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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.

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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.

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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*

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 part of ISO/IEC/IEEE 29119, Test Documentation, 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 outlines of the contents of each document. Annex B contains a list of all the information items identified in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 with the corresponding level of conformance (shall/should/may) from ISO/IEC/IEEE 29119-2 Test Processes. Annex C contains an overview of the examples. Annexes D to S contain examples of the application of the templates. Annex T provides mappings to existing standards. The Bibliography for this part of ISO/IEC/IEEE 29119 is at the end of the document.

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

The actual 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.

Software and systems engineering — Software testing —

Part 3:
Test documentation

1 Scope

This part of ISO/IEC/IEEE 29119 specifies software test documentation templates that can be used by any organization, project or smaller 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 documents is provided in Figure 1 below. A slightly larger version of this figure is provided in Annex A.

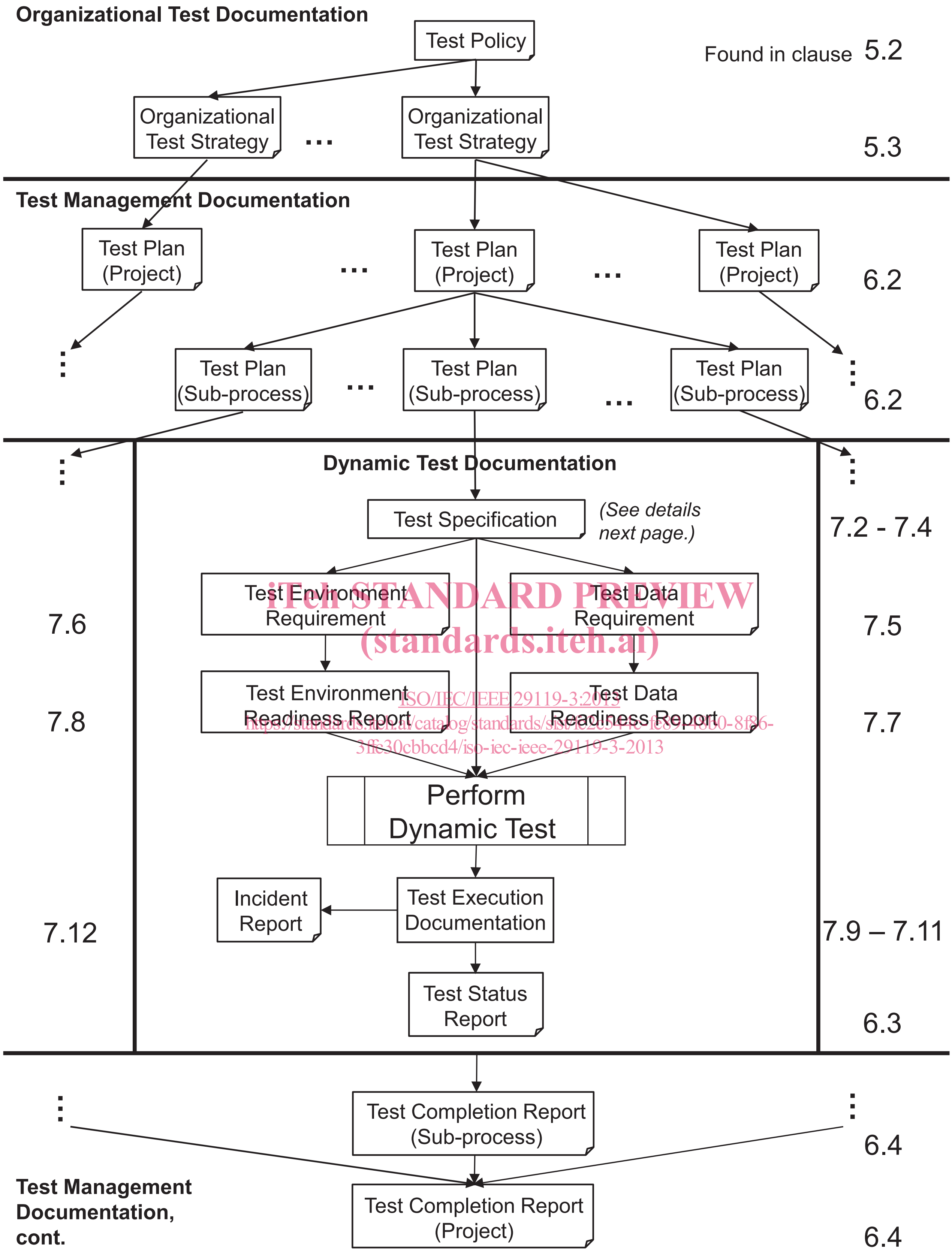

Figure 1 — The hierarchy of test documentation

This part of ISO/IEC/IEEE 29119 is applicable to testing in all software development lifecycle models.

This part of ISO/IEC/IEEE 29119 is intended for, but not limited to, testers, test managers, developers, and project managers, particularly those responsible for governing, managing, and implementing software testing.

The documents described in this part of ISO/IEC/IEEE 29119 may be issued in several versions over time. However, the handling of multiple versions of documents is out of scope of this part of ISO/IEC/IEEE 29119, because this is a configuration management issue.

2 Conformance

2.1 Intended usage

The requirements in this part of ISO/IEC/IEEE 29119 are contained in Clauses 5, 6 and 7. This part of ISO/IEC/IEEE 29119 provides requirements for a number of test documents suitable for use during the complete software lifecycle. It is recognized that particular projects or organizations may not need to use all of the documents defined by this part of ISO/IEC/IEEE 29119. Therefore, implementation of this part of ISO/IEC/IEEE 29119 typically involves selecting a set of documents suitable for the organization or project. There are two ways that an organization can claim to conform to the provisions of this part of ISO/IEC/IEEE 29119; full or tailored conformance. Conformance may be claimed for organizations, projects, multi-supplier projects and services, as identified in the claim of conformance.

The information items identified in Clauses 5, 6, and 7 of this part of ISO/IEC/IEEE 29119 correspond to the outputs of the ISO/IEC/IEEE 29119-2 Test Processes. Annex B is normative and provides an overview of the normative requirements for the clauses in ISO/IEC/IEEE 29119-2 where the creation of the information items defined in Clauses 5, 6, and 7 of this part of ISO/IEC/IEEE 29119 is described.

In this part of ISO/IEC/IEEE 29119, for simplicity of reference, each document is described as if it were published as a separate hardcopy document. Document titles and contents provided in this part of ISO/IEC/IEEE 29119 may be modified (added to, combined or re-titled) and use of the nomenclature of the specific records in Clauses 5, 6 and 7 is not required to claim conformance. Documents shall be considered as conforming if they are unpublished but available in electronic form, divided into separate documents or volumes, or combined with other documents into one document.

2.2 Types of conformance

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

2.2.1 Full Conformance

The minimum set of required information items is all of those information items specified in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119.

NOTE Full conformance could be claimed for selected documents even if full conformance with the entire standard is not claimed.

2.2.2 Tailored Conformance

The content of the test documents defined in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 may be tailored based on the tailored conformance to ISO/IEC/IEEE 29119-2 Test Processes and/or based on the specific needs of an organization or project. Where tailoring occurs, justification shall be provided whenever an information item defined in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 is not prepared. All tailoring decisions shall be recorded with their rationale, including the consideration of any applicable risks. Tailoring decisions shall be agreed by the relevant stakeholders.

Tailored conformance can be achieved by:

a) The minimum set of required test documentation is determined by the tailoring of the processes and activities in accordance with Clause 2 of ISO/IEC/IEEE 29119-2 Test Processes; and/or

b) The minimum set of required test documentation is determined according to specific organization and/or project needs; and/or

c) The minimum set of required information items within documents is determined according to specific organization and/or project needs.

NOTE 1 In projects, particularly those following an agile approach, tailoring can be applied to all Part 3 documents to allow them to be condensed or presented in an alternate format (e.g. verbal or slide presentation).

NOTE 2 Different document names could be used, but when this is done and conformity needs to be demonstrated, a mapping is often produced between this part of ISO/IEC/IEEE 29119 and local usage to aid conformity assessment.

3 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 15289:2011, *Systems and software engineering — Content of life-cycle information products (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*

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

4 Terms and definitions

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

NOTE Use of the terminology in this part of ISO/IEC/IEEE 29119 is for ease of reference and is not mandatory for conformance with this part of ISO/IEC/IEEE 29119. The following terms and definitions are provided to assist with the understanding and readability of this part of ISO/IEC/IEEE 29119. Only terms critical to the understanding of this part of ISO/IEC/IEEE 29119 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 and 4.

4.1
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.

4.2
coverage item
see test coverage item (4.15)

4.3
expected results
observable predicted behaviour of the test item under specified conditions based on its specification or another source

4.4
feature set
logical subset of the test item(s) that could be treated independently of other feature sets in the subsequent test design activities

Note 1 to entry: This could be the set of all features for the item (its full feature set), or a subset identified for a specific purpose (the functional feature set, etc.).

4.5
Incident Report
documentation of the occurrence, nature, and status of an incident

Note 1 to entry: Incident reports are also known as anomaly reports, bug reports, defect reports, error reports, issues, problem reports and trouble reports, amongst other terms.

4.6
Organizational Test Specification
document 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 Strategy.

4.7
Organizational Test Strategy
document that expresses the generic requirements for the testing to be performed on all the projects run within an organization, providing detail on how the testing is to be performed

Note 1 to entry: The Organizational Test Strategy is aligned with the Organizational Test Policy.

Note 2 to entry: An organization could have more than one Organizational Test Strategy to cover markedly different project contexts.

Note 3 to entry: The Organizational Test Strategy could incorporate the context of the Test Policy where no separate Test Policy is available

4.8
product risk
risk that a product could be defective in some specific aspect of its function, quality, or structure

4.9
project risk
risk related to the management of a project

EXAMPLE Lack of staffing, strict deadlines, changing requirements.

4.10
regression testing
testing following modifications to a test item or to its operational environment, to identify whether regression failures occur

Note 1 to entry: The sufficiency of a set of regression test cases depends on the item under test and on the modifications to that item or its operational environment.

4.11
retesting
re-execution of test cases that previously returned a "fail" result, to evaluate the effectiveness of intervening corrective actions

Note 1 to entry: Also known as confirmation testing.

4.12
test case
set of test case preconditions, inputs (including actions, where applicable), and expected results, developed to drive the execution of a test item to meet test objectives, including correct implementation, error identification, checking quality, and other valued information

Note 1 to entry: A test case is the lowest level of test input (i.e. test cases are not made up of test cases) for the test sub-process for which it is intended.

Note 2 to entry: Test case preconditions include: test environment, existing data (e.g. databases), software under test, hardware, etc.

Note 3 to entry: Inputs are the data information used to drive test execution.

Note 4 to entry: Expected results include success criteria, failures to check for, etc.

4.13
Test Case Specification
documentation of a set of one or more test cases

4.14
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.

4.15
test coverage item
attribute or combination of attributes that is derived from one or more test conditions by using a test design technique that enables the measurement of the thoroughness of the test execution

4.16
test data
data created or selected to satisfy the input requirements for executing one or more test cases, which could be defined in the Test Plan, test case or test procedure

Note 1 to entry: Test data could be stored within the product under test (e.g., in arrays, flat files, or a database), or could be available from or supplied by external sources, such as other systems, other system components, hardware devices, or human operators.

4.17
Test Data Readiness Report
document describing the status of each test data requirement

4.18
Test Design Specification
document specifying the features to be tested and their corresponding test conditions

4.19
test design technique
activities, concepts, processes, and patterns used to construct a test model that is used to identify test conditions for a test item, derive corresponding test coverage items, and subsequently derive or select test cases

4.20
test environment
facilities, hardware, software, firmware, procedures, and documentation intended for or used to perform testing of software

Note 1 to entry: A test environment could contain multiple environments to accommodate specific test sub-processes (e.g. a unit test environment, a performance test environment, etc.).

4.21
test environment readiness report
document that describes the fulfillment of each test environment requirement

4.22
Test Environment Requirements
description 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 Strategy, Test Plan, and/or Test Specification.

4.23
Test Execution Log
document that records details of the execution of one or more test procedures

4.24
test item
work product that is an object of testing

EXAMPLE A system, a software item, a requirements document, a design specification, a user guide.

4.25
Test Plan

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

Note 1 to entry: A project could have more than one Test Plan, for example there could 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 could be defined in one or more test sub-process plans (e.g. a system test plan or a performance test plan).

Note 2 to entry: Typically a Test Plan is a written document, though other formats could be possible as defined locally within an organization or project.

Note 3 to entry: Test Plans could also be written for non-project activities, for example a Maintenance Test Plan.

4.26
Test Policy
an executive-level document that describes the purpose, goals, principles and scope of testing within an organization

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 organisations testing.

4.27
Test Procedure Specification
document specifying one or more test procedures, which are collections of test cases to be executed for a particular objective

Note 1 to entry: The test cases in a test set are listed in their required order in the test procedure.

Note 2 to entry: Also known as a manual test script. A test procedure specification for an automated test run is usually called a test script.