INTERNATIONAL STANDARD

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Information technology — Software product evaluation —

Part 5:
Process for evaluators

Technologies de l’information — Évaluation du produit logiciel —

Partie 5: Procédés pour les évaluateurs

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Contents

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialised system for worldwide standardisation. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organisation to deal with particular fields of mutual interest. Other international organisations, 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 14598-5 was prepared by Joint Technical Committee ISO/IEC JTC1, *Information technology*, Subcommittee SC 7, *Software engineering.*

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: Evaluation modules*

Annex A forms an integral part of this part of ISO/IEC 14598. Annexes B, C, D, E and F are for information only.

Introduction

Software products are becoming more and more important in all domains of industry and services. It is therefore necessary to be able to evaluate the quality of these software products.

Software products are extremely varied. They are produced to fulfil very diverse requirements in terms, for example, of functionality. Their context for use can also be very varied such as in the case of application software in a management information system, of software embedded in other products or of game software, to cite a few examples.

Potential benefits from evaluation are:

- the developer can use the results of the evaluation of its product to identify corrective actions, in order to improve the product or to make decisions about the evolution strategy for the product;
- for the supplier of a product the benefit from an evaluation can be to get confidence in the value of the product; in addition the evaluation report can be used for commercial purposes;
- for software product acquirers, evaluation results may be used as objective data on which to base acquiring decisions;
- for the industry at large, the spread of software product evaluation will help the use of quality as a marketing argument.

The primary purpose of software product evaluation is to provide quantitative results concerning software product quality that are comprehensible, acceptable to and can be depended on by any interested party.

The evaluation process is described as a step-wise procedure that allows expression of evaluation requirements in terms of quality characteristics as defined in ISO/IEC 9126. The evaluation takes into account various documents that can be considered as part of the software product, e.g. design documentation, test or validation reports, source code or user documentation. It is recommended that the evaluator uses a library of evaluation modules that define evaluation methods. These evaluation modules could be standardised, although no provision for that is proposed in this standard. The evaluation leads to the production by the evaluator of an evaluation report.

This evaluation process is a generic abstract process that follows the model defined in ISO/IEC 9126. Therefore, this process is applicable within all primary life-cycle processes defined in ISO/IEC 12207. Specific supporting life-cycle processes defined in ISO/IEC 12207 are directly related to the evaluation process. They are quality assurance, verification, validation, joint review and audit.

The tailoring process defined in ISO/IEC 12207 is built in the evaluation process defined in this standard by allowing the user to specify and design the evaluation activities.

The evaluation process described here may be used to test the conformity to standards such as ISO/IEC 12119.

Information technology — Software product evaluation — Part 5: Process for evaluators

1 Scope

This part of ISO/IEC 14598 provides requirements and recommendations for the practical implementation of software product evaluation when several parties need to understand, accept and trust evaluation results. In particular, it may be used to apply the concepts described in ISO/IEC 9126.

The process described in this part of ISO/IEC 14598 defines the activities needed to analyse evaluation requirements, to specify, design and perform evaluation actions and to conclude the evaluation of any kind of software product.

The evaluation process may be used to evaluate already existing products, provided the needed product components are available, or to evaluate products in development.

> NOTE For the evaluation of a product in development, the evaluation process needs to be synchronized with the software development process and product components are evaluated as they are delivered.

This part of ISO/IEC 14598 may be used by

- testing laboratory evaluators, when providing software product evaluation services,
- software suppliers, when planning evaluation of their products, including evaluation to be carried out by independent testing services,
- software acquirers, when requesting evaluation information from a supplier or testing service,
- software users when evaluating products or when using evaluation reports provided by testing laboratories,
- certification bodies in defining new certification schemes for software products.

2 Conformance

Because of the freedom of choice afforded to the user by the general nature of its recommendations, a simple claim of compliance with this part of ISO/IEC 14598 is not valid. Any organization imposing this part of ISO/IEC 14598 as a condition of trade is responsible for specifying and making public a set of requirements which constitute the terms for compliance for a given application of this part of ISO/IEC 14598. All requirements of clause 6 should be considered for applicability.

3 Normative references

The following standards contain provisions, which through reference in this text, constitute provisions of this part of ISO/IEC 14598. At the time of publication, the editions indicated were valid. All standards are subject to revision, and 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 standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9126:1991, *Information technology — Software product evaluation — Quality characteristics and guidelines for their use.*

ISO/IEC 14598-1:—[1], *Information technology — Software product evaluation — Part 1: General overview.*

ISO/IEC 14598-6:—[1], *Information technology — Software product evaluation — Part 6: Evaluation modules.*

4 Definitions

For the purposes of this part of ISO/IEC 14598, the following definitions apply.

4.1 evaluation method: a procedure describing the action to be performed by the evaluator in order to obtain the result for the specified measurement or verification applied on the specified product components or on the product as a whole.

4.2 evaluation report: the document that presents evaluation results and other information relevant to an evaluation.

4.3 evaluation records: documented objective evidence of all activities performed and of all results achieved within the evaluation process.

4.4 evaluation requester: the person or organisation that requests an evaluation.

4.5 evaluation tool: an instrument that can be used during evaluation to collect data, to perform interpretation of data or to automate part of the evaluation.

NOTE Examples of such tools are source code analysers to compute code metrics, CASE tools to produce formalised models, test environments to run the executable programs, checklists to collect inspection data or spreadsheets to produce syntheses of measures.

4.6 evaluator: the organisation that performs an evaluation.

NOTE An evaluator may, for example, be a testing laboratory, the quality department of a software development organisation, a government organisation or a user.

4.7 software product developer: the person or organisation that manufactures a software product.

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[1] To be published.