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**Systems and software engineering - Architecture description**

系统与软件工程 架构描述

**(English Translation)**

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## Table of Contents

|                                                                                                          |
|----------------------------------------------------------------------------------------------------------|
| Preface                                                                                                  |
| Introduction                                                                                             |
| 1 Scope                                                                                                  |
| 2 Normative references                                                                                   |
| 3 Terms and Definitions                                                                                  |
| 4 Compliance                                                                                             |
| 5 Basic Concepts                                                                                         |
| 6 Architecture Description Specification                                                                 |
| 7 Architecture Description Framework and Architecture Description Language                               |
| 8 Architecture perspectives and model types                                                              |
| Appendix A (Informative) Notes on terms and concepts                                                     |
| Appendix B (Informative) Architecture Perspective Specification Guidelines                               |
| Appendix C (Informative) Relationship with other standards                                               |
| Appendix D (Informative) Use of Architecture Descriptions                                                |
| Appendix E (Informative) Life Cycle of Architecture and Architecture Description                         |
| Appendix F (Informative) Architecture Description Framework                                              |
| Appendix NA (Informative) Architecture description of an industry energy service system application case |
| Appendix NB (Informative) Application Case of TOGAF-based Architecture Description Framework             |
| References                                                                                               |

## Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO/IEC/IEEE42010.2022 "Software, System and Enterprise Architecture Description".

The following minimal editorial changes were made to this document.

a) To coordinate with existing standardization documents, the name of the standard is changed to "System and Software Engineering Architecture Description";

- b) Corrected the reference number error in 5.1 of ISO/IEC/IEEE42010.2022, changing "5.4.3" to "5.4.4";
- c) Corrected the reference number error in 5.2.2 of ISO/IEC/IEEE42010.2022, changing "5.2.10" to "5.2.9";
- d) Corrected the formatting errors of 7.1.1 and 7.1.2 in ISO/IEC/IEEE42010.2022 and adjusted them to paragraph format;
- e) Corrected the reference number error in Note 1 of 8.1 of ISO/IEC/IEEE42010.2022, changing "e)" to "d)";
- f) Corrected the reference number error in B.2.5 of ISO/IEC/IEEE42010.2022, changing "b)" to "a)";
- g) Corrected the reference error in C.4 of ISO/IEC/IEEE42010.2022, changing "latter" to "former";
- h) To facilitate readers' understanding, notes are added to A.5, C.5 and C.6 respectively;
- i) Added Appendix NA (informative) and Appendix NB (informative) to enhance the application effect of the standard.

## Introduction

The complexity of artificial entities has increased to unprecedented levels, creating new opportunities and increasing Organizations, teams, and individuals are increasingly using architecture to help manage the complexity faced by their entity's stakeholders.

Examples of entities include. enterprise, organization, solution, system (including software system), subsystem, process, business, data (as data item or data structure), application, information technology (as a collection), task, product, service, software item, hardware item, product line, system A family, a system of systems, a collection of systems, a collection of applications.

The architecture of an entity is expressed as one or more architectural descriptions (ADs), which help understand the underlying structure, behavior, design, and evolution of the entity.

concepts and attributes such as feasibility, utility, and maintainability, and the basis for physical development, operation, employment, external impacts, use, and decommissioning concept.

Architectural descriptions are used by all parties who create, use, and manage artificial entities to improve communication and collaboration, enabling all parties, organizations, teams, and individuals to Ability to work together in a coherent manner.

**Note:** ISO/IEC/IEEE 42020 specifies a set of architectural processes to support the creation of one

or more architectural descriptions.

The process of architecture refinement is closely related to the creation of the architecture description.

An architectural description is a tangible work product, whereas an architecture is intangible, abstract, and understood through its concepts, properties, and principles.

The Architecture Description Framework (ADF) is used to describe conventions and common practices for writing architecture descriptions. The Architecture Description Language (ADL) is used to write different Description of the architecture in population and application domains.

Architectural descriptions have many uses, such as design, development, documentation, analysis, evaluation, maintenance, risk mitigation, downstream user specifications, engineering Specification, communication, planning, guidance, life cycle support, decision support, review, training, design verification, solution transaction research, cost Comparison and analysis, etc., are used by a variety of stakeholders throughout the life cycle of their Entity of Interest (EoI).

More uses for architecture descriptions.

This document provides the terminology, definitions, and relationships for best practices in architectural descriptions. The terms of this document are used to define the expected characteristics of architectural descriptions.

This document also specifies the expected characteristics of an architecture description framework and an architecture description language to effectively support the development and use of architecture descriptions.

This document provides a common ontology for specifying the content of architecture description frameworks and architecture description languages.

It provides the basis for structured description language.

This document is applicable to the provision of architecture descriptions, architecture description frameworks, and architecture description languages within an organization in the context of an entity of interest or its architecture.

The terms of this document apply to the evaluation of architecture descriptions, architecture description frameworks, architecture description languages, visual Conformity with the specifications of the corner and model types.

This document aims to enable a coherent set of approaches to describing architecture, including both document-centric and model-based techniques.

This document also gives motivation for the use of architecture-related terms and concepts in other documents such as guidelines and standards.

It is recommended that users of this document refer to Chapter 5 for an understanding of foundational concepts and concepts and principles related to the architecture description work product.

This document makes no claims about the completeness or correctness of specific elements included in the architectural description. However, it can be used to the integrity and correctness of the architecture are checked locally, such as whether the established architecture description elements are consistent, whether the relationships are transitive, and whether the architecture description is consistent.

Whether the element is displayed in the view. It can also define a relationship between the same specific architecture description element and the architecture description.

Furthermore, specifications that appear as elements in an architectural description are expected to be complete, accurate, and the subject is verified.

System and software engineering architecture description

## 1 Scope

This document specifies the structure and expression requirements of various entity architecture descriptions (ADs), including software, systems, enterprises, and systems between them.

Systems, system families, products (goods or services), product lines, service lines, technologies, and business domains.

This document defines the distinction between the architecture of an Entity of Interest (EoI) and the architectural description that expresses that architecture.

This document specifies requirements for the use of architectural concepts and their relationships as captured in architectural descriptions. It does not specify requirements for any entity of interest.

or the requirements of its environment.

This document specifies requirements for the Architecture Description Framework (ADF), Architecture Description Language (ADL), architectural perspectives, and model types to effectively Support the development and use of architectural descriptions.

This document specifies conformance requirements for architecture descriptions, architecture description frameworks, architecture description languages, architecture perspectives, and model categories.

This document does not address processes, architectural methodologies, models, notations, techniques, or tools for creating, utilizing, or managing architectural descriptions.

This document does not specify any format or medium for recording architectural