A single user action may invoke one or more functions but need not invoke any.

audience. Persons who are expected to need a given software user document.

caution. Advisory in a software user document that performing some action may lead to consequences that are unwanted or undefined. Compare *warning*.

document set. Document or group of documents that offers an audience the information it needs about a software product.

function. A specific purpose of an entity, or its characteristic action.

¹The numbers in brackets correspond to those of the bibliography in Section 7.

illustration. Material that is labeled, numbered, set apart from the main body of text, and, normally, cited within the main text. In this standard, the term *illustration* is used as the generic term for table, figure, drawing, exhibit, and equivalent terms.

note. Helpful hint(s) and other material that may assist the user.

procedure. Ordered series of instructions that a user follows to do one or more tasks.

software user document. Body of material that provides information to users; typically printed or stored on some medium in the format of a printed document.

style. Set of editorial conventions covering grammar, terminology, punctuation, capitalization, etc, of a software user document.

task. Piece of work that a user does, following a given procedure, to achieve a specific goal. A task may include one or more actions.

usage mode. Primary manner in which the document issuer expects that document to be used. This standard recognizes two usage modes, instructional and reference, described in Section 3.

user. Person who uses software to perform some task.

warning. Advisory in a software user document that performing some action will lead to serious or dangerous consequences. Compare **caution**.

3. Identifying Required User Documents

To identify the required user documents; the software product, its applications, and the audiences that will use the product must first be identified. The document set for the audiences, and the usage mode for each document, can then be determined.

3.1 Identifying the Software. The software, its user interfaces, and the tasks that users perform with the software, shall be identified at the start of documentation planning.

3.2 Determining the Document Audience. A software user document shall be keyed to its audience. The different ways that users interact with software shall be considered when preparing user documents: for example, amount of interaction, level of interaction, direct or indirect interaction. Users can form different audiences.

Each intended audience shall be identified before the document (or set of documents) is planned and written. The identified audience will dictate the document presentation style and level of detail. Audience determination is especially important in instructional mode documents.

3.3 Determining the Document Set. A document set may consist of one or more documents, depending on the amount of information to be presented and the needs of the intended audience. Each document of a document set may be one or more volumes depending upon the amount of information to be presented. For example, a command manual might have one volume covering half the commands and a second volume covering the other half of the commands. When a document contains both instructional and reference material, the two shall be clearly separated.

A document set shall contain the information needed by each audience. Depending on the nature of the software and hardware, the software user documentation set may need to be integrated with system-level documentation. The presentation style and level of detail shall be tailored for the intended audience. When a document set must be prepared for audiences with widely differing needs, at least one of the following approaches shall be used:

(1) Separate materials devoted to the needs of specific audiences. The audiences and their needs shall be covered specifically in the introduction, allowing each user to pick out the sections of interest.

(2) Separate documents or document sets for each specific audience.

3.4 Determining Document Usage Modes. Users of software need documents either to learn about the software (instructional mode) or to refresh their memory about it (reference mode). Instructional mode documents may be either information- or task-oriented. Information-oriented documents give the reader information needed to understand the computer software and its functions; task-oriented documents show the reader how to complete a task or reach a goal.

3.4.1 Instructional Mode. An instructional mode document shall

(1) Provide the background and information needed to understand the system.

(2) Provide the information needed to learn what can be done with the software and how to use it (for example, what goals it supports).

(3) Provide examples to reinforce the learning process.

Information-oriented instructional documents provide the user with background or technical information (for example, models and algorithms) needed to use the software properly. Examples of typical information-oriented instructional mode documents include

- (1) overview
- (2) theory of operation manual
- (3) tutorial

Task-oriented instructional mode documents provide the user with procedures to achieve specific goals. Examples of task-oriented instructional mode documents include

- (1) diagnostic procedures manual
- (2) operations manual
- (3) software installation manual

3.4.2 Reference Mode. A reference mode document shall

- (1) Organize and provide necessary information
- (2) Facilitate random access to information

Examples of typical reference mode documents include

- (1) command manual
- (2) error message manual
- (3) program calls manual
- (4) quick reference guide
- (5) software tools manual
- (6) utilities manual

4. User Document Inclusion Requirements

This section summarizes the information required in user documents. The mandatory information described in this section shall be included in all documents, unless it is not applicable. The sequence, location grouping, and labeling of this information are left to the judgment of the document preparer. (For example, information suggested for the introduction could go in a section labeled "Preface.")

Table 1 specifies 12 basic components of a software user document. Additional information may be added as required.

Table 2 is a matrix of inclusion requirements for specific components of a document. If a component listed as mandatory contains information not applicable to a specific document, that component may be omitted (for example, a description of conventions may not be applicable in an overview document).

Table 1
Software User Document Components

User Document Components	See Paragraph:
Title page	5.1
Restrictions	5.2
Warranties	5.3
Table of contents	5.4
List of illustrations	5.5
Introduction	5.6
Body of document	5.7
Error conditions	5.8
Appendixes	5.9
Bibliography	5.10
Glossary	5.11
Index	5.12

5. User Document Content Requirements

This section describes the required content of user documents. Specific information and the level of detail for each document are determined by the audience and the usage mode of the document. The information specified in this section shall be included in a user document, unless it is not applicable or otherwise noted.

For convenience, this standard uses generic titles or labels to identify parts of a user document. As noted in Section 4, the user document itself need not use these labels. For example, in an introduction the audience description and applicability statement need not be specifically labelled "Audience Description" and "Applicability Statement."

5.1 Title Page. On the title page of a user document include at least the following information:

- (1) Document name
- (2) Document version and date
- (3) Software covered
- (4) Issuing organization

The design and arrangement of these items on the title page are at the discretion of the organization preparing the document. The identification of the document and the software shall be consistent with the configuration management system of the issuing organization.

5.2 Restrictions. When restrictions apply to using or copying the document or software product, describe these on the title page or immediately following the title page. Ensure that any proprietary markings, such as trademarks, meet appropriate accepted practices and legal conventions.

Table 2
Inclusion Requirements

Component	Single-Volume Document		Multi-Volume Document	
	8 Pages or Less	More Than 8 Pages	First Volume	Other Volume
Title page	M	M	M	M
Restrictions	M	M	M	M
Warranties	R	R	R	R
Table of contents	O	M	M	M
List of illustrations	O	O	O	O
Introduction				
Audience description	R	M	M	R
Applicability	M	M	M	M
Purpose	R	M	M	R
Document usage	R	M	M	R
Related documents	R	R	R*	R
Conventions	M	M	M	R
Problem reporting	R	M	M	R
Body				
Instruction mode	1	1	1	1
Reference mode	1	1	1	1
Error conditions	R	R	R	R
Appendixes	O	O	O	O
Bibliography	M	M	M**	M**
Glossary	M	M	M**	M**
Index	2	2	M**	M**

Key:

- M Mandatory—Shall be included when information exists.
- O Optional
- R Reference—Either include the section or a reference to where the information can be found within the document set.
- * Shall address relationship to other volumes.
- ** Mandatory in at least one volume in the document set, with references to information in other volumes.
- 1 Every document has a body; each document set shall address the instructional and reference needs of the audience. Required content is in 5.7.1 and 5.7.2.
- 2 An index is mandatory for documents of 40 pages or more and optional when under 40 pages.

5.3 Warranties and Contractual Obligations. Specify any warranties and contractual obligations or disclaimers.

5.4 Table of Contents. Include a table of contents in every document over eight pages long. For single-volume documents, this requirement shall be met in one of two ways:

- (1) A comprehensive table of contents for the whole document
- (2) A simplified table of contents, with a comprehensive section table of contents preceding each section

For multi-volume documents (a single document in multiple volumes), meet this requirement by including a simple table of contents for the entire document in the first volume. In addition each subsequent volume shall contain either

- (1) A comprehensive table of contents for the volume, or
- (2) A simplified table of contents for the volume, with a comprehensive table of contents preceding each section.

5.4.1 Comprehensive Table of Contents. Construct a comprehensive table of contents, for a complete document or for a section, as follows:

(1) Carry entries to at least the third level of the document structure hierarchy

(2) Give page numbers for every entry

(3) Choose a method to assist the reader in matching entries with their corresponding page numbers, such as

(a) Leader strings (strings of dots in the form "...") or equivalent, connecting entries and corresponding page numbers

(b) Double-spacing between entries

5.4.2 Simple Table of Contents. In a simple table of contents include at least the first level of the document structure hierarchy with the corresponding page numbers.

5.5 List of Illustrations. Optionally, include one or more lists of the titles and locations of all illustrations in the document. Use separate lists for figures, tables, and exhibits, or merge all types of illustrations into a single list. In each list, include

(1) Number and title of each illustration

(2) Page numbers for each illustration

(3) A method to assist the user in matching entries with their corresponding page numbers, such as

(a) Leader strings (strings of dots in the form "...") or equivalent, connecting entries and corresponding page numbers

(b) Double-spacing between entries

5.6 Introduction. Include the following information in the introduction:

(1) Audience description

(2) Applicability statement

(3) Purpose statement

(4) Document usage description

(5) Related documents list or information

(6) Conventions description

(7) Problem reporting instructions

5.6.1 through 5.6.7 describe the topics further.

5.6.1 Audience Description. Describe the intended audience. If different sections of a document (or a document set) are for different audiences, indicate the intended audience for each section. In the audience section, specify the

(1) Experience level expected of the user

(2) Previous training expected of the user

5.6.2 Applicability Statement. State the software version covered by the document the document version number, and the environment (hardware and software) in which this software runs.

5.6.3 Purpose Statement. Explain why the document was written and summarize the pur-

pose of the software. Include typical intended applications of the software.

5.6.4 Document Usage Description. Describe what each section of the document contains, its intended use, and the relationship between sections. Also provide any other directions necessary for using the document.

5.6.5 Related Documents. List related documents and give the relationship of the document to the others. In document sets comprised of many volumes, this information may be provided in a separate "roadmap" or guide to the document set.

5.6.6 Conventions. Summarize symbols, stylistic conventions, and command syntax conventions used in the document.

5.6.6.1 Symbols. Describe symbols and their usage in the document, illustrating each.

5.6.6.2 Stylistic Conventions. Describe conventions unfamiliar to the intended audience that allow users to understand text or illustrations, such as highlighting or use of boldface or italic type.

5.6.6.3 Command Syntax Conventions. Explain the conventions used for command syntax. Include examples showing options, variable parameters, and required parameters.

5.6.7 Problem Reporting Instructions. Tell the users how to report documentation or software problems. Also describe how users can suggest changes in the software or documentation. List the name and contact information for the organization responsible for responding to the problem reports or suggestions for improvements.

5.7 Body of Document. Determine the content, organization, and presentation of the body of the document after determining whether the document is an instructional mode or reference mode document. In either mode, use a consistent organizational structure based on the expected use of the document, providing examples as necessary.

5.7.1 Body of Instructional Mode Documents. Information-oriented instructional documents give the reader background information or theory needed to understand the software. Include a scope as described in 5.7.1.1 before giving the information forming the major portion of the document. Use topics to organize an information-oriented instructional document; for example, organize the document by

(1) Theory

(2) Software features

(3) Software architecture

Task-oriented instructional documents give the reader the necessary information to carry out a specific task or attain a specific goal. Include the information described in 5.7.1.1 through 5.7.1.7. Use task relations to organize a task-oriented document or section; for example, organize by

- (1) Task groups
- (2) Task sequence

5.7.1.1 Scope. Begin this section by indicating to the user the scope of the material to be discussed.

5.7.1.2 Materials. Describe any materials the user will need to complete the task (for example, input manuals, passwords, computers, peripherals, cabling, software drivers, interfaces, and protocols). Optionally, describe separately materials common to all or many functions and refer to that description.

5.7.1.3 Preparations. Describe any actions, technical or administrative, that must be done before starting the task (for example, obtain system passwords, access authorization, disk space). Optionally, describe in a separate section preparations common to all or many functions and refer to that section.

5.7.1.4 Cautions and Warnings. Describe general cautions and warnings that apply to the task. Place specific cautions and warnings on the same page and immediately before the action that requires the caution or warning. (See Section 2 for definitions of *caution* and *warning*.)

5.7.1.5 Method. Describe each task, including

- (1) What the user must do.
- (2) What function, if any is invoked (including how to invoke the function and how to recognize normal termination).
- (3) Possible errors, how to avoid them, and how to resolve them.
- (4) What results to expect.

5.7.1.6 Related Information. Provide other useful information about the task, such as

- (1) Tasks frequently performed together and their relationship.
- (2) Other tasks customarily performed by users of this document that could be supported by the methods described in this section. Describe this support.
- (3) Notes, limitations, or constraints (notes may also be placed in the specific area to which they apply).

5.7.2 Body of Reference Mode Documents. Organize a reference mode document the way a user accesses a software function. Examples of the ways users access functions include

- (1) By command
- (2) By menu
- (3) By system calls

Within this organization, arrange the functions for easy access and random user access (for example, alphabetical order or a menu-tree hierarchy). For each function, include in the body of a reference mode document the information described in 5.7.2.1 through 5.7.2.11.

5.7.2.1 Purpose. Describe the purpose of the function.

5.7.2.2 Materials. Describe materials needed to use the function or command (for example, input manuals, passwords, computers, peripherals, cabling, software drivers, interfaces, and protocols). Optionally, describe separately materials common to all or many functions and refer to that description.

5.7.2.3 Preparations. Describe any actions, technical or administrative, that must be completed before using the function or command (for example, obtain system passwords, access authorization, disk space). Optionally, describe separately preparations common to all or many functions and refer to that description.

5.7.2.4 Input(s). Identify and describe all data required for the correct processing of each function. Use one of the following methods:

- (1) Describe inputs used only by a single function in the section devoted to that function.
- (2) Describe in a single section or in an appendix inputs used by multiple functions. Refer to that section or appendix when describing these functions.

5.7.2.5 Cautions and Warnings. Describe general cautions and warnings that apply to each function. Place specific cautions and warnings on the same page and immediately before the action that requires a caution or warning.

5.7.2.6 Invocation. Provide all information needed to use and control the function. Describe all parameters. Include:

- (1) Required parameters
- (2) Optional parameters
- (3) Default options
- (4) Order and syntax

5.7.2.7 Suspension of Operations. Describe how to interrupt the function during execution and how to restart it.

5.7.2.8 Termination of Operations. Describe how to recognize function terminations, including abnormal terminations.

5.7.2.9 Output(s). Describe the results of executing the function, such as

- (1) Screen display
- (2) Effect on files or data
- (3) Completion status values or output parameters
- (4) Outputs that trigger other actions (such as mechanical actions in process control applications).

Provide a complete results description for each function. If several results are possible, explain the situations that produce each.

5.7.2.10 Error Conditions. Describe common error conditions that could occur as a result of executing the function, and describe how to detect that the error has occurred. For example, list any error messages that the system displays. (Error recovery instructions need not be provided here if they are covered in the "Error Messages, Known Problems, and Error Recovery" listing described in 5.8.)

5.7.2.11 Related Information. Provide other useful information about the function that does not readily fit under any of the sections previously described. Such information might include

- (1) Limitations and constraints
- (2) Notes
- (3) Related functions

Notes may also be placed in the specific area to which they apply.

5.8 Error Messages, Known Problems, and Error Recovery. Describe error messages in an easily accessed location (for example, in a separate section, chapter, appendix, or a separate document). For each error message, describe in detail the error that caused it, the procedures needed to recover from it, and the action(s) required to clear it. Describe known software problems here or in a separate document and provide alternative methods or recovery procedures.

5.9 Appendixes. Include in the appendixes any supporting material, arranged for ease of access. For example, the appendixes might include

- (1) Detailed input and output data or formats used in common by multiple functions
- (2) "Codes" used in input or output (for example, country codes or stock number codes)
- (3) Interactions between tasks or functions
- (4) Global processing limitations
- (5) Description of data formats and file structures
- (6) Sample files, reports, or programs

5.10 Bibliography. List all publications speci-

cally mentioned in the text. Other publications containing related information may also be listed.

5.11 Glossary. List alphabetically in the glossary definitions of

- (1) All terms, acronyms, and abbreviations used in the document that may be unfamiliar to the audience
- (2) All terms, acronyms, and abbreviations used in a manner that may be unfamiliar to the audience

If desired, the acronyms and abbreviations may be listed in a separate section.

5.12 Index. Develop an index, based on key words or concepts, for user documents over eight pages. Construct this index as follows:

- (1) Indicate importance of information; place minor key words under major ones.
- (2) Give location references for each entry, to the right of the entry.
- (3) List location references in one of the following ways:
 - (a) By page number
 - (b) By section or paragraph number
 - (c) By illustration number
 - (d) By another index entry

(4) Use only one level of index reference. (For example, if an entry points to a second index entry, the second entry shall give a page number, section or paragraph number, or illustration number. The second entry shall not point to a third index entry.)

6. User Document Presentation Requirements

This section discusses the required presentation methods for user documents. The information in this section shall be included unless it is not applicable.

The method of presenting material, in addition to the style of writing and the level of detail, contributes to making a user document easy to read and understand. Presentation considerations include highlighting, consistency, terminology, and references to other material.

6.1 Highlighting. For every user document or set of documents, find a method to highlight selected material of special importance, especially cautions and warnings. Select highlighting methods that provide prominence and segregation to

the material being emphasized. Describe the highlighting method in the introduction.

Choice of a specific highlighting method is left to the users of this standard, consistent with the practices or their organizations. Common highlighting methods include the use of bold and italic typefonts, the enclosure of material within lines or boxes, or the use of color.

6.2 Consistency. Use terminology and typographic and stylistic conventions consistently throughout a user document or set of documents. Identify any deviations from the conventions the first time they appear.

6.3 Terminology. Define all terms requiring a glossary entry, acronyms, and abbreviations when first used in the document.

6.4 Referencing Related Material. If related material is placed in separate parts of a document or in separate documents of a document set, repetition of the information can be avoided

by providing specific references to the related information.

7. Bibliography

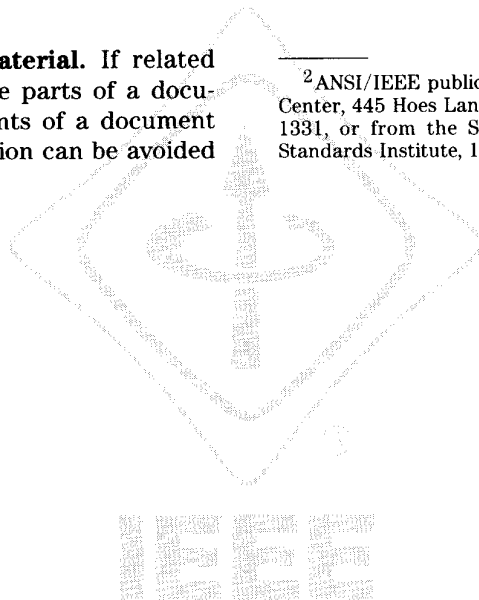
[1] ANSI/IEEE Std 729-1983, IEEE Standard Glossary of Software Engineering Terminology.²

[2] The Chicago Manual of Style, 13th ed, The University of Chicago Press, 1982.

[3] Government Printing Office (GPO) Style Manual, Government Printing Office, Washington, DC, 1984.

[4] Webster's Third New International Dictionary of the English Language (unabridged), Springfield, MA: Merriam-Webster, Inc, 1986.

²ANSI/IEEE publications are available from IEEE Service Center, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331, or from the Sales Department, American National Standards Institute, 1430 Broadway, New York, NY 10018.



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