BS ISO/IEC 25051:2014

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Software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Requirements for quality of Ready to Use Software Product (RUSP) and instructions for testing

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National foreword

This British Standard is the UK implementation of ISO/IEC 25051:2014. It supersedes BS ISO/IEC 25051:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/15, Software and systems engineering.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Requirements for quality of Ready to Use Software Product (RUSP) and instructions for testing

Ingénierie du logiciel — Exigences de qualité et évaluation des systèmes et du logiciel (SQuaRE) — Exigences de qualité pour les progiciels et instructions d'essai

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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.

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

The main task of the joint technical committee 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 25051 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*. This second edition cancels and replaces the first edition (ISO/IEC 25051:2006), which has been technically revised. It also incorporates the Technical Corrigendum ISO/IEC 25051:2006/Cor.1:2007.

The main changes are as follows:

— English and French titles corrected;

— modification of RUSP definition, scope and examples;

— harmonization with the current SQuaRE series.

ISO/IEC 25051 is a part of the SQuaRE series of International Standards, which consists of the following divisions:

— Quality Management Division (ISO/IEC 2500n);

— Quality Model Division (ISO/IEC 2501n);

— Quality Measurement Division (ISO/IEC 2502n);

— Quality Requirements Division (ISO/IEC 2503n);

— Quality Evaluation Division (ISO/IEC 2504n);

— Extension Division (ISO/IEC 25050: – ISO/IEC 25099).

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Introduction

Ready to Use Software Product (RUSP) are used in an increasingly wide variety of application areas and their correct operation is often vital for business, safety and personal applications.

Ready to Use Software Product (RUSP) are packages sold to the acquirer who had no influence on its features and other qualities. Typically the software is sold pre-wrapped or downloaded via web store with its user documentation. A software product, which a user can use anytime thorough Cloud Computing may be considered as RUSP. The information provided on the cover of the package or the supplier website is often the only means whereby the manufacturer or marketing organization can communicate with the acquirer and user. It is therefore important that essential information is given to enable acquirers to evaluate the quality of the Ready to Use Software Product (RUSP) for their needs.

Selecting high quality Ready to Use Software Product (RUSP) is of prime importance, because Ready to Use Software Product (RUSP) may have to be operational in various environments and selected without the opportunity to compare performance among similar products. Suppliers need a way to ensure confidence in services given by the Ready to Use Software Product (RUSP) to the users. Some suppliers may choose a conformity evaluation group for evaluation or certification to assist them in providing this confidence.

In addition, when users require assurances that business or safety critical risks are involved, those assurances may need to be addressed by the user using techniques chosen by the user after the purchase. It is not the intent of this International Standard to specify minimum safety or business critical quality requirements for RUSP; however, informative guidance is given. (See Annex A.)

ISO/IEC 25051:2006 was developed based on ISO/IEC 9126-1:2001 and replaced ISO/IEC 12119:1994. This second edition of ISO/IEC 25051 is a revision of ISO/IEC 25051:2006, in order to conform to ISO/IEC 25010:2011, which replaced ISO/IEC 9126-1:2001 quality model.

These items are the major points for revising this International Standard, which provides a set of requirements for Ready to Use Software Product (RUSP) and requirements for testing a Ready to Use Software Product (RUSP) against its requirements.

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INTERNATIONAL STANDARD ISO/IEC 25051:2014(E)

Software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Requirements for quality of Ready to Use Software Product (RUSP) and instructions for testing

1 Scope

This International Standard is applicable to Ready to Use Software Product (RUSP).

In this International Standard, the term "RUSP" is used as an adjective and stands for "Ready to Use Software Product".

NOTE 1 Examples of Ready to Use Software Product (RUSP) include but are not limited to text processors, spreadsheets, database control software, graphics packages, software for technical, scientific or real-time embedded functions, human resources management software, sales management, smartphone application, freeware and web software such as generators of websites/pages.

NOTE 2 Open source software is not part of Ready to Use Software Product (RUSP).

This International Standard establishes:

a) Quality requirements for Ready to Use Software Product (RUSP);

b) Requirements for test documentation for the testing of Ready to Use Software Product (RUSP), including test plan, test description, and test results;

NOTE The collection of documents for test is called "test documentation".

c) Instructions for conformity evaluation of Ready to Use Software Product (RUSP).

It includes also recommendations for safety or business critical Ready to Use Software Product (RUSP).

This International Standard deals only with providing the user with confidence that the Ready to Use Software Product (RUSP) will perform as offered and delivered. It does not deal with the production realization (including activities and intermediate products, e.g. specifications). The quality system of a supplier is outside the scope of this International Standard.

The intended users of this International Standard include:

a) suppliers when:

1) specifying requirements for a Ready to Use Software Product (RUSP);

2) assessing their own software products against the claimed performance;

3) issuing declarations of conformity (ISO/IEC 17050);

4) applying for certificates or marks of conformity (ISO/IEC Guide 23);

b) certification bodies that may wish to establish a certification scheme (international, regional or national) (ISO/IEC Guide 28);

c) testing laboratories which will have to follow the instructions for testing when testing for a certificate or a mark of conformity (ISO/IEC 17025);

d) accreditation bodies for accrediting registration or certification bodies and testing laboratories;

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e) potential acquirers who may:

   1) compare the requirements for the intended work task with the information in product descriptions of existing software products;

   2) look for certified Ready to Use Software Product (RUSP);

   3) check if the requirements are otherwise met;

f) end users who may profit from better software products;

g) organizations:

   1) establishing management and engineering environments based on the quality requirements and methods of this International Standard; and

   2) managing and improving their quality processes "and personnel".

h) regulatory authorities who may require or recommend the requirements of this International Standard for Ready to Use Software Product (RUSP) used in safety or business-critical applications.

2 Conformance

A Ready to Use Software Product (RUSP) conforms to this International Standard if:

a) it has the properties specified in Clause 5;

b) it has been tested by producing test documentation that meets the requirements of Clause 6;

c) anomalies found during testing are documented and resolved prior to product release. Anomalies against advertised performance claims must be fixed or the performance claim must be removed. Known anomalies may be considered acceptable if:

   1) the anomaly is not a violation of a performance claim; and

   2) the supplier has duly considered the nature and the impact of the anomaly on the potential acquirer and deemed it negligible, and has preserved the documentation of the anomalies for future improvement.

Clause 7 and Annex A are optional.

NOTE To facilitate the conformity evaluation, requirements of the present standard are drafted in a way that they are level 3 subclauses (numbered X.X.X.X). Informative notes complete these clauses and can serve as a guide.

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 25000, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Guide to SQuaRE*

ISO/IEC 25010, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — System and software quality models*

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4 Terms, definitions and abbreviated terms

4.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

4.1.1
acquirer
stakeholder that acquires or procures a product or service from a supplier

Note 1 to entry: The acquirer could be one of the following: buyer, customer, owner, purchaser.

[SOURCE: ISO/IEC 12207:2008]

4.1.2
anomaly
any condition that deviates from expectations based on requirements specifications, design documents, standards, etc. or from someone's perceptions or experiences

[SOURCE: IEEE Std 1044-2009]

4.1.3
application administration function
functions performed by users which include installation, configuration, application backup, maintenance (patching and upgrading) and uninstallation

4.1.4
conformity evaluation
systematic examination of the extent to which a product, process or service fulfils specified requirements

[SOURCE: ISO/IEC Guide 2:2004]

4.1.5
conformity evaluation report
document that describes the conduct and results of the evaluation carried out for a Ready to Use Software Product (RUSP)

Note 1 to entry: This was adapted from IEEE Std 610.12–1990.

4.1.6
Ready to Use Software Product
RUSP
software product available for any user, at cost or not, and use without the need to conduct development activities

Note 1 to entry: Ready to Use Software Product (RUSP) includes:

— the product description (including all cover information, data sheet, website information, etc.),

— the user documentation (necessary to install and use the software), including any configurations of the operating system/s or target computer required to operate the product,

— the software contained on a computer sensible media (disk, CD-ROM, internet downloadable, etc.).

Note 2 to entry: Software is mainly composed of programs and data.

Note 3 to entry: This definition applies also to product description, user documentation and software which are produced and supported as separate manufactured goods, but for which typical commercial fees and licensing considerations may not apply.

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4.1.7
end user
individual person who ultimately benefits from the Ready to Use Software Product functionalities

Note 1 to entry: The end user may be a regular operator of the software product or a casual user such as a member of the public.

[SOURCE: ISO/IEC 25000:2005]

4.1.8
fault
incorrect step, process, or data definition in a computer program

[SOURCE: IEEE Std 610.12-1990]

4.1.9
maintenance
process of modifying a software system or component after delivery to correct faults, improve performance or others attributes, or adapt to a changed environment

[SOURCE: IEEE Std 610.12-1990]

4.1.10
pass/fail criteria
decision rules used to determine whether a software item or a software feature passes or fails a test

[SOURCE: IEEE Std 829.12-1998]

4.1.11
product description
document stating properties of software, with the main purpose of helping potential acquirers in the evaluation of the suitability for themselves of the software before purchasing it

4.1.12
product identification
software product name, version, variant, and date information

4.1.13
requirements document
document containing any combination of requirements or regulations to be met by a Ready to Use Software Product (RUSP)

Note 1 to entry: These documents may be technical reports, standards, requirements list (or model requirements specification) for a kind of user, or a statute or regulation imposed by a governing or regulatory body.

4.1.14
software function
implementation of an algorithm in the software with which the end user or the software can perform part or all of a work task

Note 1 to entry: A function does not need to be callable by the end user (e.g. automatic backup or saving of data).

4.1.15
software test environment
facilities, hardware, software, firmware, procedures, and documentation needed to perform qualification or other testing of software

[SOURCE: ISO/IEC/IEEE 24765:2010]

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4.1.16
supplier
organization or individual that enters into an agreement with the acquirer for the supply of a product or service

Note 1 to entry: The "supplier" could be a contractor, producer, seller, or vendor.

Note 2 to entry: Sometimes the acquirer and the supplier are part of the same organization.

[SOURCE: ISO/IEC 12207:2008]

4.1.17
test
activity in which a system or component is executed under specified conditions, the results are observed or recorded, and an evaluation is made of some aspect of the system or component

[SOURCE: IEEE Std 610.12-1990]

4.1.18
test case
set of inputs, execution conditions, and expected results developed for a particular objective, such as exercise a particular program path or to verify compliance with a specific requirement

[SOURCE: IEEE Std 610.12-1990]

4.1.19
test documentation
collection of the documentation inherent to the testing activities

4.1.20
test objective
identified set of software characteristics to be measured under specified conditions by comparing actual behaviour with the required behaviour

Note 1 to entry: This was adapted from IEEE Std 610.12–1990.

4.1.21
test plan
document describing the scope, approach, resources, and schedule of intended testing activities

Note 1 to entry: This was adapted from IEEE Std 610.12–1990.

4.1.22
test procedure
detailed instructions for the set-up, execution, and evaluation of results for a given test case

[SOURCE: IEEE Std 610.12-1990]

4.1.23
testing
process of operating a system or component under specified conditions, observing or recording the results, and making an evaluation of some aspect of the system or component

[SOURCE: IEEE Std 610.12-1990]

4.1.24
testing description
description of the test execution conditions (i.e. test procedure)

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4.1.25
user
individual or group that benefits from a RUSP during its utilization

Note 1 to entry: The role of user and the role of operator may be vested, simultaneously or sequentially, in the same individual or organization.

[SOURCE: ISO/IEC 12207:2008]

4.1.26
user documentation
information that is supplied with the software to help the user in their use of that software

4.2 Abbreviated termss

RUSP Ready to Use Software Product

CM Configuration Management

SQA Software Quality Assurance

SQC Software Quality Control

5 Requirements for Ready to Use Software Product (RUSP)

5.1 Requirements for product description

NOTE The paragraph concerning the Cover information of ISO/IEC 9127 Software engineering – User documentation and cover information for consumer software package can be used as input for creating a product description.

5.1.1 Availability

5.1.1.1 The product description shall be available for potential acquirers and users of the product.

5.1.2 Contents

5.1.2.1 The product description should declare the quality characteristics during operating the software.

5.1.2.2 The product description shall contain information needed by potential acquirers to evaluate the suitability of the software for their needs.

5.1.2.3 The product description shall be free from internal inconsistences.

5.1.2.4 The statements included in the product description shall be testable or verifiable.

5.1.3 Identification and indications

5.1.3.1 The product description shall display a unique identification.

5.1.3.2 The Ready to Use Software Product (RUSP) shall be designated by its product identification.

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