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Systems and software engineering — Systems and software assurance —

Part 4: Assurance in the life cycle

Ingénierie du logiciel et des systèmes — Assurance du logiciel et des systèmes —

Partie 4: Assurance du cycle de vie

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the rules given in the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the Systems and Software Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This first edition cancels and replaces ISO/IEC 15026-4:2012, which has been technically revised.

The main changes compared to the previous edition are as follows:

— References to the life cycle processes standards (ISO/IEC 15288:2008 and ISO/IEC 12207:2008, respectively) are changed to refer to their updated versions (ISO/IEC/IEEE 15288:2015 and ISO/IEC/IEEE 12207:2017, respectively).

— Outcomes of the process views are changed to make the link to their purpose clearer.

A list of all parts in the ISO/IEC 15026 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Many specialized standards and guidelines address specific application areas and topics related to assurance and use different concepts and terminology when addressing common themes. ISO/IEC/IEEE 15026-1 provides terminology and concepts used in ISO/IEC 15026 (all parts).

ISO/IEC 15026-2 provides minimum requirements for the structure and contents of assurance cases that treat claims regarding properties of a system or software product selected for special treatment. The results of performing the life cycle activities and tasks referenced in this document can be recorded in the form of the assurance case described in ISO/IEC 15026-2.

ISO/IEC 15026-3 specifies the concept of integrity levels with corresponding integrity level requirements that are required to be met in order to show the achievement of the integrity level.

ISO/IEC 15026-2, ISO/IEC 15026-3 and this document all use the concepts and vocabulary defined in ISO/IEC/IEEE 15026-1; however, any part may be applied independently of the others and the use of one does not require the use of any others.

Systems and software engineering — Systems and software assurance —

Part 4:
Assurance in the life cycle

1 Scope

This document provides guidance and recommendations for assurance of a selected claim about the system-of-interest by achieving the claim and showing the achievement. The guidance and recommendations are given in a system assurance process view on top of ISO/IEC/IEEE 15288 and a software assurance process view on top of ISO/IEC/IEEE 12207.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 15026-1, *Systems and software engineering — Systems and software assurance — Part 1: Concepts and vocabulary*

ISO/IEC/IEEE 15288, *Systems and software engineering — System life cycle processes*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC/IEEE 15026-1, ISO/IEC/IEEE 15288, and ISO/IEC/IEEE 12207 and the following apply.

ISO, IEC and IEEE maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

— IEEE Standards Dictionary Online: available at http://dictionary.ieee.org/

3.1
assurance
grounds for justified confidence that a claim has been or will be achieved

Note 1 to entry: By definition, assurance is about a claim.

Note 2 to entry: The claim can be a conjunction of more than one claim.

[SOURCE: ISO/IEC/IEEE 15026-1:2019, 3.1.1, modified — Notes 1 and 2 to entry have been added.]

3.2
assurance argument
artefact that links tangible evidence and assumptions to provide a convincing and valid argument of a claim under a given context