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Software and systems engineering — Software testing —

Part 3:
Test documentation

Ingénierie du logiciel et des systèmes — Essais du logiciel —

Partie 3: Documentation des essais

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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.

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.

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 29119-3 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.

ISO/IEC 29119 consists of the following standards, under the general title *Software and systems engineering — Software testing*:

— *Part 1: Concepts and definitions*

— *Part 2: Test processes*

— *Part 3: Test documentation*

— *Part 4: Test techniques*

— *Part 5: Keyword-Driven Testing*

Introduction

The purpose of the ISO/IEC/IEEE 29119 series of software testing standards is to define an internationally-agreed set of standards for software testing that can be used by any organization when performing any form of software testing.

This document includes templates and examples of test documentation that are produced during the test process. The templates are arranged within clauses reflecting the overall test process description structure in ISO/IEC/IEEE 29119-2 Test Processes, i.e. by the test process in which they are being produced. Annex A contains a list of all the information items identified in Clauses 6, 7 and 8 of this document with the corresponding level of conformance (shall/should/may) from ISO/IEC/IEEE 29119-2 Test Processes. Annex B contains an overview of the examples. Annexes C to R contain examples of the application of the templates. Annex S provides mappings to existing standards. Annex T explains why the concept of test conditions has been replaced by test models in this standard. A Bibliography is provided at the end of the document.

The test documentation described in this standard could be on paper or in electronic form (e.g. records in test tools, spreadsheets, mind maps, white board photos).

The nomenclature of test documentation within the standard (e.g. document names, section headings) and the contents of each document can be tailored to suit the unique needs of an organization, under the tailoring clause (see Clause 4).

The concepts and vocabulary relating to the software testing documentation are defined in ISO/IEC/IEEE 29119-1 Concepts and Definitions and in clause 3 of this document.

The test process model is defined in ISO/IEC/IEEE 29119-2 Test processes. It comprises test process descriptions that define the software testing processes at the organizational level, test management level and dynamic test level. Supporting informative diagrams describing the processes are also provided.

Software test design techniques that can be used during test design are defined in ISO/IEC/IEEE 29119-4 Test Techniques.

This series of international standards aims to provide stakeholders with the ability to manage and perform software testing in any organization. This standard can be adopted under any lifecycle methodology including traditional (e.g. waterfall, iterative), agile or DevOps.

Software and systems engineering — Software testing —

Part 3: Test documentation

1 Scope

This document specifies software test documentation templates that can be used for any organization, project or testing activity. It describes the test documentation that is an output of the processes specified in ISO/IEC/IEEE 29119-2 Test processes. An overview of the test documentation is provided in Figure 1 below.

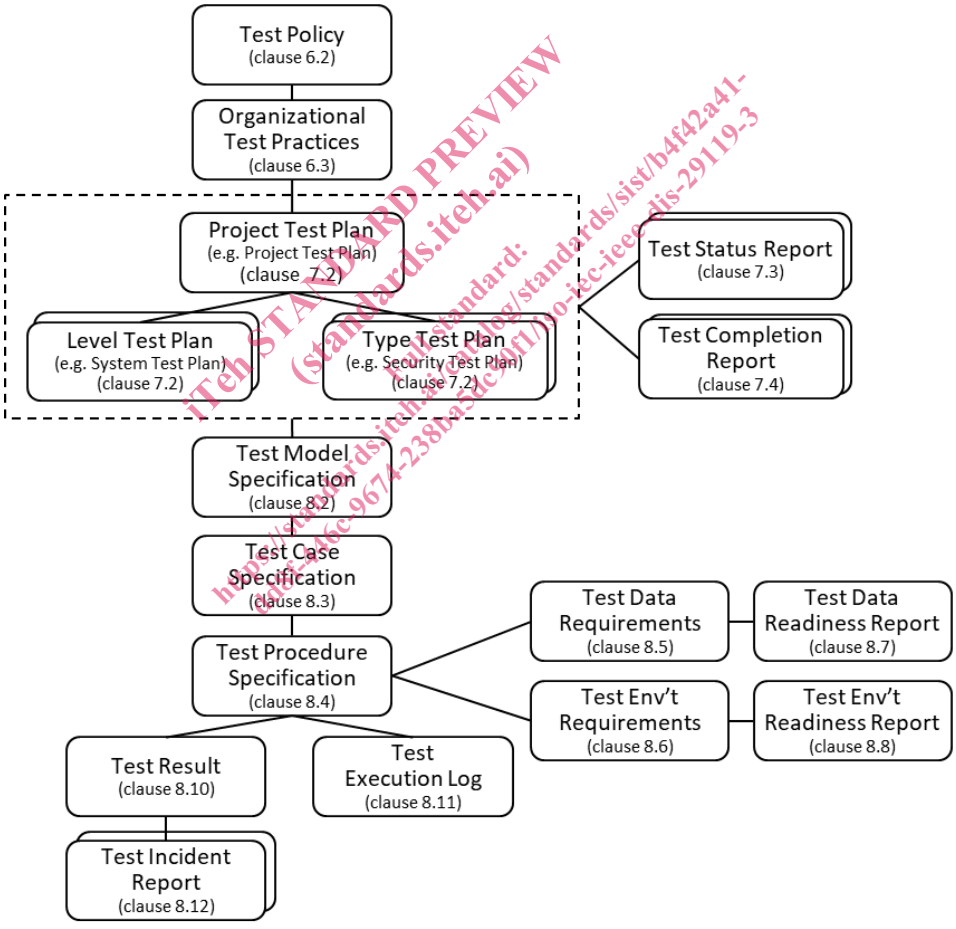

Figure 1 — Overview of test documentation

This document is applicable to testing in all software development lifecycle models. This document is intended for, but not limited to, testers, test managers, developers, and project managers, particularly those responsible for governing, managing, and implementing software testing.

In this document, for simplicity, each item of test documentation is described as if it were a separate hardcopy document. Document titles and contents provided in this standard may be modified (e.g. added to, combined or re-titled) and use of the nomenclature used in Clauses 5, 6, 7 and 8 is not mandatory. Test documentation shall be considered as conforming if it is available in electronic format (e.g. records in a test management tool or spreadsheet), divided into separate documents, or combined with other documents into one document.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC/IEEE 15289:2019, *Systems and software engineering — Content of life-cycle information items (documentation)*

ISO/IEC/IEEE 29119-1, *Software and systems engineering — Software testing — Part 1: Concepts and definitions*

ISO/IEC/IEEE 29119-2, *Software and systems engineering — Software testing — Part 2: Test processes*

ISO/IEC/IEEE 29119-4, *Software and systems engineering — Software testing — Part 4: Test techniques*

Other standards useful for the implementation and interpretation of this standard are listed in the Bibliography.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC/IEEE 29119-1, ISO/IEC/IEEE 24765 and the following apply.

NOTE Use of the terminology in this document is for ease of reference and is not mandatory for conformance with this document. The following terms and definitions are provided to assist with the understanding and readability of this document. Only terms critical to the understanding of this document are included. This clause is not intended to provide a complete list of testing terms. The Systems and Software Engineering vocabulary ISO/IEC/IEEE 24765 can be referenced for terms not defined in this clause. All terms defined in this clause are also intentionally included in ISO/IEC/IEEE 29119-1, as that international standard includes all terms that are used in ISO/IEC/IEEE 29119-1, 2, 3, 4 and 5.

3.1
actual results
set of behaviours or conditions of a test item, or set of conditions of associated data or the test environment, observed as a result of test execution

EXAMPLE Output to screen, outputs to hardware, changes to data, reports, and communication messages sent.

3.2
expected results
observable predicted behaviour of the test item under specified conditions based on its specification or another source

3.3
incident
anomalous or unexpected event, set of events, condition, or situation at any time during the life cycle of a project, product, service, or system

3.4
Incident Report
documentation of the occurrence, nature, and status of an incident

NOTE 1 to entry: Incident reports are also known as anomaly reports, defect reports, , amongst other terms.

3.5
Organizational Test Specification
documentation that provides information about testing for an organization, i.e. information that is not project-specific

EXAMPLE The most common examples of organizational test specifications are the Organizational Test Policy and Organizational Test Practices.

3.6
Organizational Test Practices
documentation that expresses the generic requirements for the testing to be performed within an organization, providing detail on how the testing is to be performed

NOTE 1 to entry: The Organizational Test Practices is aligned with the Organizational Test Policy.

NOTE 2 to entry: An organization could have more than one Organizational Test Practices document to cover markedly different contexts, such one for mobile apps and one for safety critical systems.

3.7
Organizational Test Specification
documentation that provides information about testing for an organization, i.e. information that is not project-specific

EXAMPLE The most common examples of organizational test specifications are the Organizational Test Policy and the Organizational Test Practices.

3.8
Test Case Specification
documentation of a set of one or more test cases

3.9
Test Completion Report
report that provides a summary of the testing that was performed

NOTE 1 to entry: Also known as a Test Summary Report.

3.10
Test Data Readiness Report
documentation describing the status of each test data requirement

3.11
test environment item
element of a test environment that can be considered separately from other parts of the test environment

EXAMPLE: Hardware, software, interfaces, peripherals, tools.

3.12
Test Environment Readiness Report
documentation that describes the status of each test environment requirement

3.13
Test Environment Requirements
documentation of the necessary properties of the test environment

NOTE 1 to entry: All or parts of the test environment requirements could reference where the information can be found, e.g. in the appropriate Organizational Test Practices document, Test Plan, and/or Test Specification.

3.14
Test Execution Log
documentation that records details of the execution of one or more test procedures

3.15
test incident
event occurring during the execution of a test that requires investigation

3.16
test model
representation of an aspect of the test item, which is in the focus of testing

EXAMPLE Requirements statements, equivalence partitions, state transition diagram, use case description, decision table, input syntax, source code, control flow graph, parameters & values, classification tree, natural language.

NOTE 1 to entry: The test model and the required test coverage are used to identify test coverage items.

NOTE 2 to entry: A separate test model may be required for each different type of required test coverage included in the test completion criteria.

NOTE 3 to entry: A test model can include one or more test conditions.

NOTE 4 to entry: Test models are commonly used to support test design (e.g. they are used to support test design in ISO/IEC/IEEE 29119-4, and they are used in model-based testing). Other types of models exist to support other aspects of testing, such as test environment models, test maturity models and test architecture models.

3.17
Test Model Specification
documentation specifying the test model

3.18
Test Plan
detailed description of test objectives to be achieved and the means and schedule for achieving them, organised to coordinate testing activities for some test item or set of test items

NOTE 1 to entry: A project can have more than one Test Plan, for example there can be a project test plan (also known as a master test plan) that encompasses all testing activities on the project; further detail of particular test activities can be defined in separate test plans (e.g. a system test plan or a performance test plan).

NOTE 2 to entry: Test plans can also be written for non-project activities, for example a maintenance test plan.

3.19
test organization
management structure responsible for testing within an organization

NOTE 1 to entry: The test organization is typically technically, managerially and financially independent from the development organization.

3.20
Test Policy
executive-level documentation that describes the purpose, goals, principles and scope of testing within an organisation

NOTE 1 to entry: The Test Policy defines what testing is performed and what it is expected to achieve but does not detail how testing is to be performed.

NOTE 2 to entry: The Test Policy can provide a framework for establishing, reviewing and continually improving the organisation's testing.

3.21
Test Procedure Specification
documentation specifying one or more test procedures

3.22
test result
indication of whether or not a specific test case has passed or failed, i.e. if the actual results corresponds to the expected results or if deviations were observed