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Ingénierie des systèmes et du logiciel — Processus du cycle de vie — Ingénierie des exigences

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ISO copyright office
Case postale 56
CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
E-mail inmail@iec.ch
Web www.iec.ch

Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York
NY 10016-5997, USA
E-mail stds.ipr@ieee.org
Web www.ieee.org

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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.

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The main task of ISO/IEC JTC 1 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.

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ISO/IEC/IEEE 29148 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the Software & Systems Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

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Introduction

This International Standard provides a unified treatment of the processes and products involved in engineering requirements throughout the life cycle of systems and software. This International Standard is the result of harmonization of the following sources:

ISO/IEC 12207:2008 (IEEE Std 12207-2008), *Systems and software engineering — Software life cycle processes*

ISO/IEC 15288:2008 (IEEE Std 15288-2008), *Systems and software engineering — System life cycle processes*

ISO/IEC/IEEE 15289:2011, *Systems and software engineering — Content of life-cycle information products (documentation)*

ISO/IEC TR 19759, *Software Engineering — Guide to the Software Engineering Body of Knowledge (SWEBOK)*

IEEE Std 830, *IEEE Recommended Practice for Software Requirements Specifications*

IEEE Std 1233, *IEEE Guide for Developing System Requirements Specifications*

IEEE Std 1362, *IEEE Guide for Information Technology — System Definition — Concept of Operations (ConOps) Document*

ISO/IEC TR 24748-1, *Systems and software engineering — Life cycle management — Part 1: Guide for life cycle management*

ISO/IEC/IEEE 24765, *Systems and software engineering — Vocabulary*

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Systems and software engineering — Life cycle processes — Requirements engineering

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1 Scope

This International Standard

— specifies the required processes that are to be implemented for the engineering of requirements for systems and software products (including services) throughout the life cycle,

— gives guidelines for applying the requirements and requirements-related processes described in ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC 15288:2008 (IEEE Std 15288-2008),

— specifies the required information items that are to be produced through the implementation of the requirements processes,

— specifies the required contents of the required information items, and

— gives guidelines for the format of the required and related information items.

This International Standard is applicable to

— those who use or plan to use ISO/IEC 15288 and ISO/IEC 12207 on projects dealing with man-made systems, software-intensive systems, software and hardware products, and services related to those systems and products, regardless of project scope, product(s), methodology, size or complexity,

— anyone performing requirements engineering activities to aid in ensuring that their application of the requirements engineering processes conforms to ISO/IEC 15288:2008 (IEEE Std 15288-2008) and/or ISO/IEC 12207:2008 (IEEE Std 12207-2008),

— those who use or plan to use ISO/IEC/IEEE 15289:2011 on projects dealing with man-made systems, software-intensive systems, software and hardware products, and services related to those systems and products, regardless of project scope, product(s), methodology, size or complexity, and

— anyone performing requirements engineering activities to aid in ensuring that the information items developed during the application of requirements engineering processes conform to ISO/IEC/IEEE 15289:2011.

2 Conformance

2.1 Intended Usage

This International Standard provides guidance for the execution of the ISO/IEC 15288 and ISO/IEC 12207 processes that deal with requirements engineering. This International Standard also provides normative definition of the content and recommendations for the format of the information items, or documentation, that result from the implementation of these processes. Users of this International Standard can claim conformance to the process provisions or to the information item provisions, or both.

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2.2 Conformance to processes

This International Standard provides requirements for a number of requirements engineering processes suitable for usage during the life cycle of a system, a product, or a service.

The requirements for processes in this International Standard are contained in 5.2.4, 5.2.5, 5.2.6, 5.2.7, and 6.1.

NOTE 1 If a user of this International Standard claims full conformance to ISO/IEC 15288:2008 (IEEE Std 15288-2008) and/or ISO/IEC 12207:2008 (IEEE Std 12207-2008), then by implication the user may claim conformance to the processes in this International Standard.

NOTE 2 A claim to tailored conformance to ISO/IEC 15288:2008 (IEEE Std 15288-2008) and/or ISO/IEC 12207:2008 (IEEE Std 12207-2008), does not necessarily imply conformance to the processes in this International Standard.

2.3 Conformance to information item content

This International Standard provides requirements for a number of requirements engineering information items to be produced during the life cycle of a system, a product or a service. A claim of conformance to the information item provisions of this International Standard means that

— the user produces the required information items stated in this International Standard, and

— the user demonstrates that the information items produced during the requirements engineering activities conform to the content requirements defined in this International Standard.

The requirements for information items in this International Standard are contained in Clause 7. The requirements for the content of information items in this International Standard are contained in Clause 9 and Annex A.

NOTE 1 If a user of this International Standard claims full conformance to ISO/IEC/IEEE 15289, it does not imply that the user may claim conformance to the information items and information item content in this International Standard. The reason is that this International Standard adds additional information items.

NOTE 2 In this International Standard, for simplicity of reference, each information item is described as if it were published as a separate document. However, information items will be considered as conforming if they are unpublished but available in a repository for reference, divided into separate documents or volumes, or combined with other information items into one document.

2.4 Full conformance

A claim of full conformance to this International Standard is equivalent to claiming conformance

— to the provisions contained in subclauses 5.2.4, 5.2.5, 5.2.6, and 5.2.7,

— to the requirements-engineering-related processes of ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) cited in subclause 6.1,

— to the information items cited in Clause 7, and

— to the content requirements of the information items in Clause 9 and Annex A.

2.5 Tailored conformance

2.5.1 Processes

This International Standard does not make provision for tailoring processes. ISO/IEC 15288:2008 (IEEE Std 15288-2008), Annex A provides normative direction regarding the tailoring of system life cycle processes. ISO/IEC 12207:2008 (IEEE Std 12207-2008), Annex A provides normative direction regarding the tailoring of software life cycle processes.

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2.5.2 Information items

When this International Standard is used as a basis for establishing a set of information items that do not qualify for full conformance, the clauses of this International Standard are selected or modified in accordance with the tailoring process prescribed in Annex D. The tailored text, for which tailored conformance is claimed, is declared. Tailored conformance is achieved by demonstrating that requirements for the information items, as tailored, have been satisfied using the outcomes of the tailoring process as evidence.

3 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 (IEEE Std 12207-2008), *Systems and software engineering — Software life cycle processes*

ISO/IEC 15288:2008 (IEEE Std 15288-2008), *Systems and software engineering — System life cycle processes*

ISO/IEC/IEEE 15289:2011, *Systems and software engineering — Content of life-cycle information products (documentation)*

4 Terms, definitions and abbreviated terms

4.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 15288, ISO/IEC 12207 and the following apply.

4.1.1
acquirer
stakeholder that acquires or procures a product or service from a supplier

[ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008)]

NOTE Other terms commonly used for an acquirer are buyer, customer, owner, and purchaser.

4.1.2
attribute
inherent property or characteristic of an entity that can be distinguished quantitatively or qualitatively by human or automated means

[ISO/IEC 25000:2005]

NOTE ISO 9000 distinguishes two types of attributes: a permanent characteristic existing inherently in something; and an assigned characteristic of a product, process, or system (e.g. the price of a product, the owner of a product).

4.1.3
baseline
specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for further development, and that can be changed only through formal change control procedures

[ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008)]

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