
Systems and software engineering — System life cycle processes

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



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ISO/IEC/IEEE 15288 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the IEEE Computer Society Systems and Software Engineering Standards Committee, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This first edition of ISO/IEC/IEEE 15288 cancels and replaces the ISO/IEC 15288:2008 (second edition), which has been technically revised.

Changes in this revision of ISO/IEC/IEEE 15288 were developed in conjunction with a corresponding revision of ISO/IEC/IEEE 12207, *Systems and software engineering – Software life cycle processes*. The purpose of these revisions is to accomplish the harmonization of the structures and contents of the two International Standards, while supporting the requirements of the assessment community.

This International Standard was developed with the following goals:

- provide a common terminology between the revision of the ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207,
- where applicable, provide common process names and process structure between the revision of the ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207,
- enable the user community to evolve towards fully harmonized standards, while maximizing backward compatibility.

This revision is intended to achieve a fully harmonized view of the system and software life cycle processes.

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The complexity of man-made systems has increased to an unprecedented level. This has led to new opportunities, but also to increased challenges for the organizations that create and utilize systems. These challenges exist throughout the life cycle of a system and at all levels of architectural detail. This International Standard provides a common process framework for describing the life cycle of systems created by humans, adopting a Systems Engineering approach. Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining stakeholder needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem. It integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. It considers both the business and the technical needs of all stakeholders with the goal of providing a quality product that meets the needs of users and other applicable stakeholders. This life cycle spans the conception of ideas through to the retirement of a system. It provides the processes for acquiring and supplying systems. It helps to improve communication and cooperation among the parties that create, utilize and manage modern systems in order that they can work in an integrated, coherent fashion. In addition, this framework provides for the assessment and improvement of the life cycle processes.

The processes in this International Standard form a comprehensive set from which an organization can construct system life cycle models appropriate to its products and services. An organization, depending on its purpose, can select and apply an appropriate subset to fulfill that purpose.

This International Standard can be used in one or more of the following modes:

- By an organization — to help establish an environment of desired processes. These processes can be supported by an infrastructure of methods, procedures, techniques, tools and trained personnel. The organization may then employ this environment to perform and manage its projects and progress systems through their life cycle stages. In this mode this International Standard is used to assess conformance of a declared, established environment to its provisions.
- By a project — to help select, structure and employ the elements of an established environment to provide products and services. In this mode this International Standard is used in the assessment of conformance of the project to the declared and established environment.
- By an acquirer and a supplier — to help develop an agreement concerning processes and activities. Via the agreement, the processes and activities in this International Standard are selected, negotiated, agreed to and performed. In this mode this International Standard is used for guidance in developing the agreement.
- By process assessors — to serve as a process reference model for use in the performance of process assessments that may be used to support organizational process improvement.

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This introduction is not part of IEEE Std 15288™-2015, Systems and Software Engineering — Systems Life Cycle Processes.

This standard replaces ISO/IEC/IEEE Std 15288™-2008, Systems and software engineering—System life cycle processes. That standard replaced IEEE Std 15288™-2004, Adoption of ISO/IEC 15288:2002, Systems and software engineering—System life cycle processes. The original ISO/IEC 15288 was published in November 2002 and was the first international standard to provide a comprehensive set of life cycle processes for systems.

This new revision of ISO/IEC/IEEE 15288 is the product of a coordinated effort by IEEE and ISO/IEC JTC 1/SC 7. The base document for the revision is the ISO/IEC/IEEE standard. Development of this revision was carefully coordinated with the parallel revision of ISO/IEC/IEEE 12207:2015 to align structure, terms, and corresponding organizational and project processes.

This revised standard is a step in the SC7 harmonization strategy to achieve a fully integrated suite of system and software life cycle processes and guidance for their application. It is also an important step in the shared strategy of ISO/IEC JTC 1/SC 7 and the IEEE to harmonize their respective collections of standards.

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