INTERNATIONAL STANDARD

ISO/IEC 9899

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Programming languages — C

Langages de programmation — C

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 9899 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

Annexes A, B, C, D, E, F and G are for information only.

Introduction

With the introduction of new devices and extended character sets, new features may be added to this International Standard. Subclauses in the language and library clauses warn implementors and programmers of usages which, though valid in themselves, may conflict with future additions.

Certain features are *obsolescent*, which means that they may be considered for withdrawal in future revisions of this International Standard. They are retained because of their widespread use, but their use in new implementations (for implementation features) or new programs (for language [6.9] or library features [7.13]) is discouraged.

This International Standard is divided into four major subdivisions:

— the introduction and preliminary elements;

— the characteristics of environments that translate and execute C programs;

— the language syntax, constraints, and semantics;

— the library facilities.

Examples are provided to illustrate possible forms of the constructions described. Footnotes are provided to emphasize consequences of the rules described in that subclause or elsewhere in this International Standard. References are used to refer to other related subclauses. A set of annexes summarizes information contained in this International Standard. The introduction, the examples, the footnotes, the references, and the annexes are not part of this International Standard.

The language clause (clause 7) is derived from "The C Reference Manual" (see annex A).

The library clause (clause 8) is based on the *1984 /usr/group Standard* (see annex A).

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Programming languages — C

1 Scope

This International Standard specifies the form and establishes the interpretation of programs written in the C programming language.[1] It specifies

— the representation of C programs;

— the syntax and constraints of the C language;

— the semantic rules for interpreting C programs;

— the representation of input data to be processed by C programs;

— the representation of output data produced by C programs;

— the restrictions and limits imposed by a conforming implementation of C.

This International Standard does not specify

— the mechanism by which C programs are transformed for use by a data-processing system;

— the mechanism by which C programs are invoked for use by a data-processing system;

— the mechanism by which input data are transformed for use by a C program;

— the mechanism by which output data are transformed after being produced by a C program;

— the size or complexity of a program and its data that will exceed the capacity of any specific data-processing system or the capacity of a particular processor;

— all minimal requirements of a data-processing system that is capable of supporting a conforming implementation.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 646:1983, *Information processing — ISO 7-bit coded character set for information interchange*.

ISO 4217:1987, *Codes for the representation of currencies and funds*.

1 This International Standard is designed to promote the portability of C programs among a variety of data-processing systems. It is intended for use by implementors and programmers. It is accompanied by a Rationale document that explains many of the decisions of the Technical Committee that produced it.