Technical Specification

ISO/IEC TS 33064

First edition
2025-10

Information technology — Process assessment — Process assessment model for safety processes

Technologies de l'information — Évaluation des processus — Modèle d'évaluation des processus pour les processus de sécurité

Reference number
ISO/IEC TS 33064:2025(en)

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Published in Switzerland

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Foreword

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

This document cancels and replaces ISO/IEC TS 15504-10:2011, which has been technically revised.

The main changes are as follows:

— all processes, outcomes, base practices and related process outputs and their descriptions are revised;

— this process assessment model includes a process quality attribute of process performance and can be used with other models of process quality, for instance capability as described in ISO/IEC 33020.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

The documents on process assessment developed by JTC 1/SC 7 (ISO/IEC 33001 to ISO/IEC 33099) define the requirements and resources needed for process assessment. The overall architecture and content of these documents is described in ISO/IEC 33001. Several documents on process assessment developed by JTC 1/SC 7 are intended to replace and extend parts of the ISO/IEC 15504 series.

The published documents on process assessment by JTC 1/SC 7 for systems and software life cycle processes do not provide a sufficient basis for performing a process quality assessment with respect to the development of complex safety-related systems.

Developing safety-related systems requires specialized processes, techniques, skills, and experience. Additional processes are needed in the area of safety management, safety engineering and external resource qualification. This document presents three process descriptions: safety management, safety engineering and external resource qualification processes.

A process assessment model is related to one or more process reference models. The extended safety process reference model is included in this document as descriptions of process purposes and outcomes.

A process assessment model incorporates a process measurement framework conforming to the requirements of ISO/IEC 33003 and is expressed as a process quality characteristic with a defined set of process attributes.

A process assessment model includes a set of assessment indicators. Process performance indicators address the process purpose and outcomes of each process in the process assessment model. Process quality indicators demonstrate the achievement of the process attributes in the process measurement framework. These indicators may also provide a reference source of practices when implementing a process improvement program.

The assessment indicators are used as a basis for collecting objective evidence to support an assessor's judgement in assigning ratings of the performance and quality of an implemented process. The set of indicators defined in this document are not intended to be an all-inclusive set and applicable in its entirety. Subsets appropriate to the context and scope of the assessment should be selected and potentially augmented with additional indicators.

A process assessment is conducted according to a documented assessment process. A documented assessment process identifies the rating method to be used in rating process attributes and identifies or defines the aggregation method to be used in determining ratings.

ISO/IEC 33020 provides a process measurement framework for the assessment of process capability which may be incorporated as a process measurement framework in this document. ISO/IEC 33020:2019, Annex B includes a set of process quality indicators for each process attribute in the process measurement framework.

Information technology — Process assessment — Process assessment model for safety processes

1 Scope

This document defines a process assessment model for safety processes, conforming to the requirements of ISO/IEC 33004, for use in performing a process assessment in accordance with the requirements of ISO/IEC 33002.

This document supports the use of the process assessment models for system and software life cycle processes (ISO/IEC TS 33060 and ISO/IEC TS 33061) when applied to assessment of processes in the development of (functional or non-functional) safety related systems in order to make consistent judgment regarding either process quality or improvement priorities, or both.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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, *Information technology — Process assessment — Concepts and terminology*

ISO/IEC 33003:2015, *Information technology — Process assessment — Requirements for process measurement frameworks*

ISO/IEC 33004:2015, *Information technology — Process assessment — Requirements for process reference, process assessment and maturity models*