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Systems and software engineering — Capabilities of review tools

Ingénierie des systèmes et du logiciel — Capacités des outils d'analyse



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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.

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) or the IEC list of patent declarations received (see http://patents.iec.ch).

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

For an explanation of 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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

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.

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Introduction

It is widely recognized that almost all software development organizations need to improve the quality of software at an appropriate cost and review is one important means. Applying reviews early in the lifecycle is known to reduce the amount of unnecessary rework in regular projects. This is because problem detection in upstream requires less cost than detection of problems by performing tests in downstream processes. By conducting the review in this way, it is possible to detect problems early, evaluate alternatives, improve organizational and personal processes, and improve work outcomes. ISO/IEC 20246 specifies a standard process for work product reviews.

Review support tools provide capabilities to improve review work and improve review quality, for example support for collaboration and communication between reviewers, logging and highlighting comments made on a work product, and support for review report generation.

Support tools are indispensable in the large-scale development project where the number of items pointed out in the review exceeds one thousand. Support tools are also actively used in small and medium-sized projects to improve review quality and efficiency. Indeed, various kinds of "review tools" are provided. For example, there is a relatively simple capability that allows you to add comments as a tag using the macro function of document creation. On the other hand, there are tools to support the progress management of the entire project in the large-scale development in which dozens of reviewers point out issues and the project manager monitors the status of the review implementation status.

In large organizations, it is very important to select appropriate tools from among various kinds of review tools. It is essential that the selected tool has a high degree of fairness and is evaluated according to public standards. For this purpose, ISO/IEC 20741 on the process of evaluation and selection of software engineering tools was published in 2017. However, ISO/IEC 20741 does not prescribe standard capabilities specific to reviews because it is generalized without depending on a specific tool field.

This document aims to define the capabilities of review support tools and to select the appropriate tool in combination with ISO/IEC 20741 for tool evaluation and selection (see Annex E). The review support tool assumed in this document supports the entire process specified in ISO/IEC 20246. For example, capabilities which support personal activities such as viewing and pointing out deliverables are necessary, and capabilities which support group activities such as reporting of situations are necessary (see Annex D). It is assumed that the check work itself such as the source code check defined in the ISO/IEC 30130 test tool is not included, and it is assumed that humans are checking.

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Systems and software engineering — Capabilities of review tools

1 Scope

This document specifies the capabilities of a tool to support review work.

The evaluation and selection of the review tools are performed in accordance with ISO/IEC 20741 which defines the general evaluation selection process and evaluation characteristics. This document defines capabilities specific to review tools in the process. By using these two standards together, it is possible to derive objective and reasonable results of the evaluation and selection of review tools.

The review work is based on the process, activities, and tasks defined in ISO/IEC 20246. It is also assumed that the review targets are defined in ISO/IEC 20246. The review work in this document is assumed not to be performed by a 3rd party, but within a project.

The review tool capabilities specified in this document harmonize with the review process defined in ISO/IEC 20246. This document does not include automated process, activities, or tasks for conducting reviews such as automated source code checkers defined in ISO/IEC 30130.

Issues which are identified in the review are recorded and managed by the tool; but defects found in tests and issues found in general except for reviews are out of the scope of this document.

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 20246, *Software and systems engineering — Work product reviews*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 20246 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
entity
data concept that may have attributes and relationships to other entities

[SOURCE: ISO/TR 25100:2012, 2.1.3, modified — NOTE has been removed.]

3.2
review folder
entity (3.1) for binding one or more related reviews, including a list of the reviews and information common to the reviews

Note 1 to entry: The information common to the reviews can include information on members who can participate in or organize the reviews, and information on the classification given to the issues identified during the reviews.

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