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Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through IT standards. With more than 500 member organizations, The Open Group has a diverse membership that spans all sectors of the IT community – customers, systems and solutions suppliers, tool vendors, integrators, and consultants, as well as academics and researchers – to:

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This Document

This document is the ArchiMate® 3.0 Specification, an Open Group standard. It has been developed and approved by The Open Group.

This edition of the standard includes a number of corrections, clarifications, and improvements to the previous edition, as well as several additions.

Intended Audience

The intended audience of this standard is threefold:

- All those working to shape and implement complex organization change. Typical job titles include Enterprise Architecture practitioners, business architects, IT architects, application architects, data architects, information architects, process architects, infrastructure architects, software architects, systems architects, solutions architects, product/service managers, senior and operational management, project leaders, and anyone working within the reference framework defined by an Enterprise Architecture.
- Those who intend to implement the ArchiMate language in a software tool. They will find a complete and detailed description of the language in this document.

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- The academic community, on which we rely for amending and improving the language based on state-of-the-art research in the architecture field.

Structure

The structure of this standard is as follows:

- Chapter 1, Introduction, provides the introduction to this standard, including the objectives, a brief overview, conformance requirements, and terminology.
- Chapter 2, Definitions, defines the general terms used in this standard.
- Chapter 3, Language Structure, describes the structure of the ArchiMate modeling language, including the top-level structure, layering, the ArchiMate Core Framework, and the full Framework.
- Chapter 4, Generic Metamodel, describes the structure and elements of the ArchiMate generic metamodel.
- Chapter 5, Relationships, describes the relationships in the language.
- Chapter 6, Motivation Elements, describes the concepts for expressing the motivation for an architecture, together with examples.
- Chapter 7, Strategy Elements, provides elements for modeling the enterprise at a strategic level, together with examples.
- Chapter 8, Business Layer, covers the definition and usage of the Business Layer elements, together with examples.
- Chapter 9, Application Layer, covers the definition and usage of the Application Layer elements, together with examples.
- Chapter 10, Technology Layer, covers the definition and usage of the Technology Layer elements, together with examples.
- Chapter 11, Physical Elements, describes the language elements for modeling the physical world, together with examples.
- Chapter 12, Cross-Layer Dependencies, covers the relationships between different layers of the language.
- Chapter 13, Implementation and Migration Elements, describes the language elements for expressing the implementation and migration aspects of an architecture (e.g., projects, programs, plateaus, and gaps).
- Chapter 14, Stakeholders, Viewpoints, and Views, describes the ArchiMate viewpoint mechanism.
- Chapter 15, Language Customization Mechanisms, describes how to customize the ArchiMate language for specialized or domain-specific purposes.
- Appendix A, Summary of Language Notation, is an informative appendix.
- Appendix B, Relationship Tables, is a normative appendix detailing the required relationships between elements of the language.

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- Appendix C, Example Viewpoints (Informative), presents a set of architecture viewpoints, developed in ArchiMate notation based on practical experience. All viewpoints are described in detail. The appendix specifies the elements, relationships, usage guidelines, goals, and target groups for each viewpoint.

- Appendix D, Relationship to Other Standards (Informative), describes the relationships of the ArchiMate language to other standards, including the TOGAF framework, BPMN, UML, and BMM.

- Appendix E, Changes from ArchiMate 2.1 to ArchiMate 3.0 (Informative), is an informative appendix outlining the changes in the standard between Version 2.1 and Version 3.0.

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Referenced Documents

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(Please note that the links below are good at the time of writing but cannot be guaranteed for the future.)

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1 Introduction

1.1 Objective

This standard is the specification of the ArchiMate Enterprise Architecture modeling language, a visual language with a set of default iconography for describing, analyzing, and communicating many concerns of Enterprise Architectures as they change over time. The standard provides a set of entities and relationships with their corresponding iconography for the representation of Architecture Descriptions.

1.2 Overview

An Enterprise Architecture is typically developed because key people have concerns that need to be addressed by the business and IT systems within an organization. Such people are commonly referred to as the "stakeholders" of the Enterprise Architecture. The role of the architect is to address these concerns by identifying and refining the motivation and strategy expressed by stakeholders, developing an architecture, and creating views of the architecture that show how it addresses and balances stakeholder concerns. Without an Enterprise Architecture, it is unlikely that all concerns and requirements are considered and addressed.

The ArchiMate Enterprise Architecture modeling language provides a uniform representation for diagrams that describe Enterprise Architectures. It includes concepts for specifying inter-related architectures, specific viewpoints for selected stakeholders, and language customization mechanisms. It offers an integrated architectural approach that describes and visualizes different architecture domains and their underlying relations and dependencies. Its language framework provides a structuring mechanism for architecture domains, layers, and aspects. It distinguishes between the model elements and their notation, to allow for varied, stakeholder-oriented depictions of architecture information. The language uses service-orientation to distinguish and relate the Business, Application, and Technology Layers of Enterprise Architectures, and uses realization relationships to relate concrete elements to more abstract elements across these layers.

1.3 Conformance

The ArchiMate language may be implemented in software used for Enterprise Architecture modeling. For the purposes of this standard, the conformance requirements for implementations of the language given in this section apply. A conforming implementation:

1. Shall support the language structure, generic metamodel, relationships, layers, cross-layer dependencies, and other elements as specified in Chapter 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13
2. Shall support the standard iconography as specified in Chapters 5, 6, 7, 8, 9, 10, 11, and 13, and summarized in Appendix A

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3. Shall support the viewpoint mechanism as specified in Chapter 14
4. Shall support the language customization mechanisms specified in Chapter 15 in an implementation-defined manner
5. Shall support the relationships between elements as specified in Appendix B
6. May support the example viewpoints described in Appendix C

Readers are advised to check The Open Group website for additional conformance and certification requirements referencing this standard.

1.4 Normative References

None.

1.5 Terminology

For the purposes of this standard, the following terminology definitions apply:

Can Describes a possible feature or behavior available to the user.

Deprecated Items identified as deprecated may be removed in the next version of this standard.

Implementation-defined
Describes a value or behavior that is not defined by this standard but is selected by an implementor of a software tool. The value or behavior may vary among implementations that conform to this standard. A user should not rely on the existence of the value or behavior. The implementor shall document such a value or behavior so that it can be used correctly by a user.

May Describes a feature or behavior that is optional. To avoid ambiguity, the opposite of "may" is expressed as "need not", instead of "may not".

Obsolescent Certain features are obsolescent, which means that they may be considered for withdrawal in future versions of this standard. They are retained because of their widespread use, but their use is discouraged.

Shall Describes a feature or behavior that is a requirement. To avoid ambiguity, do not use "must" as an alternative to "shall".

Shall not Describes a feature or behavior that is an absolute prohibition.

Should Describes a feature or behavior that is recommended but not required.

Will Same meaning as "shall"; "shall" is the preferred term.

1.6 Future Directions

None.

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2 Definitions

For the purposes of this standard, the following terms and definitions apply. The TOGAF framework [4] should be referenced for Enterprise Architecture-related terms not defined in this section. Merriam-Webster's Collegiate Dictionary (11th Edition) should be referenced for all other terms not defined in this section.

Any conflict between definitions described here and the TOGAF framework is unintentional. If the definition of a term is specific to the ArchiMate modeling language, and a general definition is defined by the TOGAF framework, then this is noted in the definition.

2.1 ArchiMate Core Framework

A reference structure used to classify elements of the ArchiMate core language. It consists of three layers and three aspects,

Note: The ArchiMate Core Framework is defined in detail in Section 3.4.

2.2 ArchiMate Core Language

The central part of the ArchiMate language that defines the concepts and relationships to model Enterprise Architectures. It includes concepts from three layers: Business, Application, and Technology.

2.3 Aspect

Classification of elements based on layer-independent characteristics related to the concerns of different stakeholders. Used for positioning elements in the ArchiMate metamodel. See also Section 2.6.

Note: Aspects are described in Section 3.4.

2.4 Attribute

A property associated with an ArchiMate language element or relationship.

2.5 Concept

Either an element or a relationship. See also Section 2.10 and Section 2.12.

Note: The top-level language structure is defined in detail in Section 3.2.

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2.6 Conformance

Fulfillment of specified requirements.

2.7 Conforming Implementation

An implementation which satisfies the conformance requirements defined by the conformance clause of this standard. See Section 1.3.

2.8 Core Element

A structure or behavior element in one of the core layers of the ArchiMate language.

Note: Core elements are described in detail in Section 4.1.

2.9 Composite Element

An element consisting of other elements from multiple aspects or layers of the language.

2.10 Element

Basic unit in the ArchiMate metamodel. Used to define and describe the constituent parts of Enterprise Architectures and their unique set of characteristics.

2.11 Layer

An abstraction of the ArchiMate framework at which an enterprise can be modeled.

2.12 Model

A collection of concepts in the context of the ArchiMate language structure.

Note: The top-level language structure is defined in detail in Section 3.2.

For a general definition of model, see the TOGAF framework [4].

2.13 Relationship

A connection between a source and target concept. Classified as structural, dependency, dynamic, or other.

Note: Relationships are defined in detail in Chapter 5.

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3 Language Structure

This chapter describes the structure of the ArchiMate Enterprise Architecture modeling language. The detailed definition and examples of its standard set of elements and relationships follow in Chapter 4 to Chapter 13.

3.1 Language Design Considerations

A key challenge in the development of a general metamodel for Enterprise Architecture is to strike a balance between the specificity of languages for individual architecture domains, and a very general set of architecture concepts, which reflects a view of systems as a mere set of inter-related entities.

The design of the ArchiMate language started from a set of relatively generic concepts. These have been specialized towards application at different architectural layers, as explained in the following sections. The most important design restriction on the language is that it has been explicitly designed to be as small as possible, but still usable for most Enterprise Architecture modeling tasks. Many other languages try to accommodate all needs of all possible users. In the interest of simplicity of learning and use, the ArchiMate language has been limited to the concepts that suffice for modeling the proverbial 80% of practical cases.

This standard does not describe the detailed rationale behind the design of the ArchiMate language. The interested reader is referred to [1], [2], and [3], which provide a detailed description of the language construction and design considerations.

3.2 Top-Level Language Structure

Figure 1 outlines the top-level hierarchical structure of the language:

- A model is a collection of *concepts*. A concept is either an *element* or a *relationship*.
- An element is either a behavior element, a structure element, a motivation element, or a composite element.

Note that these are *abstract* concepts; they are not intended to be used directly in models. To signify this, they are depicted in white with labels in italics. Further note that implementation and migration elements (Chapter 13) are instances of core elements.

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