INTERNATIONAL STANDARD

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Software engineering — Product evaluation —

Part 3: Process for developers

Ingénierie du logiciel — Évaluation du produit —

Partie 3: Procédés pour développeurs

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Contents

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 14598-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software engineering*.

ISO/IEC 14598 consists of the following parts, under the general title *Software engineering — 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*

Annex A of this part of ISO/IEC 14598 is for information only.

Introduction

This part of ISO/IEC 14598 is intended for use during software development. It is applicable to all software development activities requiring a disciplined process. This part of ISO/IEC 14598 is particularly aimed at those measuring and evaluating the quality of software.

This part of ISO/IEC 14598 provides guidelines for clarifying quality requirements and for implementing and analysing software quality measures. This part of ISO/IEC 14598 applies to all software at all phases of the development life cycle. It focuses on the selection and reporting of those indicators that are useful to predict end product quality by measuring the quality of intermediate products. It also focuses on measuring end product quality.

Software engineering - Product evaluation - Part 3: Process for developers

1 Scope

This part of ISO/IEC 14598 provides requirements and recommendations for the practical implementation of software product evaluation when the evaluation is conducted in parallel with the development and carried out by the developer. In particular, it may be used to apply the concepts described in ISO/IEC 9126-1, 2, 3 and ISO/IEC 14598-1, 2, 6.

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 is designed to be used concurrently with the development. The evaluation process needs to be synchronised with the software development process and the entities be evaluated as they are delivered.

This part of ISO/IEC 14598 may be used by

- a project manager to clarify quality requirements, to monitor and control the quality of the software during development and to make decisions to assure that the required quality is built in,
- a software designer to identify specific features that should be built into the software or changed in order to meet the quality requirements,
- a quality assurance / control / audit responsible to evaluate whether the quality requirements are met,
- a maintainer to make decisions for the implementation of changes and redesign/reengineering,
- a software acquirer as part of an agreement with a developer when acquiring software (e.g. in the case of outsourcing software development) when an independent evaluation is not required. Acquirers may be personnel in a purchasing role, developers outsourcing a part of the software product, or end-users. The role of the acquirer depends on the agreement between the acquirer and the developer. ISO/IEC 14598-4 describes evaluation from the acquirers point of view.

This part of ISO/IEC 14598 is intended for application at the project level. In order to obtain full benefit from this standard the organization should be involved. This aspect is covered in ISO/IEC 14598-2.

This part of ISO/IEC 14598 does not prescribe specific indicators or metrics nor does it prescribe any particular development method.

2 Conformance

In order to conform to this part of ISO/IEC 14598, an organization shall review all requirements and recommendations in clause 6, to identify which are applicable, and state which requirements have not been implemented.

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 9126-1, *Information technology - Software product quality - Part 1: Quality model.*

ISO/IEC 12207, *Information technology - Software life cycle processes.*

ISO/IEC 14598-1:1999, *Information technology - Software product evaluation - Part 1: General overview.*

ISO/IEC 14598-2:2000, *Information technology - Software product evaluation - Part 2: Planning and management.*

ISO/IEC 14598-6, *Software engineering - Product evaluation - Part 6: Documentation of evaluation modules.*

4 Terms and definitions

For the purposes of this part of ISO/IEC 14598, the definitions given in ISO/IEC 14598-1 and the following definitions apply.

4.1
counting rule
conditions and procedures under which the measurement value is obtained

4.2
external attribute
a measurable property of an entity which can only be derived with respect to how it relates to its environment

Note: External attributes are those that relate to requirements (external properties of the software). External attributes can only be derived from the operational behaviour of the system of which it is a part.

4.3
internal attribute
a measurable property of an entity which can be derived purely in terms of the entity itself

Note: Internal attributes are those that relate to the internal organization of the software and its development.

4.4
unit
a quantity adopted as a standard of measurement

Note: Each unit has an associated scale.

5 Evaluation concepts

5.1 General aspects

The quality of software products can be described in terms of quality characteristics.