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Systems and software engineering — Content of life-cycle information products (documentation)

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National foreword

This British Standard is the UK implementation of ISO/IEC/IEEE 15289:2011. It supersedes BS ISO/IEC 15289:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/15, Software and systems engineering.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

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Systems and software engineering — Content of life-cycle information products (documentation)

Ingénierie des systèmes et du logiciel — Contenu des systèmes et produits d'information du processus de cycle de vie du logiciel (documentation)

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

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.

Attention is called to the possibility that implementation of this standard may require the use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. ISO/IEEE is not responsible for identifying essential patents or patent claims for which a license may be required, for conducting inquiries into the legal validity or scope of patents or patent claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance or a Patent Statement and Licensing Declaration Form, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from ISO or the IEEE Standards Association.

ISO/IEC/IEEE 15289 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.

This first edition of ISO/IEC/IEEE 15289 cancels and replaces ISO/IEC 15289:2006, which has been technically revised.

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Introduction

The purpose of this International Standard is to provide requirements for identifying and planning the specific information items (information products) to be developed and revised during systems and software life cycles and service processes. This International Standard specifies the purpose and content of all identified systems and software life-cycle information items, as well as information items for information technology service management. The information item contents are defined according to generic document types and the specific purpose of the document. Information items may be combined or subdivided as needed for project or organizational purposes.

This International Standard is based on the life-cycle processes specified in 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*; and the service management processes specified in ISO/IEC 20000-1:2005, *Information technology — Service management — Part 1: Specification*; and ISO/IEC 20000-2:2005, *Information technology — Service management — Part 2: Code of practice.*

IEEE contributed IEEE 12207.1-1997, *Industry Implementation of International Standard ISO/IEC 12207:1995. (ISO/IEC 12207) Standard for Information Technology — Software life cycle processes — Life cycle data*, as a source for this International Standard.

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INTERNATIONAL STANDARD ISO/IEC/IEEE 15289:2011(E)

Systems and software engineering — Content of life-cycle information products (documentation)

1 Scope

This International Standard specifies the purpose and content of all identified systems and software life-cycle and service management information items (documentation). The information item contents are defined according to generic document types, as presented in Clause 7, and the specific purpose of the document (Clause 10).

This International Standard assumes an organization is implementing life-cycle processes in conformance with ISO/IEC 15288:2008 (IEEE Std 15288-2008), *Systems and software engineering — System life cycle processes*, or ISO/IEC 12207:2008 (IEEE Std 12207-2008), *Systems and software engineering — Software life cycle processes*, or practising service management in conformance with ISO/IEC 20000-1:2005, *Information technology — Service management — Part 1: Specification*, and ISO/IEC 20000-2:2005, *Information technology — Service management — Part 2: Code of practice.* ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC 15288:2008 (IEEE Std 15288-2008) define a set of processes for managing and performing the stages of a systems life cycle. They define an Information Management process, but they do "not detail documentation in terms of name, format, explicit content, and recording media" [ISO/IEC 15288:2008 (IEEE Std 15288-2008), 1.4)]. ISO/IEC 12207:2008 (IEEE Std 12207-2008) establishes a common framework for software life-cycle processes and in passing identifies or requires a number of documentation items. The Process Reference Model does not represent a particular process implementation approach, nor does it prescribe a system/software life-cycle model, methodology, or technique. ISO/IEC 20000-1:2005 establishes general requirements for documents and records (3.2). ISO/IEC 12207:2008 (IEEE Std 12207-2008) does not always specify when software information items are to be prepared, nor does it identify information item contents. This International Standard provides a mapping of ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) clauses with a set of information items.

The generic document types (which may be referred to as information item types) are to be used to identify the information necessary to support the ISO/IEC 15288:2008 (IEEE Std 15288-2008) agreement, enterprise, project, and technical processes; the ISO/IEC 12207:2008 (IEEE Std 12207-2008), primary, supporting, and organizational life-cycle processes; or the ISO/IEC 20000-1:2005 service management processes.

This International Standard identifies records and information items based on analysis of references in ISO/IEC 15288:2008 (IEEE Std 15288-2008), ISO/IEC 12207:2008 (IEEE Std 12207-2008), ISO/IEC 20000-1:2005 and ISO/IEC 20000-2:2005, which in some cases provide partial or complete outlines for the content of specific documents. However, the requirements for the life-cycle processes do not uniquely and unambiguously state the requirements for the information item contents or the information needed by a user of an information item. Moreover, the information from the life-cycle processes may overlap or may be created and revised at different times. In short, the analysed references do not result in a logically complete list of information items.

For each life-cycle process, it would be possible to prepare a plan, procedures, and reports, as well as numerous records, requests, descriptions and specifications. Such an elaboration of the documentation schema would be more rigorous than specified by ISO/IEC 15288:2008 (IEEE Std 15288-2008) or ISO/IEC 12207:2008 (IEEE Std 12207-2008). As ISO/IEC 15288:2008 (IEEE Std 15288-2008) points out (1.4), "This International Standard does not detail the life-cycle processes in terms of methods or procedures required to meet the requirements and outcomes of a process." Thus, information items may be combined or subdivided as needed for project or organizational purposes, as further defined in Clause 2, Applicability, and Clause 3, Conformance.

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Not included in the scope of this International Standard are the following:

a) the format or content of recommended input data or input information items, except for the content of those input items that are also output information items;

b) instructions on combining or subdividing information items and information item contents of a similar nature;

c) guidance on selecting an appropriate presentation format, delivery media, and maintenance technology for system and software life-cycle data, records, information items, or documentation, such as electronic publishing systems, content management systems, or data repositories;

d) detailed content for information items related to general business, organizational, and financial management that is not specific to systems and software engineering and information technology service management, such as business strategies, human resources and investment policies, personnel selection criteria, financial budgeting and accounting policies and procedures, cost reports, or payroll data;

e) information items showing only approval of an ISO/IEC 12207:2008 (IEEE Std 12207-2008) subclause, such as ISO/IEC 12207:2008 (IEEE Std 12207-2008), 6.1.2.3.4.5;

f) any ISO/IEC 15288:2008 (IEEE Std 15288-2008) or ISO/IEC 12207:2008 (IEEE Std 12207-2008) subclause not explicitly or implicitly identifying the recording of information about an activity or task, for example, ISO/IEC 12207:2008 (IEEE Std 12207-2008), 6.4.4;

g) work products, models, software, and other artifacts of the life-cycle products and services that are not information items or records used in information items.

NOTE 1 ISO/IEC 26514:2008, *Systems and software engineering — Requirements for designers and developers of user documentation*, provides guidance on formats for software user documentation.

NOTE 2 ISO/IEC TR 15504-5:1999, *Information technology — Software Process Assessment — Part 5: An assessment model and indicator guidance*, details the content of work products as well as information items. Its guidance includes descriptions of a set of information items (documents) that an assessor may encounter. The information items in its guidance may be produced by combinations and subdivisions of the required information items in this International Standard.

2 Applicability

2.1 Purpose

The purpose of this International Standard is to provide requirements for users of ISO/IEC 12207:2008 (IEEE Std 12207-2008), ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 20000-1:2005 for identifying and planning the specific information items (information products) to be developed and revised during systems and software life cycles and service processes. This International Standard is intended for use as follows.

a) To address the technical information needed by those involved in ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) processes.

b) To specify information in an agreement process as described in ISO/IEC 15288:2008 (IEEE Std 15288-2008) or a two-party situation as described in ISO/IEC 12207:2008 (IEEE Std 12207-2008), ISO/IEC 20000-1:2005 and ISO/IEC 20000-2:2005. The two-party situation may range from an informal agreement within an organization to a legally binding contract between organizations.

c) To develop information items that provide evidence for process assessment performed with respect to ISO/IEC 15504, and to guide process improvement activities.

d) To guide a single party in self-imposed tasks.

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2.2 Intended users of this International Standard

This International Standard is applicable for use by:

a) project managers responsible for the Information Management process of ISO/IEC 15288:2008 (IEEE Std 15288-2008) (5.4.8) during a system life cycle;

b) project managers responsible for identifying information item requirements and document contents when using ISO/IEC 12207:2008 (IEEE Std 12207-2008), or any other software engineering life-cycle process, to help determine what should be documented, when the documentation should occur, and what the contents of the documents should be;

c) acquirers responsible for determining what information items are needed to ensure the quality of the project, or delivered system, product or service;

d) individuals who write or support the design and development of service, systems and software information items;

e) individuals responsible for identifying information items required to claim conformance with ISO/IEC 12207:2008 (IEEE Std 12207-2008), ISO/IEC 15288:2008 (IEEE Std 15288-2008), or ISO/IEC 20000-1:2005;

f) individuals undertaking service, system or software process improvement in their organizations.

2.3 Applicability to work efforts

Use of this International Standard is not limited by size, complexity or criticality of the project. It may be applied to:

a) any type of project and life-cycle process;

b) any of the activities and tasks of a project and system or software product or service life cycle;

c) all forms of information items, information item content and document delivery media;

d) documentation in Commercial-Off-The-Shelf (COTS) products when the COTS product is specified as a deliverable under a two-party situation.

NOTE See ISO/IEC 12207:2008 (IEEE Std 12207-2008), 1.2.

2.4 Applicability to information item audiences

Users should map this International Standard to the requirements and needs of their agreements, or project and organizational procedures. The type of decision to be made, or work to be performed, by users of the information should be considered before an information item is prepared. Reviewing and understanding the requirements, needs, and background of users and stakeholders are essential to applying this International Standard accurately and economically, since some information items are designed for various purposes and user groups:

- To provide information to specialized types of users who may not be a part of a particular project.
- To address the same type of user but in environments not normally coexisting in the same effort.
- To aid both users who are expected to be computer-literate and understand technical terminology, and users who may not have this background.

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3 Conformance

3.1 Definition of conformance

This International Standard may be used as a conformance or a guidance document for projects and organizations claiming conformance to ISO/IEC 15288:2008 (IEEE Std 15288-2008), ISO/IEC 12207:2008 (IEEE Std 12207-2008), or ISO/IEC 20000-1:2005.

NOTE 1 Service providers should refer to ISO/IEC 20000-1:2005 and ISO/IEC TR 20000-5:2010 regarding claims of conformance for a defined certification scope, for example, organizational units, services, location.

To claim conformance to this International Standard, having tailored the selected system or software life-cycle processes, the users of this International Standard shall prepare the information items identified in this International Standard applicable to the selected and tailored ISO/IEC 15288:2008 (IEEE Std 15288-2008), ISO/IEC 12207:2008 (IEEE Std 12207-2008), or ISO/IEC 20000-1:2005 processes.

The generic and specific record and information item contents in Clauses 7, 9, and 10 of this International Standard may be tailored to satisfy requirements of an organization, its projects, or agreements based on the tailored conformance to ISO/IEC 15288:2008 (IEEE Std 15288-2008) or ISO/IEC 12207:2008 (IEEE Std 12207-2008). In tailoring, information item titles and contents provided in this International Standard may be modified (added to, combined or retitled). The contents of the information items shall correspond to the selected and tailored processes.

NOTE 2 Annex A of ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) provide requirements for the Tailoring Process.

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 shall 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. Use of the nomenclature of the specific records in Clause 9 or the information item titles in Clause 10 is not required to claim conformance with this International Standard.

Throughout this International Standard, “shall” is used to express a provision that is normative, “should” to express a recommendation among other possibilities, and “may” to indicate a course of action permissible within the limits of this International Standard.

The verb “include” used in this International Standard indicates that either (1) the information is present or (2) a reference to the information is listed.

3.2 Conformance situations

Conformance may be claimed for organizations, projects, multi-supplier projects, services, and information items, as identified in the claim of conformance:

a) When conformance is claimed for an organization or a service provider, the organization or service provider shall make public a document declaring its tailoring of the records and information items, and its interpretation of any clauses of the standard that reference “the contract”.

b) When conformance is claimed for a project (or program), the project plans or the contract shall document the tailoring of the records and information items, and the interpretation of any clauses of the standard that reference “the contract”.

c) When conformance is claimed for multi-supplier projects, it may be the case that no individual project can claim conformance because no single contract calls for all the required records and information items. Nevertheless, the projects, as a whole, may claim conformance if each of the required records and information items is produced by an identified party. The program plans shall document the tailoring of the records and information items, and their assignment to the various parties, as well as the interpretation of any clauses of the standard that reference “the contract”.

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d) When conformance is claimed for an information item, the item shall contain the generic contents required in Clause 7 of this International Standard and the specific content required in Clause 10.

NOTE 1 One possible way for an organization to deal with clauses that cite "the contract" is to specify that they shall be interpreted in the project plans for any particular project. A project's claim of conformance is typically specified with respect to the organization's claim of conformance.

NOTE 2 In accordance with ISO/IEC 17000:2004, *Conformity assessment — Vocabulary and general principles,* an organization or a project or a multi-supplier program may be said to comply with this document when its products (the information items) fulfil the requirements, but the organization, project or program has not met the specific requirements for conformance stated in items (a), (b) or (c) above.

3.3 Type of conformance

One of the following types of conformance shall be asserted. The selected type shall be identified in the claim of conformance:

a) Tailored: The minimum set of required information items is determined by tailoring of processes and activities in accordance with Annex A of ISO/IEC 12207:2008 (IEEE Std 12207-2008) or Annex A of ISO/IEC 15288:2008 (IEEE Std 15288-2008).

b) Absolute: The minimum set of required information items is all of those specified as normative (that is, clauses containing "shall") in the text of the normative reference standards.

NOTE Absolute conformance may be claimed for selected processes or information items even if absolute conformance with the entire standard is not claimed.

4 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited 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 20000-1:2005, *Information technology — Service management — Part 1: Specification*

ISO/IEC/IEEE 24765:2010, *Systems and software engineering — Vocabulary*

5 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 12207:2008 (IEEE Std 12207-2008), ISO/IEC/IEEE 24765:2010 and the following apply.

5.1
approval
written notification, by an authorized representative, that a deliverable item appears to satisfy requirements and is complete

NOTE Such approval does not shift responsibility from the supplier to meet requirements under a two-party situation.

5.2
complete [documentation]
including all critical information and any necessary, relevant information for the intended audience

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5.3
consistent
without internal conflicts

5.4
COTS
Commercial-Off-The-Shelf
product available for purchase and use without the need to conduct development activities

5.5
criteria
rules on which a judgment or decision can be based, or by which a product, service, result, or process can be evaluated

5.6
critical information
information describing the safe use of the software, the security of the information created with the software, or the protection of the sensitive personal information created by or stored with the software

[ISO/IEC 26514:2008]

5.7
database
collection of data organized according to a conceptual structure describing the characteristics of the data and the relationships among their corresponding entities, supporting one or more application areas

5.8
description
information item that represents a planned or actual concept, function, design, or object

5.9
document
uniquely identified unit of information for human use, such as a report, specification, manual or book, in printed or electronic form

5.10
documentation plan
plan identifying the documents to be produced during the system or software life cycle

5.11
information item
separately identifiable body of information that is produced, stored, and delivered for human use

NOTE 1 “information product” is a synonym.

NOTE 2 An information item can be produced in several versions during a project life cycle.

5.12
include information
having either the information or a reference to the information present in the document

5.13
information item content
information included in an information item, associated with a system, product or service, to satisfy a requirement or need

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5.14
information item type
group of information items consistent with a pre-arranged set of generic criteria

NOTE "generic document type" is a synonym.

EXAMPLE A "plan" is the information item type for all plans and "report" is the information item type for all reports.

5.15
modifiable
structured and has a style such that changes can be made completely, consistently, and correctly while retaining the structure

5.16
plan
information item that presents a systematic course of action for achieving a declared purpose, including when, how, and by whom specific activities are to be performed

5.17
policy
clear and measurable statement of preferred direction and behaviour to condition the decisions made within an organization

[ISO/IEC 38500:2008]

5.18
presentable
retrievable and viewable

5.19
procedure
information item that presents an ordered series of steps to perform a process, activity, or task

NOTE A procedure defines an established and approved way or mode of conducting business in an organization. It details permissible or recommended methods in order to achieve technical or managerial goals or outcomes.

5.20
record
set of related data items treated as a unit

5.21
report
information item that describes the results of activities such as investigations, observations, assessments, or tests

5.22
request
information item that initiates a defined course of action or change to fulfil a need

5.23
software item
identifiable part of a software product

EXAMPLE Identification and descriptions of the software product, software life-cycle data, archive and release data, and instructions for building the executable object code.

5.24
specification
information item that identifies, in a complete, precise, and verifiable manner, the requirements, design, behaviour, or other expected characteristics of a system, service, or process

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5.25
traceable
having components whose origin can be determined

5.26
unambiguous
described in terms that allow only a single interpretation, aided, if necessary, by a definition

5.27
verifiable
can be checked for correctness by a person or tool

6 Life cycle data and information items

6.1 Life cycle data characteristics

This International Standard specifies how life cycle data is managed in information items. The required data from the life-cycle or service process shall be organized into records and presented in one or more information items, and shall be consistent with an information item generic type. An information item shall include its generic information item contents (Clause 7).

Each set of records and information item produced as a document described in this International Standard shall support the life cycle data characteristics:

a) unambiguous

b) complete

c) verifiable

d) consistent

e) modifiable

f) traceable

g) presentable

6.2 Records compared to information items (documents)

A record is a special type of information containing a set of structured data treated as a unit. Table 4 in Clause 9 identifies records. Consistent with the ISO 9000 series, the purpose of a record is to state results achieved or to provide evidence of activities performed by an organizational entity. In fact, ISO/IEC 20000-1:2005 defines record as “document stating results achieved or providing evidence of activities performed” and considers any document or information item to be a record. However, this International Standard distinguishes between records of data and documents (information items).

Data records gain their value from being combined with other records in a set, typically by inclusion in structured databases, registers, or repositories where the individual records are available for retrieval and analysis. Records hold the factual data (evidence) for the other generic information types. A single record, a selection of records, or a complete listing of the repository’s contents is not suitable for issuance as a complete communication product as are the information items (documents) such as a plan or procedure. The information items (documents) are produced and communicated for human use and contain formal elements (such as purpose, scope, and summary), intended to make them usable by their intended audience.

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6.3 Management of life cycle data (records)

Life cycle data results from the execution of the process or service activities and tasks of the standard. Many of the clauses in ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) require life cycle data to be produced or recorded. However, the clauses of ISO/IEC 15288:2008 (IEEE Std 15288-2008) and ISO/IEC 12207:2008 (IEEE Std 12207-2008) do not dictate the content, location, format, or media to be used to record and maintain the data. When choosing appropriate data to be recorded, users should also determine where in the organization or project's record-keeping systems the data should be recorded. Records may be maintained in databases, registers, repositories, archives, or other data management systems. Projects shall establish record retention policies in consideration of system life cycle and organizational or service management needs for the data. Clause 9 defines the content of generic records and recommends content for specific records.

NOTE Requirements and guidance for records management are found in ISO/IEC 16175:2010, *Information and documentation — Principles and functional requirements for records in electronic office environments — Part 1: Overview and statement of principles*.

6.4 Management of information items (documents)

The management of information items shall be performed by applying the Information Management process of ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC 15288:2008 (IEEE Std 15288-2008), and the Documentation Management and Software Documentation Management processes of ISO/IEC 12207:2008 (IEEE Std 12207-2008), including the knowledge management activities of ISO/IEC 15288:2008 (IEEE Std 15288-2008) clause 6.2.4. The Information Management Process should support the needs of a project and the related product or service. It should include procedures for preparing, collecting, identifying, classifying, distributing, storing, updating, archiving, and retrieving information.

Appendix A of this International Standard provides a summary procedure for identifying and planning for information items and their contents. Information items should be defined to be applicable to multiple related processes used by a project or organization, or to related services (such as incident and problem management). Information items may be combined or subdivided consistent with the tailored system processes, phases, and stakeholder needs.

The documentation management process shall include these activities:

a) Identify the documents to be produced by the organization, service, process or project;

b) Specify the content and purpose of all documents and plan and schedule their production;

c) Identify the standards to be applied for development of documents;

d) Develop and publish all documents in accordance with identified standards and in accordance with nominated plans;

e) Maintain all documents in accordance with specified criteria.

NOTE Annex A provides a procedure for identifying information items and their contents during information management and documentation planning.

6.4.1 Developing the documentation plan

The tasks to be performed in the Documentation Management Process shall be identified in a Documentation Plan. When developing the Documentation Plan, consideration should be given to policies and procedures of the acquirer and supplier. The Documentation Management Process for each project should be considered as part of a repeatable process for the acquirer and supplier.

NOTE A documentation plan may be created for an entire organization or for multiple projects and services that reuse document content.

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6.4.2 Managing and controlling information items

Projects, organizations, and services may include their record descriptions and tailored information item descriptions in a data dictionary or work breakdown structure. This practice helps the document management, development, and maintenance activities. An established hierarchy of information items should be prescribed and a mechanism developed for resolving conflicts between items. For example, there should be one master schedule for the entire suite of plans relating to a single project, and schedule information given in specific plans should relate to this master schedule.

Commercial or other existing information items may be substituted for all or part of an information item if they contain the desired information, meet applicable quality characteristics, and are properly referenced. When existing information items are readily available to users, consider providing a reference to these information items rather than reproducing the information.

7 Generic types of information items

7.1 General

The use of generic types simplifies the application of consistent structure, content, and formats for similar information items (records and documents), to support usability. This International Standard defines the life cycle data of ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC 15288:2008 (IEEE Std 15288-2008) by relating tasks and activities to the following generic types of information items:

a) description

b) plan

c) policy

d) procedure

e) report

f) request

g) specification.

NOTE Clause 9 identifies the generic content of data records.

The generic information item contents shall be included in each applicable information item. Generic information item (document) contents are mapped to the identified output information items shown in column 3 of Tables 1, 2, and 3.

The lists of contents of generic types of information items do not specify a normative sequence, structure of parts, or a list of section titles.

7.2 Description – generic content

Purpose: Represent a planned or actual context of use, function, design, service, or item

NOTE A description of something that is required is a specification.

A description shall include the following elements:

a) Date of issue and status

b) Scope

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c) Issuing organization

d) References

e) Context

f) Notation for description

g) Body

h) Summary

i) Glossary

j) Change history

Identified information items:

- Concept of operations
- Database design description
- Interface description
- Proposal
- Service catalog
- Software architecture description
- Software design description
- Software unit description
- System architecture description
- System element description

7.3 Plan – generic content

Purpose: Define when, how, and by whom specific processes or activities are to be performed.

A plan shall include the following elements

a) Date of issue and status

b) Scope

c) Issuing organization

d) References (applicable policies, laws, standards, contracts, requirements, and other plans and procedures)

e) Approval authority

f) Approach for technical and management review and reporting

g) Other plans (plans or task descriptions that expand on the details of a plan)

h) Planned activities and tasks

i) Identification of tools, methods, and techniques

j) Schedules

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k) Budgets and cost estimates

l) Resources and their allocation

m) Responsibilities and authority, including the senior responsible owner and immediate process owner

n) Interfaces among parties involved

o) Risks and risk identification, assessment and mitigation activities

p) Quality assurance and control measures

q) Environment, infrastructure, security, and safety

r) Training

s) Glossary

t) Change procedures and history

u) Termination process

Identified information items:

- Acceptance plan
- Acquisition plan
- Asset management plan
- Audit plan
- Capacity plan
- Configuration management plan and policy
- Development plan
- Disposal plan
- Documentation plan
- Domain engineering plan
- Improvement plan (process improvement plan, service improvement plan)
- Information management plan
- Information security plan
- Installation plan
- Integration plan (implementation plan)
- Maintenance plan
- Measurement plan
- Project management plan
- Quality management plan (quality assurance plan)
- Release plan
- Reuse plan
- Risk management policy and plan
- Service Availability and continuity plan
- Service management plan
- Training plan
- Validation plan
- Verification plan

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7.4 Policy – generic content

Purpose: Establish an organization's high-level intention and approach to achieve objectives for, and ensuring effective control of, a service, process, or management system.

A policy shall include the following elements:

a) Date of issue, effective date, and status

b) Scope

c) Issuing organization

d) Approval authority and identification of those accountable for enforcing the policy

e) Authoritative references for compliance or conformance (such as policies, laws and regulations, standards, contracts, requirements, and vision or mission statements)

f) Body, including objectives

g) Glossary

h) Change history

NOTE Policies can be communicated in various media or included in plans, procedures, specifications, or other documents. Policies are implemented through Plans and Procedures. Policies may be defined for any life-cycle process or service process.

Identified information items:

- Configuration management plan and policy (change management policy, release policy)
- Improvement policy
- Information security policy
- Life cycle policy and procedure
- Quality management policy and procedure
- Risk management policy and plan

7.5 Procedure – generic content

Reference: ISO/IEC 15288:2008 (IEEE Std 15288-2008), 5.3.1

Purpose: Define in detail when and how to perform certain activities or tasks, including tools needed.

A procedure shall include the following elements:

a) Date of issue and status

b) Scope

c) Issuing organization

d) Approval authority

e) Relationship to plans and other procedures

f) Authoritative references

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g) Inputs and outputs

h) Ordered description of steps to be taken by each participant

i) Error and problem resolution

j) Glossary

k) Change history

Identified information items:

- Audit procedure
- Capacity management procedure
- Configuration management procedure (change management procedure, release management procedure)
- Complaint procedure
- Implementation procedure
- Incident management procedure
- Life cycle policy and procedure
- Maintenance procedure
- Operational test procedure
- Problem management procedure
- Process assessment procedure
- Qualification test procedure
- Quality management policy and procedure
- Software unit test procedure
- Supplier management procedure
- Supplier selection procedure
- Training documentation
- User documentation

7.6 Report – generic content

Purpose: Describe the results of activities such as investigations, assessments, and tests. A report communicates decisions.

A report shall include the following elements:

a) Date of issue and status

b) Scope

c) Issuing organization

d) Contributors

e) Summary

f) Introduction

g) Context (assumptions)

h) Body (including methods of obtaining results)

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i) Conclusions and recommendations

j) References

k) Bibliography

l) Glossary

m) Change history

Identified information items:

- Acceptance review and testing report
- Audit acknowledgement report
- Audit report
- Configuration status report
- Evaluation report
- Incident report
- Installation report
- Integration and test report
- Monitoring and control report
- Problem report
- Process improvement analysis report
- Product need assessment
- Progress report
- Qualification test report
- Review minutes
- Service report
- Software unit test report
- User notification
- Validation report
- Verification report

7.7 Request – generic content

Purpose: Record information needed to solicit a response.

A request shall include the following elements:

a) Date of initiation

b) Scope

c) Subject

d) Originator of request

e) Identification of requested item, service, or response

f) Detailed description of requested item, service, or response, including due date

g) Justifications

NOTE The identification of the requested item may be a Specification.

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Identified information items:

- Change request
- Customer satisfaction survey
- Request for proposal (RFP)
- Resource request
- Risk action request

7.8 Specification – generic content

Purpose: provide requirements for a required service, product, or process.

Specifications should use a well-defined syntax. Specifications should be internally consistent in terminology, definitions, and constraints. Unique specifications should be defined once to prevent inconsistent updates. Each requirement should be uniquely identified. A specification shall include the following elements:

a) Date of issue and status

b) Scope

c) Issuing organization

d) References

e) Approval authority

f) Body

g) Assurance requirements

h) Conditions, constraints, and characteristics

i) Glossary

j) Change history

Identified information items:

- Contract
- Service level agreement (SLA)
- Software requirements specification
- System requirements specification
- Validation test specification

8 Mapping of information items to the life cycle and service management processes

In Tables 1, 2, and 3, column 3, information items are identified and mapped to the process where they are identified as output in ISO/IEC 15288:2008 (IEEE Std 15288-2008) or ISO/IEC 12207:2008 (IEEE Std 12207-2008) or ISO/IEC 20000-1:2005. These references may be normative requirements, recommended output, informative material, examples, or notes. This International Standard identifies information items that are not explicitly specified by title in ISO/IEC 15288:2008 (IEEE Std 15288-2008) or ISO/IEC 12207:2008 (IEEE Std 12207-2008) or ISO/IEC/IEEE 20000-1:2005. In these cases, the base standards explicitly call out information to be documented, described, planned, specified, reported, recorded, requested or specified. Annex B, Table B.1, compares information items by source.

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Table 1 maps ISO/IEC 15288:2008 (IEEE Std 15288-2008) clauses (column 2), processes, and output information items. Table 2 maps ISO/IEC 12207:2008 (IEEE Std 12207-2008) clauses (column 2), processes, and output information items. Table 3 maps ISO/IEC 20000-1:2005 and 20000-2:2005 clauses (column 2), processes, and output information items. Tables 1, 2, and 3 also list recommended input information items (source documents and data) in column 1 to help produce the output information items.

Tables 1-3 do not show all the possible inputs, nor all the required outputs for a process. They show the recommended input information items for each output information item developed or revised during the process. Tables 1-3 also show the specific reference citations from the source standards for each specified information item, not all references for a process.

In numerous clauses, the life cycle standards indicate that something (for example, a strategy) is to be "defined." However, definition does not in itself indicate that a specific information item will be produced. Similarly, clauses indicating that 'communication is maintained' do not necessarily mean that an information item (a document) is produced.

For nearly every process, ISO/IEC/IEEE 15228:2008 and ISO/IEC 12207:2008 (IEEE Std 12207-2008) specify that organizational policies and procedures are a source for process activities and outputs. In Tables 1, 2, and 3, "organizational policies and procedures" are not listed, but should be considered as input for every information item. In contractual work, the Contract/agreement and requirements should also be considered as input for every information item, whether or not the source standard states that the process should be performed "as specified in the contract."

This International Standard does not specify the format or content of recommended input data or input information items, except for the content of those items that are also output information items.

8.1 Mapping of information items to the system life cycle

As defined in ISO/IEC/IEEE 15288 and shown in Table 1 headings, In addition to the Tailoring Process, there are two agreement processes, five organizational processes, seven project processes, and eleven technical processes:

Agreement Processes

1. Acquisition
2. Supply

Organizational Project-Enabling Processes

1. Life Cycle Model Management
2. Infrastructure Management
3. Project Portfolio Management
4. Human Resource Management
5. Quality Management

Project Processes

1. Project Planning
2. Project Assessment and Control
3. Decision Management

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4. Risk Management
5. Configuration Management
6. Information Management
7. Measurement

Technical Processes

1. Stakeholder Requirements Definition
2. Requirements Analysis
3. Architectural Design
4. Implementation
5. Integration
6. Verification
7. Transition
8. Validation
9. Operation
10. Maintenance
11. Disposal

Table 1 — Mapping of ISO/IEC 15288:2008 (IEEE Std 15288-2008), Clauses to Information Items for Each System Life Cycle Process

Typical Input information items	ISO/IEC 15288: 2008 (IEEE Std 15288 -2008) reference	Output information item
ACQUISITION		
Proposal, other contracts	6.1.1.2d) 6.1.1.3c)	Contract
Needs assessment	6.1.1.3a)	System requirements specification
Concept of operations, system requirements specification, software requirements specification, acceptance strategy, other requests for proposal	6.1.1.3a)	Request for proposal (RFP)
SUPPLY		
Request for proposal, other proposals	6.1.1.3.a), 6.1.1.3b), 6.1.2.2b) 6.1.2.3b)	Proposal

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Typical Input information items	ISO/IEC 15288: 2008 (IEEE Std 15288 -2008) reference	Output information item
Proposal, other contracts and agreements	6.1.2.2c) 6.1.2.2f) 6.1.2.3c) 6.1.3.3f)	Contract
Problem report	6.1.2.3b)	Product need assessment
Project management plan	6.1.2.3d)	Progress report
Organizational procedure, other project management plans, contract	6.1.2.3c) 6.1.2.3d)	Project management plan
LIFE CYCLE MODEL MANAGEMENT		
Organizational procedure	6.2.1.2a) 6.2.1.3a)	Life cycle policy and procedure
Assessment report, organizational procedure	6.2.1.3c)	Improvement plan
Organizational procedure, process assessment procedure, process assessment results, audit report, customer satisfaction report, assessment report, progress report, problem report	6.2.1.3c)	Process improvement analysis report
INFRASTRUCTURE MANAGEMENT		
Organizational procedure, other system requirements specification	6.2.2.2	System requirements specification
PROJECT PORTFOLIO MANAGEMENT		
Organizational procedure, project plan, business action plan	6.2.3.3a)	Project management plan
System life cycle policies and procedures	6.2.3.3a)6)	Progress report
HUMAN RESOURCE MANAGEMENT		
Employee Skill record, project management plan	6.2.4.3.b)	Training plan
Knowledge management policy, training plan, user documentation, validation procedure	6.2.4.3b)	Training documentation
QUALITY MANAGEMENT		
Project management plan	6.2.5.3	Quality management plan
Organizational procedure, quality management plan, customer satisfaction report, problem report	6.2.5.2a) 6.2.5.3a)	Quality management policy and procedure
Survey, interview, requirements specification	6.2.5.3b)	Evaluation report
PROJECT PLANNING		
Contract, organizational procedure, other plans	6.3.1.1 6.3.1.2, 6.3.1.3	Project management plan
Product need assessment, contract	6.3.1.3b)	Acceptance plan
Product need assessment	6.3.1.3b)	Acquisition plan

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Typical Input information items	ISO/IEC 15288: 2008 (IEEE Std 15288 -2008) reference	Output information item
Organizational quality management policy and procedure	6.3.1.3c)	Quality management plan
Project management plan, work breakdown structure, budget	6.3.1.3.d),	Resource request
PROJECT ASSESSMENT AND CONTROL		
Contract, organizational procedure, project plan, quality assurance plan	6.3.2.2	Problem report
Contract, organizational procedure, project plan, quality assurance plan, other progress report	6.3.2.2d) 6.3.2.3a)9)	Progress report
Problem report, analysis of metrics and variations	6.3.2.3.b)4	Monitoring and control report
Project management plan, work breakdown structure, budget, progress report	6.3.2.3.b)	Resource request
DECISION MANAGEMENT		
Organizational procedure, contract	6.3.3.3a)2), 6.3.3.3c)1)	Problem report
Organizational procedure, contract	6.3.3.2.d)	Report *(see generic Report information item)*
RISK MANAGEMENT		
Project management plan	6.3.4.3a)	Risk management policy and plan
Risk management plan, risk profile	6.3.4.3d)	Risk action request
Risk management plan, risk profile, quality assurance procedure, problem report	6.3.4.3b)	Monitoring and control report
CONFIGURATION MANAGEMENT		
project management plan, information management plan	6.3.5.3a)	Configuration management plan
INFORMATION MANAGEMENT		
Organizational procedure, project management plan, configuration management plan	6.3.6.3 a)	Information management plan
MEASUREMENT		
Organizational procedure, project management plan	6.3.7.3 a)	Measurement plan
Measurement data, information management plan	6.3.7.1 6.3.7.3 b)	Monitoring and control report
Measurement plan, evaluation report	6.3.7.3 c)	Process improvement analysis report
STAKEHOLDER REQUIREMENTS DEFINITION		
Contract, needs assessment	6.4.1.2a), D.4.a	Concept of operations
Contract, needs assessment, concept of operations	6.4.1.3c)	System requirements specification

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