

INTERNATIONAL STANDARD

**ISO/IEC
14598-1**

First edition
1999-04-15

Information technology — Software product evaluation —

Part 1: General overview

*Technologies de l'information — Évaluation de produits logiciels —
Partie 1: Aperçu général*



Reference number
ISO/IEC 14598-1:1999(E)

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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 14598-1 was prepared by Joint Technical Committee ISO/IEC JTC 1 *Information technology*, Subcommittee SC 7, *Software engineering*.

ISO/IEC 14598-1 is intended for use in conjunction with ISO/IEC 9126-1 (in preparation) which will replace ISO/IEC 9126 (1991).

ISO/IEC 14598 consists of the following parts under the general title *Information technology — Software product evaluation*:

- *Part 1: General overview*
- *Part 2: Planning and management*
- *Part 3: Process for developers*
- *Part 4: Process for acquirers*
- *Part 5: Process for evaluators*
- *Part 6: Documentation of evaluation modules*

Introduction

As the use of information technology grows, the number of critical computer systems also grows. Such systems include for example, security critical, life critical, economically critical and safety critical systems. The quality of software in these systems is particularly important because software faults may lead to serious consequences.

Throughout the history of software engineering, software quality improvement has been a most important goal. The evaluation of software product quality is vital to both the acquisition and development of software which meets quality requirements. The relative importance of the various characteristics of software quality depends on the mission or objectives of the system of which it is a part; software products need to be evaluated to decide whether relevant quality characteristics meet the requirements of the system.

The essential parts of software quality evaluation are a quality model, the method of evaluation, software measurement, and supporting tools. To develop good software, quality requirements should be specified, the software quality assurance process should be planned, implemented and controlled, and both intermediate products and end products should be evaluated. To achieve objective software quality evaluations, the quality attributes of the software should be measured using validated metrics.

The term "metric" has been used in many senses in software engineering publications. In this international standard it is defined as a quantitative scale and method which can be used for measurement. The word "measure" is used to refer to the result of a measurement.

The ISO/IEC 14598 series of standards give methods for measurement, assessment and evaluation of software product quality. They describe neither methods for evaluating software production processes nor methods for cost prediction (software product quality measurements may, of course, be used for both these purposes).

Information technology — Software product evaluation — Part 1: General overview

1 Scope

This part of ISO/IEC 14598 introduces the other parts. It provides an overview of the other parts and explains the relationship between ISO/IEC 14598 and the quality model in ISO/IEC 9126. This part of ISO/IEC 14598 defines the technical terms used in the other parts, contains general requirements for specification and evaluation of software quality and clarifies the general concepts. Additionally, it provides a framework for evaluating the quality of all types of software product and states the requirements for methods of software product measurement and evaluation.

ISO/IEC 14598 is intended for use by developers, acquirers and independent evaluators, particularly those responsible for software product evaluation. The evaluation results produced from the application of ISO/IEC 14598 can be used by managers and developers/maintainers to measure compliance to requirements and to make improvements where necessary. The evaluation results can also be used by analysts to establish the relationships between the internal and external metrics. Process improvement personnel can use the evaluation results to determine how processes can be improved through study and examination of the project's product quality information.

NOTE Much of the guidance in ISO/IEC 14598 is not specific to software, but is also applicable to other complex products.

2 Conformance

Specification and evaluation of software conforms to this part of ISO/IEC 14598 if it uses the process in clause 6 and a quality model as required in 8.3. Conformance to ISO/IEC 14598 as a whole shall mean conformance to all applicable published parts of ISO/IEC 14598.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 14598. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 14598 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 2382-1:1993, *Information technology — Vocabulary — Part 1: Fundamental terms*.

ISO 8402:1994, *Quality management and quality assurance — Vocabulary*.

ISO/IEC 9126-1:—¹⁾, *Information technology — Software quality characteristics and metrics — Part 1: Quality characteristics and sub-characteristics*.

ISO/IEC 12207:1995, *Information technology — Software life cycle processes*.

¹ To be published. Until this part is published ISO/IEC 9126:1991 should be used.