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GB/T 39470-2020

Automation systems and integration. Object-process methodology

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

The translation method used in this standard is equivalent to ISO /PAS19450:2015 "Automation System and Integrated Object Process Method":

Please note that certain contents of this document may involve patents: The issuing agency of this document is not responsible for identifying these patents:

This standard was proposed by China Machinery Industry Federation:

This standard is under the jurisdiction of the National Automation System and Integration Standardization Technical Committee (SAC/TC159):

This standard was drafted: Beijing Machinery Industry Automation Research Institute Co:, Ltd:, Tsinghua University:

Introduction

Object-Process Methodology (OPM) is a compact conceptual method, language and method for modeling and knowledge expression of automation systems:

Legal theory: The application range of OPM can range from a simple combined system of basic elements to a complex, multidisciplinary and dynamic system: OPM applies to

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borrowing

Help information technology and computer technology tools to implement and provide support: The public specification clearly specifies the language and methodology of OPM to

It establishes a common foundation that can support all types of system modeling for system architects, designers and OPM compatible tool developers:

OPM provides two semantically equivalent modes of expression for the same model: graphical and textual: A set of hierarchical and mutual

Associated object-process diagrams (OPDs) constitute a graphical model, and a set of automatically generated sentences using a subset of the English language constitute a pair of

Like the text mode expressed in procedural language (OPL): In a graphical visual model, each OPD contains

The depicted OPM elements sometimes have label annotations: The OPD grammar specifies the consistency of the management agreement between these graphic elements

And correctness method: By using OPL, OPM generates a corresponding text model for each OPD in a way that preserves the constraints of the graphic model:

formula: Given that the syntax and semantics of OPL are a subset of English natural language, domain experts can easily understand the text model:

OPM notation supports conceptual modeling with formal syntax and semantic systems: This form is usually used as model-based system engineering

The foundation of the system includes system architecture planning, engineering design, development, life cycle support, communication and evolution: In addition, OPM's

The nature of the domain makes the system modeling applicable to the entire scientific, commercial, and industrial communities for their special applications in manufacturing and other industrial and

The development, investigation and analysis of business systems so that companies can integrate different skills and abilities into a common, intuitive and formal framework

In, and provide interoperability:

OPM provides a public view for system construction, testing, integration and daily maintenance, ensuring the implementation of work in a multidisciplinary environment:

In addition, by using OPM, the company can improve its overview of system functions, flexibility in personnel task assignment, and management of exceptions and errors:

restore: The standard can be extended for any necessary details, including the function, structure and behavior of the system:

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A special application of OPM is embodied in the drafting and writing of technical standards: OPM helps to outline the implementation of a standard and

Identify and reduce the deficiencies in the standard, thereby significantly improving the quality of subsequent drafts: Use OPM, even as a system model-based

The text can also be extended to include more details, so that the basic model will always maintain its high degree of formality and consistency:

This standard provides a benchmark for system architects and designers to accurately and effectively use it for system modeling: OPM worker

Tool vendors can use PAS as a formal standard specification to create software tools to enhance conceptual modeling:

This standard provides normative text expressions that comply with the extended Backus Normal Form (EBNF) language grammar specification: All elements are present

In Chapter 5 to Chapter 12, methodology is only rarely involved: Chapter 13 presents the context management mechanism related to enlargement and expansion:

This standard uses a number of conventions to demonstrate OPM: Specifically, the Arial bold font and chart title and table title in the text

As well as the italic and bold font in the text title, the label names of the object, process, status, and associated labels used in OPM have been distinguished:

Minute: The words reserved by OPL are the regular fonts of Song Ti with a comma and period in a bold font: Most graphics also contain

A graphic image, OPD part and an equivalent text, namely OPL part: Given that this is a language specification, use precise term definitions

Is very important, and some terms in common usage have special meaning when using OPM: Chapter B:6 explains the use of OPM

Other conventions:

Appendix A introduces the formal grammar of OPL expressed in EBNF:

Appendix B describes the conventions and patterns commonly used in OPM applications:

Appendix C introduces various aspects of OPM as an OPM model:

Appendix D summarizes the dynamics and simulation capabilities of OPM:

Automation System and Integrated Object Process Method

1 Scope

This standard provides a detailed description of the object-process methodology (OPM) so

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