INTERNATIONAL STANDARD

ISO/IEC 33004

First edition
2015-03-01

Corrected version
2017-04

Information technology — Process assessment — Requirements for process reference, process assessment and maturity models

Technologies de l'information — Évaluation du processus — Exigences relatives au modèle de référence du processus, au modèle d'évaluation du processus et au modèle de maturité

Reference number
ISO/IEC 33004:2015(E)

© ISO/IEC 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Term(s) and definition(s) **1**
4 Requirements for process models **1**
5 Process reference models **2**
5.1 Introduction 2
5.2 Process reference model purpose and scope 2
5.3 Requirements for process reference models 2
5.4 Process descriptions 2
5.5 Verifying conformity of process reference models 3
6 Process assessment models **3**
6.1 Introduction 3
6.2 Process assessment model scope 4
6.3 Requirements for process assessment models 4
6.3.9 Mapping process assessment models 5
6.3.10 Expression of assessment results 6
6.4 Verifying conformity of process assessment models 6
7 Maturity models **6**
7.1 Introduction 6
7.2 Maturity model scope 6
7.3 Requirements for a maturity model 7
7.3.4 Scale of organizational process maturity 7
7.3.5 Process descriptions 7
7.3.6 Rules for deriving maturity level from process quality level 8
7.4 Verifying conformity of maturity models 8
Bibliography **9**

© ISO/IEC 2015 – All rights reserved

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

This second edition cancels and replaces clauses of ISO/IEC 15504-2:2003 and ISO/IEC 15504-7:2008, which have been technically revised.

This corrected edition cancels and replaces the edition ISO/IEC 33304:2015 which has been editorially revised. The main changes compared to the previous edition are as follows:

— duplicated clauses in 6.3 have been corrected; and

— minor editorial changes have been made to the foreword to align it with current editorial rules.

 © ISO/IEC 2015 – All rights reserved

Introduction

This International Standard provides requirements for the construction and verification of process reference models, process assessment models, and maturity models.

This International Standard is part of a set of International Standards designed to provide a consistent and coherent framework for the assessment of process quality characteristics, based on objective evidence resulting from implementation of the processes. The framework for assessment covers processes employed in the development, maintenance, and use of systems across the information technology domain and those employed in the design, transition, delivery and improvement of services. The set of International Standards, as a whole, addresses process quality characteristics of any type. Results of assessment can be applied for improving process performance, or for identifying and addressing risks associated with application of processes.

The set of International Standards ISO/IEC 33001:2015 to ISO/IEC 33099, termed the ISO/IEC 330xx family, defines the requirements and resources needed for process assessment. The overall architecture and content of the series is described in this International Standard. General issues relating to the application of conformity assessment to the assessment of process quality characteristics and organizational process maturity are addressed in ISO/IEC 29169.

Several International Standards in the ISO/IEC 330xx family of standards for process assessment are intended to replace and extend parts of the ISO/IEC 15504 series of Standards. Annex A in ISO/IEC 33001 provides a detailed record of the relationship between the ISO/IEC 330xx family and the ISO/IEC 15504 series.

© ISO/IEC 2015 – All rights reserved

Information technology — Process assessment — Requirements for process reference, process assessment and maturity models

1 Scope

This International Standard sets out the requirements for process reference models, process assessment models, and maturity models. The requirements defined in this International Standard form a structure which specifies

a) the relationship between the classes of process model associated with the performance of process assessment,

b) the relationship between process reference models and prescriptive/normative models of process performance, as constituted by, for example, the activities and tasks defined in ISO/IEC 12207[1] and ISO/IEC 15288 [2],

c) the integration of process reference models and process measurement frameworks to establish process assessment models,

d) the use of common sets of assessment indicators of process performance and process quality in process assessment models, and

e) the relationship between maturity models and process assessment models and the extent to which a maturity model can be constructed using elements from different process assessment models.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 33001:2015, *Information technology — Process assessment — Concepts and terminology*

ISO/IEC 33003, *Information technology — Process assessment — Requirements for process measurement frameworks*

3 Term(s) and definition(s)

For the purposes of this document, the terms and definitions given in ISO/IEC 33001 apply.

4 Requirements for process models

This International Standard sets out the requirements that shall be met by process models used to support process assessment. A process assessment model shall be based upon a suitable reference source of process definitions based on one or more process reference model(s) as described in Clause 5. The requirements to be met by a process assessment model in order to claim conformance through its relationship with specific process reference model(s) are defined in Clause 6. A maturity model shall be based on a suitable process assessment model(s); requirements for a maturity model are set out in Clause 7.

© ISO/IEC 2015 – All rights reserved