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Software and systems engineering — Software testing —

Part 2: Test processes

Ingénierie du logiciel et des systèmes — Essais du logiciel —

Partie 2: Processus 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 29119-2 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 series of software testing standards is to define a generic process model for software testing that can be used by any organization when performing any form of software testing. It comprises test process descriptions that define the software testing processes at the organizational level, test management level and dynamic test levels. Supporting informative diagrams describing the processes are also provided. ISO/IEC/IEEE 29119 supports dynamic testing, functional and non-functional testing, manual and automated testing, and scripted and unscripted testing. The processes defined in this series of international standards can be used in conjunction with any software development lifecycle model. Each process is defined using the generic process template that is provided in ISO/IEC TR 24774:2010 Guidelines for Process Description, and covers the purpose, outcomes, activities, tasks and information items of each test process.

Testing is a key approach to risk mitigation in software development. This part of ISO/IEC/IEEE 29119 follows a risk-based approach to testing. Risk-based testing is a best-practice approach to strategizing and managing testing, as it allows testing to be prioritized and focused on the most important features and quality attributes.

The concepts and vocabulary that support this series of international standards are defined in ISO/IEC/IEEE 29119-1 Concepts and definitions. Templates and examples of test documentation that are produced during the testing process are defined in ISO/IEC/IEEE 29119-3 Test documentation. Software test design techniques that can be used during testing are defined in ISO/IEC/IEEE 29119-4 Test techniques.

This series of international standards aims to provide those responsible for software testing with the information required to manage and perform software testing in any organization.

Software and systems engineering — Software testing —

Part 2: Test processes

1 Scope

This part of ISO/IEC/IEEE 29119 specifies test processes that can be used to govern, manage and implement software testing for any organization, project or smaller testing activity. It comprises generic test process descriptions that define the software testing processes. Supporting informative diagrams describing the processes are also provided.

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.

2 Conformance

2.1 Intended usage

The requirements in this part of ISO/IEC/IEEE 29119 are contained in Clauses 6 to 8. This part of ISO/IEC/IEEE 29119 provides requirements for a number of test processes suitable for use during the complete software lifecycle. It is recognized that particular projects or organizations may not need to use all of the processes 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 processes 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.

The organization shall assert whether it is claiming full or tailored conformance to this part of ISO/IEC/IEEE 29119:

2.1.1 Full conformance

Full conformance is achieved by demonstrating that all of the requirements (i.e. shall statements) of the full set of processes defined in this part of ISO/IEC/IEEE 29119 have been satisfied.

2.1.2 Tailored conformance

When this part of ISO/IEC/IEEE 29119 is used as a basis for establishing a set of processes that do not qualify for full conformance, the subset of processes for which tailored conformance is claimed, is recorded. Tailored conformance is achieved by demonstrating that all of the requirements (i.e. shall statements) for the recorded subset of processes have been satisfied.

Where tailoring occurs, justification shall be provided (either directly or by reference), whenever a process defined in Clauses 6, 7 and 8 of this part of ISO/IEC/IEEE 29119 is not followed. 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.

EXAMPLE Where organizations follow information item management processes in standards such as ISO 15489 (Information and documentation - Records management) or ISO 9001 (Quality management systems - Requirements) or

use similar internal organizational processes, they can decide to use those processes in place of the information item management tasks defined in this part of ISO/IEC/IEEE 29119.

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 29119-1, *Software and systems engineering — Software testing — Part 1: Concepts and definitions*

ISO/IEC/IEEE 29119-3, *Software and systems engineering — Software testing — Part 3: Test documentation*

ISO/IEC/IEEE 29119-4, *Software and systems engineering — Software testing — Part 4: Test techniques*[1]

ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*

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

[1] To be published.