
Information technology — Guideline for the evaluation and selection of CASE tools

*Technologies de l'information — Lignes directrices pour l'évaluation et la
sélection d'outils CASE*

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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.

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.

ISO/IEC 14102 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 the first edition (ISO/IEC 14102:1995), which has been technically revised.

Introduction

Within systems and software engineering, Computer-Aided Software Engineering (CASE) tools represent a major part of the supporting technologies used to develop and maintain information technology systems. Their selection must be carried out with careful consideration of both the technical and management requirements.

This International Standard defines both a set of processes and a structured set of CASE tool characteristics for use in the technical evaluation and the ultimate selection of a CASE tool. It follows the software product evaluation model defined in ISO/IEC 14598-5:1998.

This International Standard adopts the general model of software product quality characteristics and sub-characteristics defined in ISO/IEC 9126-1:2001 and extends these when the software product is a CASE tool; it provides product characteristics unique to CASE tools. This larger set of characteristics is then organized into four groups. This grouping provides a more manageable approach to the overall evaluation and selection process.

The technical evaluation can indicate how well a CASE tool meets its user's stated requirements. It can also indicate how well the tool meets its claimed functionality.

The objective of the technical evaluation process is to provide quantitative results on which the final selection can be based. Measurement assigns numbers (or other ratings) to attributes of entities; a major activity of evaluation is to obtain these measurements for use in selection. The final selection results should aim to achieve objectivity, repeatability and impartiality. These objectives and the confidence in the outcomes will in part depend on the resources allocated to the overall evaluation and selection process. The user of this International Standard is asked to deal with these issues at an early stage.

To be widely acceptable, these CASE tool evaluation and selection processes must be of value to the users of CASE tools and to the suppliers of CASE to the community at large. The information outlined in this International Standard should lead to more cost-effective selections of CASE tools and to a greater uniformity in how CASE tool functions and features are described.

Information technology — Guideline for the evaluation and selection of CASE tools

1 Scope

This International Standard gives guidelines for the evaluation and selection of CASE tools, covering a partial or full portion of the software engineering life cycle. It establishes processes and activities to be applied for the evaluation of CASE tools and selecting the most appropriate CASE tools from several candidates. These processes are generic, and organizations must tailor them to meet organizational needs. The CASE tool evaluation and selection processes should be viewed in the larger context of the organization's technology adoption process.

This International Standard provides the following:

- a) guidance on identifying organizational requirements for CASE tools;
- b) guidance on mapping those requirements to CASE tool characteristics to be evaluated;
- c) a process for selecting the most appropriate CASE tool from several tools, based on measurements of the defined characteristics.

Primary users of this International Standard are organizations that intend to adopt CASE tools to support their software life cycle processes. CASE tool suppliers can also use this International Standard to describe characteristics of their CASE tools.

This International Standard is not intended to apply to:

- a) software engineering frameworks whose purpose is to provide mechanisms for data, control and presentation integration;
- b) general purpose tools (e.g. word processors, spreadsheets) which can be used in software engineering activities, nor CASE tools of very narrow scope or specific purpose (e.g. a compiler);
- c) planning for the implementation of CASE tools within an organization (even though it is recognised that this is an important subject).

NOTE A user of this International Standard can make the best possible selection of a CASE tool and yet have no guarantee of a successful implementation. ISO/IEC TR 14471 Adoption of CASE Tools addresses this subject.

This International Standard contains a set of processes, activities, and tasks designed to be tailored. The tailoring process is the selection of applicable processes, activities and tasks.

Compliance with this International Standard is defined as the performance of the processes, activities, and tasks selected from this International Standard for the evaluation and selection project. Any organization imposing this International Standard as a condition of trade is responsible for specifying the minimum set of required processes, activities, and tasks which constitute compliance for a given application of this International Standard.

2 Normative references

The following referenced documents are indispensable for the application 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 12207:2008, *Systems and software engineering — Software life cycle processes*