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Australian Standard™

Standard metamodel for software development methodologies

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-015, Software and Systems Engineering. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to define a metamodel that establishes a formal framework for the definition and extension of software development methodologies, including their major three aspects: the process to follow, the products to use and generate, and the people involved. This metamodel can serve as a formal basis for the definition and extension of any software development methodology, and will be typically used by methodologists, method engineers or process engineers while undertaking such tasks.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

Page

INTRODUCTION

Software development methodologies may be described in the context of an underpinning metamodel, but the precise mechanisms that permit them to be defined in terms of their metamodels are usually difficult to explain and do not cover all needs. For example, it is difficult to devise a practice that allows the definition of properties of the elements that compose the methodology and, at the same time, of the entities (such as work products) created when the methodology is applied. This Standard introduces the Standard Metamodel for Software Development Methodologies (SMSDM henceforth), a comprehensive metamodel that makes use of a new approach to defining methodologies based on the concept of powertype. The SMSDM combines key advantages of other metamodelling approaches with none of their drawbacks, allowing the seamless integration of process, modelling and documentational aspects of methodologies.

Various methodologies are defined, used, or implied by a growing number of standards and it is desirable that the concepts used by each methodology be harmonised. The vehicle for harmonization is SMSDM. Conformance to this metamodel will ensure a consistent approach to defining each methodology with consistent concepts and terminology.

STANDARDS AUSTRALIA

Australian Standard
Standard metamodel for software development methodologies

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard defines a metamodel that establishes a formal framework for the definition and extension of software development methodologies, including their major three aspects: the process to follow, the products to use and generate, and the people involved.

1.2 APPLICATION

This metamodel can serve as a formal basis for the definition and extension of any software development methodology, and will be typically used by methodologists, method engineers or process engineers while undertaking such tasks.

1.3 CONFORMANCE

A software development methodology is conformant to this Standard if it has been generated from the metamodel defined in Section 3 Elements of SMSDM by using the rules described in Section 4.

1.4 NORMATIVE REFERENCES

This Standard does not call up any normative references.

1.5 TERMS AND DEFINITIONS

1.5.1 Terms

The following terms are used throughout this Standard.

1.5.1.1 *Methodology*

Specification of the process to follow and the work products to be used and generated, plus consideration of the people and tools involved, during a software development effort. A methodology specifies the process to be executed, usually as a set of related activities, tasks and/or techniques, together with what work products must be manipulated at each moment, possibly including models, documents and other outputs. In turn, specifying the models that must be developed implies defining the basic building blocks that should be used.

1.5.1.2 *Metamodel*

Specification of the concepts, rules and relationships used to define a methodology.

1.5.1.3 *Project*

Software development effort aimed at the construction of a software system through the application of a methodology. Sometimes, the terms ‘project-level’ or ‘project layer’ are used to reference the conceptual entities that exist at the level of projects, as opposed to the entities that exist at the level of a method or a metamodel.