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Interim Australian Standard

Information technology—Software process assessment

Part 2: A reference model for processes and process capability

This Interim Australian Standard was prepared by Committee IT/15, Software Engineering. It was approved on behalf of the Council of Standards Australia on 2 September 1998 and published on 5 October 1998.

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Australian Computer Society
Australian Computer Society National Software Industry Committee
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
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Information technology—Software process assessment

Part 2: A reference model for process and process capability

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PREFACE

This Interim Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT/15, Software Engineering, and is the result of a consensus among the Joint Committee representatives that it be produced as an Australian Standard. It is identical with, and has been reproduced from, ISO/IEC TR 15504-2:1998, *Information technology—Software process assessment*, Part 2: *A reference model for processes and process capability*.

The objective of this Interim Standard is to provide acquirers, suppliers and assessors with the concepts of software process assessment and its use in the two contexts of process improvement and process capability determination. This Part specifies a reference model which describes processes that an organization may perform to acquire, supply, develop, operate, evolve and support software, and the process attributes that characterize the capability of those processes.

This Interim Standard is Part 2 of AS 15504, *Information technology—Software process assessment*, which when complete will consist of the following Parts:

Part 1: Concepts and introductory guide

Part 2: A reference model for processes and process capability (this Standard)

Part 3: Performing an assessment

Part 4: Guide to performing assessments

Part 5: An assessment model and indicator guidance (in preparation)

Part 6: Guide to competency of assessors

Part 7: Guide for use in process improvement

Part 8: Guide for use in determining supplier process capability

Part 9: Vocabulary

The term 'informative' has been used in this Interim Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

As this Interim Standard is reproduced from an international Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'ISO/IEC 15504' should read 'AS 15504(Int)'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

Standards Australia invites comment of this Interim Standard from persons and organizations concerned with this subject. The date of expiry for comment is two years after publication at which time this Interim Australian Standard will either be confirmed, withdrawn or revised in the light of public comment.

During the life of this document the Committee will monitor all comment as it is received.

Attention is drawn to the fact that this document is an Interim Australian Standard and should be regarded as a developmental Standard liable to future alteration.

References to International Standards should be replaced by references to equivalent Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard or other Publication		*Australian/New Zealand Standard*	
ISO		AS/NZS	
9001	Quality Systems—Model for quality assurance in design, development, production, installation and servicing	ISO 9001	Quality systems—Model for quality assurance in design, development, production, installation and servicing

ISO/IEC	AS/NZS
12207 Information Technology—Software life cycle processes	ISO/IEC 12207 Information technology—Software life cycle processes

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Introduction

This part of ISO/IEC TR 15504 documents the set of universal software engineering processes that are fundamental to good software engineering and that cover best practice activities, providing a reference model which can be used by the other parts of ISO/IEC TR 15504. The reference model describes processes that an organization may perform to acquire, supply, develop, operate, evolve and support software, and the process attributes that characterize the capability of those processes. In performing a process assessment, an assessor uses a model(s) of the processes being assessed that is compatible with this reference model, so that a common basis for judgment is employed. This document also describes the requirements that an assessment model(s) needs to address to be compatible with the reference model.

The purpose of the reference model is to provide a common basis for different models and methods for software process assessment, ensuring that results of assessments can be reported in a common context. The use of models compatible with the reference model will ensure a common context for the reporting of assessment ratings. The use of a common reference model forms a basis on which assessments can be compared.

The reference model architecture is two dimensional. The first dimension is the process dimension which is characterized by a set of purpose statements. The process purpose statements describe in measurable terms what has to be achieved in order to attain the defined purpose of the process. The processes have been defined in alignment with ISO/IEC 12207:1995, *Information Technology - Software Life Cycle Processes*. The second dimension is the process capability dimension which characterizes the level of capability that an organization unit has attained for a particular process, or which may be used by the organization unit as a target to be attained.

Within this part of the ISO/IEC TR 15504:

— clause 4, titled “Structure of the reference model”, provides a detailed description of the structure and key components of the reference model ;

— clause 5, titled “The process dimension”, categorizes life cycle processes into groups of process categories and then describes each process in terms of its purpose ;

— clause 6, titled “The capability dimension”, defines the capability levels and process attributes that describe the capability of the processes listed in clause 5 ;

— clause 7, titled “Compatibility with the reference model”, contains the requirements for demonstrating that a model of software processes and process capability is compatible with this reference model ;

— annex A contains a detailed mapping of the ISO/IEC 12207 to ISO/IEC TR 15504 processes ;

— annex B contains summary lists of the processes and the process attributes that comprise the reference model ;

— annex C contains a style guide for defining additional processes.

AUSTRALIAN STANDARD

Information technology — Software process assessment — Part 2: A reference model for processes and process capability

1 Scope

This part of ISO/IEC TR 15504 defines a reference model for software processes and process capability that forms the basis for software process assessment. The reference model defines at a high level the fundamental objectives that are essential to good software engineering. The high-level objectives describe what is to be achieved, not how to achieve them.

This reference model is applicable to any software organization wishing to establish and subsequently improve its capabilities in the acquisition, supply, development, operation, evolution and support of software. The model does not presume particular organizational structures, management philosophies, software life cycle models, software technologies, or development methodologies.

The architecture of this reference model organizes the processes to help software personnel understand and use them for continuous improvement of the management of software processes.

For software process assessment, an assessor uses a more detailed model(s) compatible with this reference model, containing a comprehensive set of indicators of process performance and process capability, to make judgments about the capability of the organization's processes. This part of ISO/IEC TR 15504 specifies the requirements to be met in order for a model(s) to be compatible with the reference model.

ISO/IEC TR 15504 is not intended to be used in any scheme for the certification / registration of the process capability of an organization.

Table 1 shows the main audiences for this part of ISO/IEC TR 15504, why each group needs the reference model, and how and when it will be used.

NOTE Copyright release for the Reference Model: Users of this part of ISO/IEC TR 15504 may freely reproduce the detailed descriptions contained in the reference model as part of any Assessment Model based upon the reference model, or as part of any demonstration of compatibility with this reference model, so that it can be used for its intended purpose.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC TR 15504. 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 TR 15504 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 9001:1994, *Quality Systems - Model for quality assurance in design, development, production, installation and servicing.*

ISO/IEC 12207:1995*, Information Technology - Software life cycle processes.*

ISO/IEC TR 15504-9 :1998, *Information technology – Software process assessment – Part 9 : Vocabulary.*