AS/NZS ISO/IEC/IEEE 42010:2013
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Australian/New Zealand Standard™

Systems and software engineering—Architecture description

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 2 May 2013 and on behalf of the Council of Standards New Zealand on 29 April 2013.
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

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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 the manner in which architecture descriptions of systems are organized and expressed.

This Standard is identical with, and has been reproduced from ISO/IEC/IEEE 42010:2011, *Systems and software engineering—Architecture description.*

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

(a) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

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

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

CONTENTS

INTRODUCTION

The complexity of man-made systems has grown to an unprecedented level. This has led to new opportunities, but also to increased challenges for the organizations that create and utilize systems. Concepts, principles and procedures of architecting are increasingly applied to help manage the complexity faced by stakeholders of systems.

Conceptualization of a system's architecture, as expressed in an architecture description, assists the understanding of the system's essence and key properties pertaining to its behaviour, composition and evolution, which in turn affect concerns such as the feasibility, utility and maintainability of the system.

Architecture descriptions are used by the parties that create, utilize and manage modern systems to improve communication and co-operation, enabling them to work in an integrated, coherent fashion. Architecture frameworks and architecture description languages are being created as assets that codify the conventions and common practices of architecting and the description of architectures within different communities and domains of application.

This International Standard addresses the creation, analysis and sustainment of architectures of systems through the use of architecture descriptions.

This International Standard provides a core ontology for the description of architectures. The provisions of this International Standard serve to enforce desired properties of architecture descriptions. This International Standard also specifies provisions that enforce desired properties of architecture frameworks and architecture description languages (ADLs), in order to usefully support the development and use of architecture descriptions. This International Standard provides a basis on which to compare and integrate architecture frameworks and ADLs by providing a common ontology for specifying their contents.

This International Standard can be used to establish a coherent practice for developing architecture descriptions, architecture frameworks and architecture description languages within the context of a life cycle and its processes (not defined by this International Standard). This International Standard can further be used to assess conformance of an architecture description, of an architecture framework, of an architecture description language, or of an architecture viewpoint to its provisions.

Users of this International Standard are advised to consult Clause 4 to gain appreciation of the provided ontology, its concepts and principles.

AUSTRALIAN/NEW ZEALAND STANDARD

Systems and software engineering—Architecture description

1 Scope

This International Standard specifies the manner in which architecture descriptions of systems are organized and expressed.

This International Standard specifies architecture viewpoints, architecture frameworks and architecture description languages for use in architecture descriptions.

This International Standard also provides motivations for terms and concepts used; presents guidance on specifying architecture viewpoints; and demonstrates the use of this International Standard with other standards.

2 Conformance

The requirements in this International Standard are contained in Clauses 5, 6 and 7. There are four situations in which claims of conformance with the provisions of this International Standard can be made.

— When conformance is claimed for an architecture description, the claim shall demonstrate that the architecture description meets the requirements listed in Clause 5.

— When conformance is claimed for an architecture viewpoint, the claim shall demonstrate that the architecture viewpoint meets the requirements listed in Clause 7.

— When conformance is claimed for an architecture framework, the claim shall demonstrate that the architecture framework meets the requirements listed in 6.1.

— When conformance is claimed for an architecture description language, the claim shall demonstrate that the architecture description language meets the requirements listed in 6.3.

Requirements of this International Standard are marked by the use of the verb “shall”. Recommendations are marked by the use of the verb “should”. Permissions are marked by the use of the verb “may”. In the event of a conflict between normative figures and text, the text takes precedence. Please report any apparent conflicts.

NOTE This International Standard is designed such that “tailoring” is neither required nor permitted for its use when claims of conformance are made.

3 Terms and definitions

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

3.1
architecting
process of conceiving, defining, expressing, documenting, communicating, certifying proper implementation of, maintaining and improving an architecture throughout a system’s life cycle