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Australian/New Zealand Standard™

# Software and systems engineering—Software testing

# Part 1: Concepts and definitions


This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-015, Software and Systems Engineering. It was approved on behalf of the Council of Standards Australia on 9 June 2015 and on behalf of the Council of Standards New Zealand on 11 June 2015.
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# PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-015, Software and Systems Engineering.

The objective of this Standard is to specify definitions and concepts in software testing. It provides definitions of testing terms and discussion of concepts key to the understanding of the ISO/IEC/IEEE 29119 series of software testing international Standards.

This Standard is identical with, and has been reproduced from ISO/IEC/IEEE 29119-1:2013, *Software and systems engineering—Software testing,* Part 1: *Concepts and definitions*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of ISO/IEC/IEEE 29119' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

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The term 'informative' has been used in this Standard to define the application of the annexes to which it applies. An 'informative' annex is only for information and guidance.

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# 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.

It is recognized that there are many different types of software, software organizations, and methodologies. Software domains include information technology (IT), personal computers (PC), embedded, mobile, and scientific and many other classifications. Software organizations range from small to large, co-located to world-wide, and commercial to public service-oriented. Software methodologies include object-oriented, traditional, data driven and agile. These and other factors influence software testing. This series of international standards can support testing in many different contexts.

This part of ISO/IEC/IEEE 29119 facilitates the use of the other ISO/IEC/IEEE 29119 Software Testing standards by introducing the vocabulary on which this series of international standards are built and provides examples of their application in practice. Part 1 is informative providing definitions, a description of the concepts of software testing and ways to apply the software testing process defined in this part of ISO/IEC/IEEE 29119 and guidance for the other parts.

Initially, general software testing concepts are discussed. The role of software testing in an organizational and project context is described. Software testing in a generic software life cycle is explained, introducing the way software test processes and sub-processes may be established for specific test items or with specific test objectives. It describes how software testing fits into different life cycle models. The use of different practices in test planning is demonstrated; as well as how automation can be used to support testing. The involvement of testing in defect management is also discussed. Annex A describes the role of testing within the larger scope of verification and validation. Annex B provides a brief introduction to metrics used to monitor and control testing. Annex C contains a set of examples showing how to apply the standard in different life cycle models. Annex D provides examples on detailed test sub-processes. Annex E provides additional information on the roles and responsibilities typically encountered in test groups and tester independence. Finally, the Bibliography is at the end of the document.

Note that Title Case is used throughout this part of ISO/IEC/IEEE 29119 to denote processes and documents that are specified in ISO/IEC/IEEE 29119-2 and ISO/IEC/IEEE 29119-3 (e.g. Test Planning Process, Test Plan), whereas lowercase letters are used for documents that form parts of other documents (e.g. the project test strategy is an element of the Project Test Plan).

The test process model that the ISO/IEC/IEEE 29119 series of software testing standards are based on is defined in detail in ISO/IEC/IEEE 29119-2 Test Processes. ISO/IEC/IEEE 29119-2 covers the software testing processes at the organizational level, test management level and for dynamic test levels. Testing is the primary approach to risk treatment in software development. This standard defines a risk-based approach to testing. Risk-based testing is a recommended approach to strategizing and managing testing that allows testing to be prioritized and focused.

Templates and examples of test documentation that are produced during the testing process are defined in ISO/IEC/IEEE 29119-3 Test Documentation. Software testing techniques that can be used during testing are defined in ISO/IEC/IEEE 29119-4 Test Techniques.

Together, this series of international standards aims to provide stakeholders with the ability to manage and perform software testing in any organization.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

# Software and systems engineering—Software testing

## Part 1:
## Concepts and definitions

## 1 Scope

This part of ISO/IEC/IEEE 29119 specifies definitions and concepts in software testing. It provides definitions of testing terms and discussion of concepts key to the understanding of the ISO/IEC/IEEE 29119 series of software testing international standards.

## 2 Conformance

ISO/IEC/IEEE 29119-1 is informative and no conformance with it is required.

The ISO/IEC/IEEE 29119 software testing series of standards contain three standards where conformance may be claimed:

— test processes;

— test documentation;

— test techniques.

Conformance is addressed in ISO/IEC/IEEE 29119-2, ISO/IEC/IEEE 29119-3 and ISO/IEC/IEEE 29119-4.

## 3 Normative references

This document does not require the use of any normative references. Standards useful for the implementation and interpretation of this part of ISO/IEC/IEEE 29119 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 The following terms and definitions are provided to assist with the understanding and readability of parts 1, 2, 3 and 4 of the ISO/IEC/IEEE 29119 Software Testing standards so some terms defined in ISO/IEC/IEEE 29119-1 will not be used in ISO/IEC/IEEE 29119-1 and will only be used in another standard in the ISO/IEC/IEEE 29119 series. Only terms critical to the understanding of these standards 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 should be referenced for terms not defined in this clause. This source is available at the following web site: http://www.computer.org/sevocab.

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