

This is a preview - click here to buy the full publication

INTERNATIONAL
STANDARD

ISO/IEC/
IEEE
15289

Third edition
2017-06

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

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

Withdrawn



Reference number
ISO/IEC/IEEE 15289:2017(E)

© ISO/IEC 2017
© IEEE 2017

Withdrawn



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2017, Published in Switzerland

© IEEE 2017

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO or IEEE at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Institute of Electrical and Electronics Engineers, Inc
3 Park Avenue, New York
NY 10016-5997, USA

stds.ipr@ieee.org
www.ieee.org

Contents

Page

Foreword.....	vi
Introduction.....	vii
1 Scope	1
2 Normative references	3
3 Terms, definitions, and abbreviated terms	3
3.1 Terms and definitions	3
3.2 Abbreviated terms	6
4 Applicability	6
4.1 Purpose	6
4.2 Intended users of this document	6
4.3 Applicability to work efforts	7
4.4 Applicability to information item audiences	7
5 Conformance	7
5.1 Definition of conformance	7
5.2 Conformance situations	8
5.3 Type of conformance	9
6 Life-cycle data and information items	9
6.1 Life-cycle data characteristics	9
6.2 Records compared to information items (documents)	9
6.3 Management of life-cycle data (records)	10
6.4 Management of information items (documents)	10
6.4.1 Developing the documentation plan	10
6.4.2 Managing and controlling information items	11
7 Generic types of information items	11
7.1 General	11
7.2 Description – generic content	11
7.3 Plan – generic content	12
7.4 Policy – generic content	14
7.5 Procedure – generic content	15
7.6 Report – generic content	16
7.7 Request – generic content	18
7.8 Specification – generic content	18
8 Mapping of information items to the life cycle and service management processes	19
8.1 Mapping of information items to the system life cycle	20
8.2 Mapping of information items to the software life cycle	25
8.3 Mapping of information items to the service management processes	32
9 Records	37
9.1 Record – generic content	37
9.2 Specific record contents	38
10 Specific information item (document) contents	41
10.1 General	41
10.2 Acceptance plan	41
10.3 Acceptance report	41
10.4 Acquisition plan	42
10.5 Asset management plan	42
10.6 Audit acknowledgement report	42
10.7 Audit plan	43

10.8	Audit procedure.....	43
10.9	Audit report.....	43
10.10	Capacity plan.....	43
10.11	Capacity management procedure.....	44
10.12	Change request.....	44
10.13	Communication procedure.....	44
10.14	Complaint procedure	44
10.15	Concept of operations	45
10.16	Configuration management plan and policy	45
10.17	Configuration management procedure	46
10.18	Configuration status report.....	47
10.19	Contract.....	47
10.20	Customer satisfaction survey.....	48
10.21	Database design description.....	48
10.22	Development plan	49
10.23	Disposal plan.....	49
10.24	Documentation plan	50
10.25	Documentation procedure	50
10.26	Domain engineering plan.....	50
10.27	Evaluation report	50
10.28	Implementation procedure	51
10.29	Improvement plan.....	51
10.30	Improvement procedure.....	51
10.31	Incident management procedure	52
10.32	Incident report.....	52
10.33	Information management plan	53
10.34	Information management procedure.....	53
10.35	Information security plan	53
10.36	Information security policy.....	54
10.37	Information security procedure	54
10.38	Installation plan.....	55
10.39	Installation report.....	55
10.40	Integration and test report.....	55
10.41	Integration plan	55
10.42	Interface description.....	56
10.43	Life-cycle policy and procedure.....	56
10.44	Maintenance plan.....	56
10.45	Maintenance procedure	57
10.46	Measurement plan	57
10.47	Measurement procedure.....	57
10.48	Monitoring and control report.....	57
10.49	Operational test procedure	58
10.50	Problem management procedure	58
10.51	Problem report	58
10.52	Process assessment procedure	59
10.53	Process improvement report.....	59
10.54	Product need assessment.....	59
10.55	Progress report.....	60
10.56	Project management plan.....	60
10.57	Proposal	61
10.58	Qualification test procedure	61
10.59	Qualification test report.....	62
10.60	Quality management plan.....	62
10.61	Quality management policy and procedure	62
10.62	Release plan (and policy)	63
10.63	Request for proposal (RFP)	64
10.64	Resource request.....	64
10.65	Reuse plan	64
10.66	Review minutes.....	65
10.67	Risk action request	65

10.68	Risk management policy and plan	65
10.69	Service catalog.....	65
10.70	Service continuity and availability plan.....	65
10.71	Service level agreement (SLA).....	66
10.72	Service management plan (and policy).....	67
10.73	Service plan.....	67
10.74	Service report.....	68
10.75	Software architecture description	68
10.76	Software design description	69
10.77	Software requirements specification	70
10.78	Software unit description	71
10.79	Software unit test procedure.....	71
10.80	Software unit test report.....	71
10.81	Supplier management procedure	71
10.82	Supplier selection procedure	72
10.83	System architecture description.....	72
10.84	System element description.....	73
10.85	System requirements specification	73
10.86	Training documentation	74
10.87	Training plan.....	74
10.88	User documentation	74
10.89	User notification.....	75
10.90	Validation plan.....	75
10.91	Validation procedure (validation test specification).....	75
10.92	Validation report.....	75
10.93	Verification plan.....	75
10.94	Verification procedure	77
10.95	Verification report.....	77
Annex A (informative) Procedure for identifying information items and their contents.....		78
Annex B (informative) Information items and records by source		80
Bibliography		84
List of Tables		
Table 1 — Mapping of ISO/IEC/IEEE 15288:2015, clauses to information items for each system life-cycle process.....		21
Table 2 — Mapping of ISO/IEC 12207:2008 (IEEE Std 12207-2008) clauses to information items for each software life-cycle process		26
Table 3 — Mapping of ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013) and ISO/IEC 20000-2:2012 (IEEE Std 20000-2:2013) clauses to information items for each service management process		33
Table 4 — Record references and contents.....		38
Table B.1 — Information items by source		80
Table B.2 — Records by source.....		83

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.

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards.

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

Attention is called to the possibility that implementation of this document may require the use of subject matter covered by patent rights. By publication of this document, no position is taken with respect to the existence or validity of any patent rights in connection therewith. ISO/IEC and IEEE are 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 document 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.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Systems and software 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 third edition cancels and replaces the second edition (ISO/IEC/IEEE 15289:2015), of which it constitutes a minor revision. This third edition reflects ISO/IEC/IEEE 15288:2015, *Systems and software engineering—System life cycle processes*, which replaced ISO/IEC 15288:2008 (IEEE Std 15288:2008).

Introduction

The purpose of this document 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 document 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 are combined or subdivided as needed for project or organizational purposes.

This document 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/IEEE 15288:2015, *Systems and software engineering — System life cycle processes*; and the service management processes specified in ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013), *Information technology — Service management — Part 1: Service Management System Requirements*; and ISO/IEC 20000-2:2012 (IEEE Std 20000-2:2013), *Information technology — Service management — Part 2: Guidance on the application of service management systems*.

ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC/IEEE 15288:2015 define a set of processes for managing and performing the stages of a system life cycle. They define an Information Management process, but they do “not detail information items in terms of name, format, explicit content, and recording media”. ISO/IEC/IEEE 15288:2015, and ISO/IEC 12207:2008 (IEEE Std 12207-2008) establish a common framework for systems and software life-cycle processes and identify or require a number of documentation items. Their 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 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. ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013) establishes comprehensive requirements for documents and records, with some specific requirements. ISO/IEC 20000-2:2012 (IEEE Std 20000-2:2013), *Information technology — Service management — Part 2: Guidance on the application of service management systems* provides guidance on the use of Part 1.

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 the first edition of this document.

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

1 Scope

This document 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 document assumes an organization is performing life-cycle processes, or practicing service management, using one or more of the following:

- ISO/IEC 12207:2008 (IEEE Std 12207-2008), Systems and software engineering — Software life cycle processes;
- ISO/IEC/IEEE 15288:2015, Systems and software engineering — System life cycle processes;
- ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013), Information technology — Service management — Part 1: Service management system requirements; and
- ISO/IEC 20000-2 (IEEE Std 20000-2:2013), *Information technology — Service management — Part 2: Guidance on the application of service management systems*.

This document provides a mapping of processes from the above standards to a set of information items. It provides a consistent approach to meeting the information and documentation requirements of systems and software engineering and IT service management.

This document does not establish a service management system.

ISO/IEC 12207:2008 (IEEE Std 12207-2008) and ISO/IEC/IEEE 15288:2015 define a set of processes for managing and performing the stages of a software or system life cycle. They define an Information Management process, but do not “detail information items in terms of name, format, explicit content, and recording media”.

ISO/IEC/IEEE 15288:2015 and ISO/IEC 12207:2008 (IEEE Std 12207-2008) establish a common framework for system and software life-cycle processes. They identify or require a number of documentation items. Their process reference model does not represent a particular process implementation approach, nor prescribe a system/software life-cycle model, methodology or technique.

ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013) establishes comprehensive requirements for documents and records, with some specific requirements.

ISO/IEC 20000-2:2012 (IEEE Std 20000-2:2013), provides guidance on the use of ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013).

The generic document types defined in this document are used to identify the information necessary to support the following:

- the ISO/IEC/IEEE 15288:2015 agreement;
- organizational project-enabling;
- technical management and processes;
- the ISO/IEC 12207:2008 (IEEE Std 12207-2008) primary, supporting, and organizational life-cycle processes; and

— the ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013) service management system (SMS), service delivery, relationship, resolution, and control processes.

The generic document types (which can be referred to as information item types) are used to identify the information necessary to support the ISO/IEC/IEEE 15288:2015 agreement, organizational project-enabling, technical management, and technical processes; the ISO/IEC 12207:2008 (IEEE Std 12207-2008) primary, supporting, and organizational life-cycle processes; or the ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013) service management system (SMS), service delivery, relationship, resolution, and control processes.

For each life-cycle process or service, it would be possible to prepare a policy, 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/IEEE 15288:2015 or ISO/IEC 12207:2008 (IEEE Std 12207-2008). As ISO/IEC/IEEE 15288:2015 points out (1.4), “The users of this document are responsible for selecting a life cycle model for the project and mapping the processes, activities, and tasks in this document into that model. The parties are also responsible for selecting and applying appropriate methodologies, methods, models and techniques suitable for the project.” Thus, information items are combined or subdivided consistent with the life cycle model, as needed for project or organizational purposes, as further defined in Clause 4, Applicability, and Clause 5, Conformance.

The scope of this document does not include 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 systems or software life-cycle data, records, information items, or documentation, such as electronic publishing systems, content management systems, or data repositories;

NOTE 1 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.

NOTE 2 ISO/IEC/IEEE 26531, System and software engineering – Content management for product life-cycle, user, and service management documentation, provides requirements for content management and component content management systems.

- d) detailed content for information items related to general business, contractual, organizational, and financial management that is not specific to systems and software engineering and information technology service management, such as business strategies, contract change notices, 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/IEEE 15288:2015 or ISO/IEC 12207:2008 (IEEE Std 12207-2008) subclause not explicitly or implicitly identifying the recording of information about a process, 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 life-cycle products and services that are not information items or records used in information items.

NOTE 3 ISO/IEC 26514:2008, Systems and software engineering — Requirements for designers and developers of user documentation, provides guidance on formats for user documentation.

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 12207:2008 (IEEE Std 12207-2008), *Systems and software engineering — Software life cycle processes*
- ISO/IEC/IEEE 15288:2015, *Systems and software engineering — System life cycle processes*
- ISO/IEC 20000-1:2011 (IEEE Std 20000-1:2013), *Information technology — Service management — Part 1: Service management system requirements*

Withdrawn