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Part 6: Registry Summary

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Partie 6: Résumé Registry

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 19763-6 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data Management and Interchange*.

ISO/IEC 19763 consists of the following parts, under the general title *Information Technology — Metamodel framework for interoperability (MFI)*:

— *Part 1: Framework*

— *Part 3: Metamodel for ontology registration*

— *Part 5: Metamodel for process model registration*

— *Part 6: Registry Summary (this document)*

— *Part 7: Metamodel for service model registration*

— *Part 8: Metamodel for role and goal model registration*

— *Part 9: On demand model selection [Technical Report]*

— *Part 10: Core model and basic mapping*

— *Part 12: Metamodel for information model registration*

— *Part 13: Metamodel for form design registration*

Introduction

The effective interchange of information across business domains, countries and cultures is an important concern for people in both the IT industry and non-IT industries.

To follow the current trends, industrial consortia have engaged in the standardization of domain-specific business objects, including business process models and software components using common modelling tools and interchange facilities such as UML and XML. They are very active in standardizing domain-specific business process models and standard modelling constructs such as data elements, entity profiles and value domains.

The ISO/IEC 19763 family of standards defines normative metamodels for the registration of models (including information models and process models), ontologies, services and roles & goals. Items or objects specified by those metamodels have been registered into particular registry systems. In order to perform effective exchange of pertinent information smoothly, individual registry systems need to interoperate with other registry systems.

This part of ISO/IEC 19763 defines a metamodel for the use case in which registry systems of different kinds must share information.

Information Technology — Metamodel framework for interoperability (MFI) — Part 6: Registry Summary

1 Scope

The ISO/IEC 19763 family of standards defines normative metamodels for the registration of models (including information models and process models), ontologies, services and roles & goals. Currently a lot of metadata registries or model registries were constructed and utilized in many different business domains, such as e-business, healthcare, automobile, electronics devices and civil construction.

One of the key issues for the cross domain data or services integration must be enabling the easy discovery of metadata that are stored in the different registries that were scattered over different domains. Therefore, it is necessary to provide specific metadata that describes the registry itself in order to enable interoperation among different registries that were built following different standards.

This part of the ISO/IEC 19763 family of standards specifies an information artefact called the Registry Summary. The Registry Summary consists of information that describes administrative aspects, the summary of contents and the technical access method of the registry.

A collection of multiple Registry Summary information is called a “Registry of Registries” or RoR, however, this standard does not mandate a particular implementation. Also, any specific protocol between Registry Summaries and RoR, such as creation of RoR and synchronization of RoR, would not be specified in this standard. Those are to be specified by other standards.

The Registry Summary and RoR concept should be applied to all Metamodel Framework for Interoperability (MFI) registries, but its use may be applied to any kind of registries.

2 Conformance

2.1 General

An implementation claiming conformance with this part of ISO/IEC 19763 shall support the metamodel specified in clause 6, depending on a degree of conformance as described below.

2.2 Degree of conformance

2.2.1 General

The distinction between "strictly conforming" and "conforming" implementations is necessary to address the simultaneous needs for interoperability and extensions. This part of ISO/IEC 19763 describes specifications that promote interoperability. Extensions are motivated by needs of users, vendors, institutions and industries, but are not specified by this part of ISO/IEC 19763.

A strictly conforming implementation may be limited in usefulness but is maximally interoperable with respect to this part of ISO/IEC 19763. A conforming implementation may be more useful, but may be less interoperable with respect to this part of ISO/IEC 19763.

2.2.2 Strictly conforming

A strictly conforming implementation

a) shall support the metamodel specified in clause 6;

b) shall not support any extensions to the metamodel specified in clause 6.

2.2.3 Conforming implementation

A conforming implementation

a) shall support the metamodel specified in clause 6;

b) may support extensions to the metamodel specified in clause 6 that are consistent with the metamodel specified in clause 6.

2.3 Implementation Conformance Statement (ICS)

An implementation claiming conformance with this part of ISO/IEC 19763 shall include an Implementation Conformance Statement stating.

a) whether it is a strictly conforming implementation or a conforming implementation (see 2.2)

b) what extensions are supported if it is a conforming implementation.

3 Normative references

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

ISO/IEC 19763-1, *Information technology — Metamodel framework for interoperability (MFI) — Part 1: Framework*

ISO/IEC 19763-10, *Information technology — Metamodel framework for interoperability (MFI) — Part 10: Core model and basic mapping*

ISO/IEC 11179-3, *Information technology — Metadata registries (MDR) — Part 3: Registry metamodel and basic attributes*

ISO/IEC 11179-6, *Information technology — Metadata registries (MDR) — Part 6: Registration*

4 Terms, definitions and abbreviated item

4.1 Terms and definitions

For the purposes of this document, the items and definitions given in ISO/IEC 19763-1, ISO/IEC 11179-3, ISO/IEC 11179-6 and the following apply.

4.2 Terms for concepts used in this part of 19763

4.1.1
attribute
⟨metamodel⟩ characteristic of an object or set of objects

[ISO/IEC 11179-3:2013, 3.1.4]

4.1.2
class
⟨metamodel⟩ description of a set of objects that share the same attributes, operations, methods, relationships, and semantics

[ISO/IEC 11179-3:2013, 3.1.5]

4.1.3
metadata
data that defines and describes other data

[ISO/IEC 11179-3:2013, 3.2.74]

4.1.4
metadata registry
MDR
registry system
information system for registering metadata,

NOTE 1 The associated information store or database is known as a metadata register.

[ISO/IEC 11179-3:2013, 3.2.77]

NOTE 2 registry system has been added as a new synonym.

4.1.5
registry of registries
RoR
registry that stores Registry Summary data showing an individual registry system

4.1.6
registry summary
registry summary is metadata which refers to an individual registry system or an aggregate of registry systems

4.3 Abbreviate terms

MDR	Metadata Registry
MFI	Metamodel Framework for Interoperability
RoR	Registry of Registries
RS	Registry Summary
SLA	Service Level Agreement
UML	Unified Modeling Language
URL	Uniform Resource Locator
XML	Extensible Markup Language
WSDL	Web Service Description Language

5 Background and purpose

5.1 General

The purpose of this part of ISO/IEC 19763 family of standards is to define the metamodel of information required in order to enable interoperability between heterogeneous metadata registries.

Currently, many metadata registries have been developed and enforced in various types of business domains. Most of them have been developed conforming to international standards, such as e-business, healthcare, or library domains. However, those standards themselves have been incompatible each other, they are developed primarily according to requirements that came from their particular domains. This means that a single company or user who belongs to a particular domain has difficulties in accessing registries that are built according to requirements from other domains.

Sharing registry information across different domains can be important for system interoperability. This part addresses registry interoperation with regard to the problems mentioned above. This standard specifies a set of information called the Registry Summary to be attached to each domain-specific registry. Furthermore, Registry Summary is premised on exchanging between registries. The Registry Summary is represented by a metamodel using UML.

5.2 Role of the Registry Summary

The Registry Summary is a small set of metadata for the Registry that is attached in the registry system. If every registry would attach this registry summary, it would be possible to capture information on the nature of another registry as well as technical information for accessing the registry.

Figure 1 illustrates a typical use case for RS (Registry Summary) and ROR (Registry of Registries). Each registry prepared in a particular domain might be able to disclose RS at its access point as entry information. Different domains, such as Manufacturing or Retailing, would be able to prepare their own dedicated registry that is a collection of RS. It should be called the Registry of Registries (ROR).

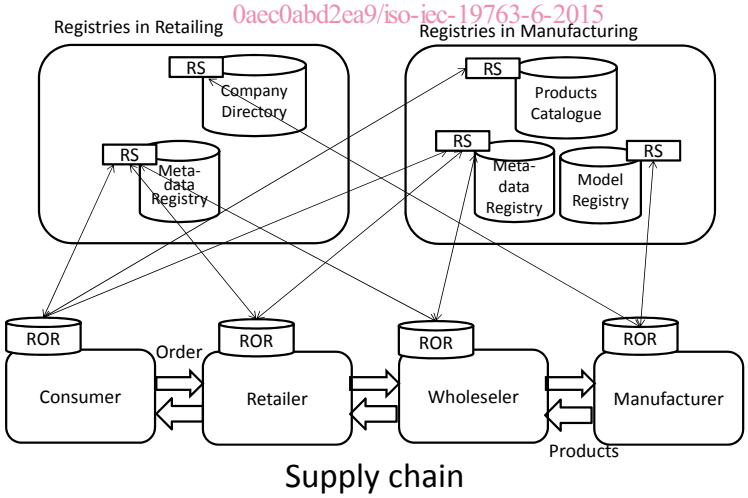

Figure 1 — Illustration of Registry Interoperability using Registry Summary

6 Struct of Registry Summary

6.1 Overview of Registry Summary

The Registry Summary is information which describes a particular registry system itself. Figure 2 shows the metamodel of Registry Summary. This metamodel consists of three parts.

The first part is "registry entity information" that forms a core part of the metadata in the Registry Summary. This core part represents the registry system, such as the name of the registry, and information about the contents. Furthermore, when registry system is constituted of two or more registries, the constitution of the registry and relationship among the parts can be expressed with this part.

NOTE 1 Registry entity information consists of Registry metaclass (see 6.3.8), Registry_Component metaclass (see 6.3.9), Related_Registry metaclass (see 6.3.10), Contact metaclass (see 6.3.2), Classification metaclass (see 6.3.1) and Document metaclass (see 6.3.4).

NOTE 2 Refer to Annex A for the detailed explanation about the form of the registry which Registry Summary expresses.

The second part is "registry administrator information". Registry administrator information identifies the administrator of a represented registry. Such information includes the name of organization that is managing and operating the registry and the points of contact.

NOTE 3 Registry administrator information consists of Organization metaclass (see 6.3.6) and Contact metaclass (see 6.3.2).

The third part is "registry interface information". “Registry interface information” is the information which indicates the interface through which to access the registry system by an individual or other information system.

NOTE 4 Registry interface information consist Interface metaclass (see 6.3.5) Document metaclass (see 6.3.4).

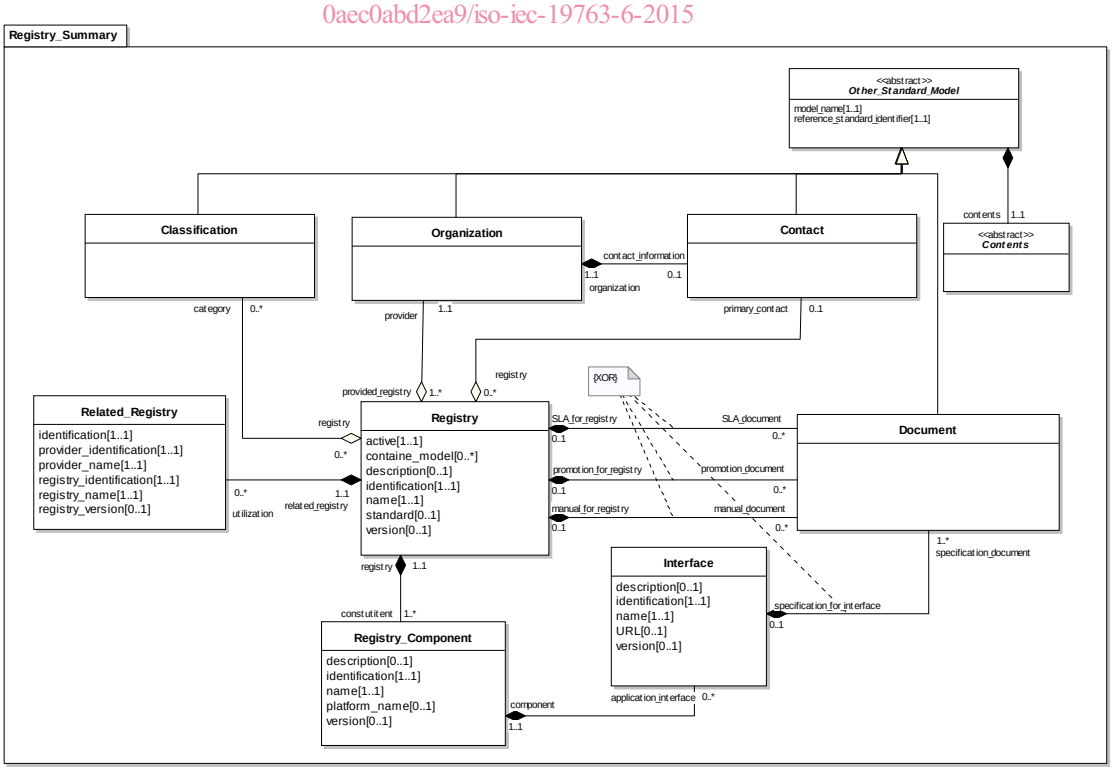

Figure 2 — Metamodel of Registry Summary

NOTE 5 Classification metaclass (see 6.3.1), Contact metaclass (see 6.3.2), Document metaclass (see 6.3.4) and Organization metaclass (see 6.3.6) are subclass of Other_Standard_Model metaclass (see 6.3.7) which is abstract classes. The models of information which these metaclasses represent are already defined by other standards. Therefore, this part reuses the models which other standards defined. Annex B shows an example of reuse of the models of other standard in Registry Summary.

Each Registry contains Related_Registry. Each Registry utilizes zero, one or more Related_Registry. Each Related_Registry is utilized by one and only one Registry.

Each Registry contains Registry_Component. Each Registry is constituted by one or more Registry_Component. Each Registry_Component constitutes one and only one Registry.

Each Registry contains three types document, each type document does not double as other type document.

Each Registry has zero, one or more Document as the SLA document. Each Document which is the SLA document is related by one and only one Registry which is the target of SLA.

Each Registry has zero, one or more Document as the promotion document. Each Document which is the promotion document is related by one and only one Registry which is the target of promotion.

Each Registry has zero, one or more Document as the manual document. Each Document which is the manual document is related by one and only one Registry which is explained by the manual.

Each Registry is categorised by zero, one or more Classification. Each Classification categorises zero, one or more Registry.

Each Registry is provided by one and only one Organization. Each Organization provides one or more Registry.

Each Registry has zero or one Contact as the primary contact point. Each Contact represents the primary contact point of zero, one or more Registry.

Each Organization contains Contact. Each Organization has zero or one Contact as contact information. Each Contact represents the contact information of one and only one Organization.

Each Contact is contained by Registry and/or Organization.

Each Interface has one or more Document as the specification document. Each Document which is the specification document is related by zero or one Interface. When the Document is the specification, each Document is not had by any Registry.

Each Registry_Component contains Interface. Each Registry_Component has zero, one or more Interface as the application interface. Each Interface is had by one and only one Registry_Component.

Each Other_Standard_Model contains Contents. Each Other_Standard_Model has only one Content as the content. This relation is inherited to subclasses (Classification, Contact, Document and Organization).

6.2 Associations between Registry Summary and Core_Model package from MFI-10

Figure 3 shows the associations between metaclass in the Registry Summary and metaclass in the Core_Model package from ISO/IEC 19763-10 (MFI-10).

Registry_Summary_Language in Registry Summary is the subclass of Modelling_Language in Core_Model package. Registry in Registry Summary is the subclass of Model in Core_Model package. Interface, Registry_Component, Related_Registry and Other_Standard_Model are the subclass of Model_Element in Core_Model package.

