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Part 3: Service Oriented Architecture ontology

Technologie de l'information — Architecture de référence pour l'architecture orientée service (SOA RA) —

Partie 3: Ontologie de l'architecture orientée service

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword — Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 38, *Cloud Computing and Distributed Platforms*.

ISO/IEC 18384 consists of the following parts, under the general title *Reference Architecture for Service Oriented Architecture (SOA RA)*:

— *Part 1: Terminology and concepts for SOA*

— *Part 2: Reference Architecture for SOA Solutions*

— *Part 3: Service Oriented Architecture Ontology*

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Introduction

Service oriented architecture (SOA) is an architectural style in which business and IT systems are designed in terms of services available at an interface and the outcomes of these services. A service is a logical representation of a set of activities that has specified outcomes, is self-contained, it may be composed of other services but consumers of the service need not be aware of any internal structure.

SOA takes "service" as its basic element to constitute and integrate information systems so that they are suitable for a variety of solution requirements. SOA enables interactions between businesses without needing to specify aspects of any particular business domain. Using the SOA architectural style can improve the efficiency of developing information systems and integrating and reusing IT resources. In addition, using the SOA architectural style can help enable rapid response of information systems to ever-changing business needs.

This International Standard is intended to be a single set of SOA technical principles, specific norms, and standards for the world-wide market to help remove confusion about SOA and improve the standardization and quality of solutions.

This International Standard defines the terminology, technical principles, reference architecture and the ontology for SOA. ISO/IEC 18384 can be used to introduce SOA concepts, as a guide to the development and management of SOA solutions, as well as be referenced by business and industry standards.

This International Standard contains three parts:

1) ISO/IEC 18384-1 which defines the terminology, basic technical principles and concepts for SOA.

2) ISO/IEC 18384-2 which defines the detailed SOA reference architecture layers, including a metamodel, capabilities, architectural building blocks, as well as types of services in SOA solutions.

3) ISO/IEC 18384-3 which defines the core concepts of SOA and their relationships in the Ontology.

The targeted audience of this International Standard includes, but is not limited to, standards organizations, architects, architecture methodologists, system and software designers, business people, SOA service providers, SOA solution and service developers, and SOA service consumers who are interested in adopting and developing SOA.

Users of this International Standard will find it useful to read ISO/IEC 18384-1 for an understanding of SOA basics. ISO/IEC 18384-1 should be read before reading or applying ISO/IEC 18384-2. For those new to the SOA reference architecture in ISO/IEC 18384-2:2016, Clause 4 provides a high level understanding of the reference architecture for SOA solutions. The remaining clauses provide comprehensive details of the architectural building blocks and tradeoffs needed for a SOA Solution. This part of ISO/IEC 18384 contains the SOA Ontology, which is a formalism of the core concepts and terminology of SOA, with mappings to both UML and OWL. The SOA Ontology can be used independent of or in conjunction with ISO/IEC 18384-1 and ISO/IEC 18384-2.

The purpose of this part of ISO/IEC 18384 is to contribute to developing and fostering common understanding of service-oriented architecture (SOA) in order to improve alignment between the business and information technology communities and facilitate SOA adoption.

The SOA Ontology defines the concepts, terminology, and semantics of SOA in both business and technical terms, in order to

— create a foundation for further work in domain-specific areas,

— enable communications between business and technical people,

— enhance the understanding of SOA concepts in the business and technical communities,

— provide a means to state problems and opportunities clearly and unambiguously to promote mutual understanding, and

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— provide a starting point for model-driven development of SOA solutions.

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Information technology — Reference Architecture for Service Oriented Architecture (SOA RA) —

Part 3: Service Oriented Architecture ontology

1 Scope

This part of ISO/IEC 18384 defines a formal ontology for service-oriented architecture (SOA), an architectural style that supports service orientation. The terms defined in this ontology are key terms from the vocabulary in ISO/IEC 18384-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 18384-1, *Information technology — Reference Architecture for Service Oriented Architecture (SOA RA) — Part 1 Terminology and concepts for SOA*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 18384-1 and the following apply.

3.1.1
opaque
having no internal structure that is visible to an external observer

3.1.2
ontology
model that represents a domain and is used to reason about the objects in that domain and the relations between them

Note 1 to entry: This part of ISO/IEC 18384 is high level and not meant to be used for formal reasoning.

[SOURCE: ISO/IEC/TR 24800-1:2007, 2.1.9]

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

ABB	Architecture Building Block
BPMN	Business Process Model and Notation
EA	Enterprise Architecture
ESB	Enterprise Service Bus
IT	Information Technology

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