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

Technology de l'information — Cadre du métamodèle pour l'interopérabilité (MFI)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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

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

ISO/IEC 19763-6 was prepared by Technical Committee ISO/TC JTC1, Subcommittee SC 32, *Information technology*.

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

— *Part 1: Reference model*

— *Part 3: Metamodel for ontology registration*

— *Part 5: Metamodel for process model registration(CD)*

— *Part 6: Registry summary(WD This documnet)*

— *Part 7: Metamodel for service registration(CD)*

— *Part 8: Metamodel for role and goal registration(WD)*

— *Part 9: On Demand Model Selection(WD)*

— *Part 10: Core model and basic mapping(WD?)*

— *Part 11: Structured model registering(WD?)*

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Introduction

Today, in E-business (EB) or E-commerce (EC) through the Internet, the effective interchange of business transactions or other related information across countries and cultures is an important concern for people in both the IT industry and other non-IT industries.

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

The ISO/IEC 19763 family of standards defined normative metamodels for the registeration of model, ontology, process model, services and roles & goals. Items or objects specified by those metamodel have been registered into particular registry systems.

This part of ISO/IEC 19763 defines the specification necessary to the purpose which makes a specific registry system and the metamodel defined at other parts cooperate with the item or the object.

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

1 Scope

The ISO/IEC 19763 family of standards defines normative metamodels for registering model, ontology, process model, services and roles & goals. Items or objects specified by those metamodel have been registered into particular registry systems(repositry). Therefore, the interoperation of different registries must be necessary because these particular registry systems and the registry where the metamodel defined with ISO/IEC 19763 family is stored are a different system.

The standardized metamodel defined in this part of ISO/IEC 19763 should be used for representing contents for location, registred contents a particular registry in any structure to establish mutual cooperation between the registries that follow ISO/IEC 19763 family assumes.

It dose not specify a registration procedure. Registration procedure is based upon ISO/IEC 11179 part 6.

2 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: Reference model*

ISO/IEC 11179-6:2005, *Information technology — Metadata registries (MDR) — Part 6: Registration*

RFC 822, *Standard for the format of ARPA Internet text messages*

RFC 2397, *The "data" URL scheme*

3 Terms and definitions

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

3.1
attribute
⟨metamodel⟩ a characteristic of an object or entity

NOTE See ISO/IEC 11179-3

3.2
class
⟨metamodel⟩ a description of a set of objects that share the same attributes, operations, methods,relationships, and semantics.

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NOTE ISO/IEC 11179-3

3.3
metadeta
data that defines and describes other **data**

NOTE ISO/IEC 11179-3

3.4
metadeta register
the information store or database maintained by a **Metadata Registry**

NOTE ISO/IEC 11179-3

3.5
metadeta registry
MDR
an information system for registering **metadata**

NOTE1 The associated information store or database is known as a **metadata register**.

NOTE2 ISO/IEC 11179-3

3.6
registry system
registry
system of metadata registry

3.7
metamodel
model which describes other models

NOTE See ISO/IEC 19763-1

3.8
repositry system
repositry
the system to store and manage items or objects the metadata in a registry system indicates

4 Symbols (and abbreviated terms)

MFI	Metamodel Framework for Interoperability (i.e. ISO/IEC 19763-1)
MDR	Metadata Registry
RoR	Registry of Registries
SLA	Service Level Agreement
URL	Uniform Resource Locator
UML	eXtended Markup Language
XML	Unified Modeling Language
WSDL	Web Service Description Language

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5 Conformance

5.1 General

An implementation claiming conformance with this part of ISO/IEC 19763 shall support the metamodel specified in clause 7, depending on a degree of conformance as described below.

5.2 Degree of conformance

5.2.1 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.

5.2.2 Strictly conforming

A strictly conforming implementation

a) shall support the metamodel specified in clause 7 ;

b) shall not support any extensions to the metamodel specified in clause 7.

5.2.3 Conforming implementation

A conforming implementation

a) shall support the metamodel specified in clause 7;

b) may support extensions to the metamodel specified in clause 7 that are consistent with the metamodel specified clause 7.

5.3 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 (5.2)

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

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6 Requirement

6.1 Structure of a MFI Registry (Architecture of a MFI Registry)

A MFI registry consists two of kinds of registry. One is the registry where the metamodel defined at each part of ISO/IEC 19763 family is stocked, and another are the particular registry where the item or the object designated by those metamodel is stocked.

The former is called a RoR(Registry of Registries) registry and the latter is called a repository at this part.

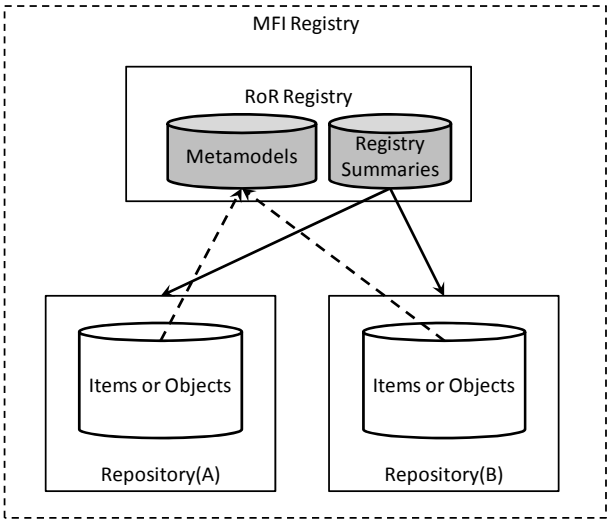

Figure 1 — Structure of a MFI Registry (Conceptual model)

RoR registry has two kinds of information. One is **metamodels** in the territory which a MFI registry makes the subject, and this metamodel is defined at a part in addition to ISO/IEC 19763. Another are **Registry Summaries** which expresses the item metamodel indicates or a repository with an object, and it's defined by clause 7 of this part. Further the restrictions aren't set up by this specification about the number in which a RoR registry exists.

Repositry has **items or objects** based upon metamodel in an object domain. Repositry doesn't set up the restrictions by this specification about the number which exists.

MFI Registry is the whole together with a **RoR registry** where metamodel in the range of the target is managed and **repositries** which manages an item or an object based upon metamodel.

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7 Registry summary

7.1 Overview of Registry summary

Registry summary is metadata that shows the registry system of the object managed with RoR. Registry summary is composed of three parts. The first part is registry contents information. This is information on contents that the registry system that targets it is storing. Such as information that shows kind of registry system and the stored metadata. The second is registry system administrative information, and information that shows the operator of the registry system that targets it. The third part is registry access information, and information that shows the interface to access the registry system that targets it.

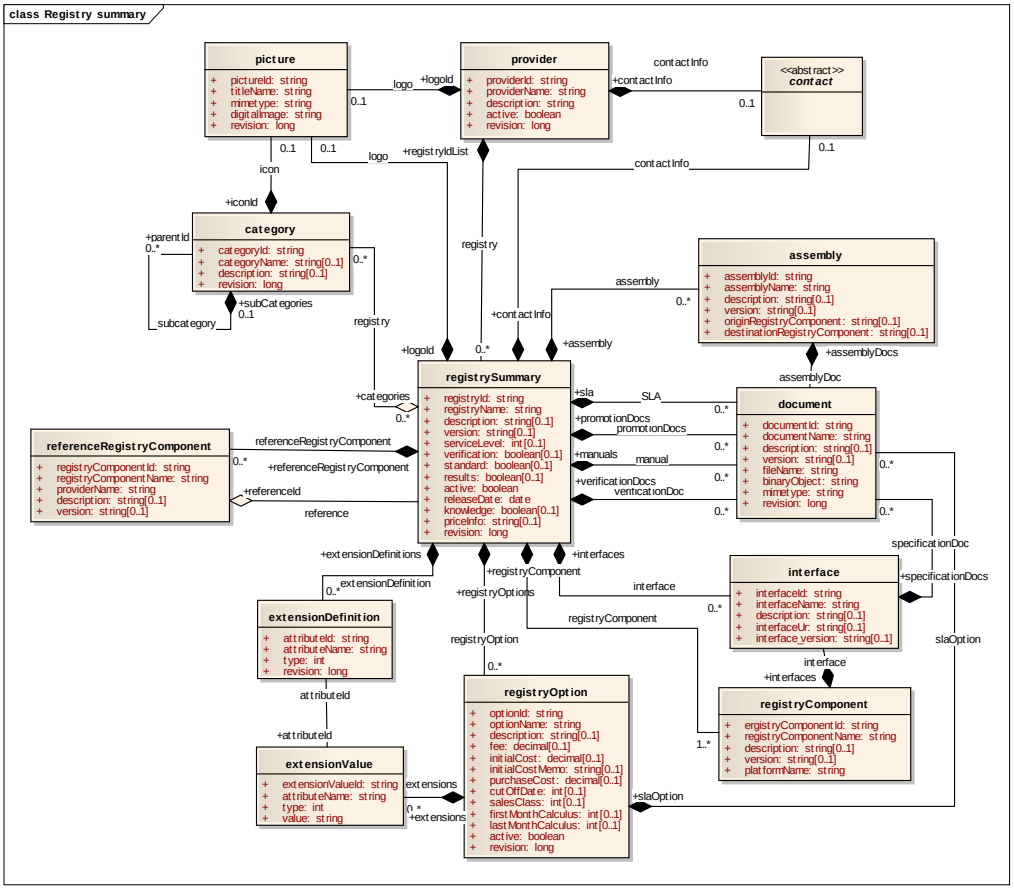

Figure 2 — Metamodel of Registry summary

7.1 Registry contents information

This part is the information model which shows a registry system itself.

7.1.1 registrySummary

The "registrySummary" class is a metaclass that shows the MFI registry system.

Attribute	DataType	Multiplicity	Description
registryId	string	1..1	It is unique ID in the MFI registry system that gives it to the registry system of the object.
registryName	string	1..1	The name of the registry system.

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description	string	0..1	Explanation of the registry system.
version	string	0..1	Version of the registry system.
serviceLevel	int	0..1	Service level of the registry system
verification	boolean	0..1	The registry system stores the state whether verified. It has verified it for "true".
standard	boolean	0..1	The state whether the registry system conforms to the standard is stored. It has verified it for true.
results	boolean	0..1	The state whether the registry system is a registry system with results is stored. It becomes it is results for true.
active	boolean	1..1	The state whether it is a registry system to which the registry system is open to the public is stored. It becomes an open to the public registry system for true.
releaseDate	date	1..1	Start date of opening to the public of registry system.
knowledge	boolean	0..1	The state whether stored service information is knowledge is stored. It becomes service for true and false of becoming knowledge.
priceInfo	string	0..1	Price information when registry system is used.
Revision	long	1..1	Update frequency of this metadata.

Reference	**Class**	**Multiplicity**	**Description**
providerId	provider	1..1	Relation of organization that manages registry system to metadata.
logoId	pucture	0..1	Relation of data of image of logo of registry system to metadata.
categories	category	0..*	Relation of classification that shows kind and classification of registry system to metadata.
contactInfo	contact	0..1	Relation of inquiry window concerning registry system in registry manager organization to metadata.
interfaces	Interface	0..*	Relation to metadata concerning interface that registry system opens to the public outside.
registryComponent	registryComponent	0..*	Relation to metadata concerning components that composes interface of registry system.
referenceRegistryComponent	referenceRegistryComponent	0..*	Relation to metadata concerning components of other registry systems with which registry system cooperates.
assembly	assembly	0..*	Relation to metadata concerning cooperation of component service that composes registry system.
manuals	document	0..*	Relation to metadata concerning manual that registry system can open to the public.
promotionDocs	document	0..*	Relation to metadata concerning promotion document of registry system.
sla	document	0..*	Relation to metadata concerning SLA document that registry system can open to the public.
verificationDocs	document	0..*	Relation to metadata concerning document that shows results of the cooperation between service that composes registry system.
registryOptions	registryOption	0..*	Relation to metadata concerning detailed price to use registry system.
extensionDefinitions	extensionDefinition	0..*	Extended attribute.

7.1.2 referenceRegistryComponent

The "referenceRegistryComponent" is a metaclass that shows the registry component when the registry system of the correspondence is using the registry component that other organizations.

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Attribute	DataType	Multiplicity	Description
registryComponentId	string	1..1	ID given to registry component of external offer that composes registry system.
registryComponentName	string	1..1	Name of registry component of external offer that composes registry system.
providerName	string	1..1	Name of provider of registry component of external offer that composes registry system.
description	string	0..1	Explanation concerning registry component of external offer that composes registry system.
revision	string	0..1	Update frequency of this metadata.

Reference	Class	Multiplicity	Description
referenceId	registrySummary	1..1	Relation of reference to other registry systems that reference service of correspondence manages with MFI registries.

7.1.3 componentService

The “componentService” class is a metaclass that shows individual service when the registry system composes of two or more services.

Attribute	DataType	Multiplicity	Description
serviceId	string	1..1	Identifier given to component service.
serviceName	string	1..1	Name given to component service.
description	string	0..1	Explanation concerning component service.
platformName	string	1..1	Name of platform where service of correspondence operates.

Reference	Class	Multiplicity	Description
Interfaces	interface	0..*	Relation of component service to interface definition.

7.1.4 assembly

The "assembly“ class is a metaclass that shows the cooperation of service that composes the registry system.

Attribute	DataType	Multiplicity	Description
assemblyId	string	1..1	Identifier given to relation that manages registry component that composes registry system by couple one.
assemblyName	string	1..1	Name given to relation that manages registry component that composes registry system by couple one.
description	string	0..1	Explanation concerning relation that manages registry component that composes registry system by couple one.
Version	string	0..1	Version of relation that manages registry component that composes registry system by couple one.
originRegistryComponent	string	0..1	Identifier of former call registry component.
destinationRegistryComponent	string	0..1	Identifier of registry component call ahead.

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Reference	Class	Multiplicity	Description
assemblyDocs	document	0..*	Identifier given to document concerning registry component relation.

7.1.5 extensionDefinition

The "extensionDefinition“ is a metaclass that defines the enhancing item to aim to enhance the metaclass that shows the registry system.

Attribute	DataType	Multiplicity	Description
attributeId	string	1..1	Identifier given to enhancing item.
attributeName	string	1..1	Name given to enhancing item.
type	int	1..1	Data type of enhancing item. 0:string、1:int、2: decimal、3:date、4:datetime、5:boolean、6:long
revision	long	0..1	Data type of enhancing item.

7.1.6 extensionValue

The "extensionValue“ class is a metaclass with the value of the enhancing item defined with extensionDefinition.

Attribute	DataType	Multiplicity	Description
extensionValueId	string	1..1	Identifier given to value of enhancing item.
attributeName	string	1..1	Name given to value of enhancing item.
type	int	1..1	Data type of value of enhancing item. 0:string、1:int、2: decimal、3:date、4:datetime、5:boolean、6:long
value	string	0..1	Value of enhancing item.

Reference	Class	Multiplicity	Description
attributeId	extensionDefinition	1..1	Identifier of item of enhancing item.

7.1.7 registryOption

The "registryOption“ class is a metaclass with information on the use fee when the registry system provides service for a fee.

Attribute	DataType	Multiplicity	Description
optionId	String	1..1	Identifier given to optional service.
optionName	string	1..1	Name given to optional service.
description	string	0..1	Explanation concerning optional service.
fee	decimal	0..1	Price set by optional service.
initialCost	decimal	0..1	Initial cost
initialCostMemo	string	0..1	Explanation concerning the first stage cost.
purchaseCost	decimal	0..1	Code price.
cutOffDate	int	0..1	Cutoff data.
salesClass	int	0..1	Division of charged, free of charge, and share, etc. 0:Free of charge 1: Share 2: Charge
firstMonthCalculus	Int	0..1	Computational method month that begins to be used. 0:Round-down 1: Daily payment 2: Round-up
lastMonthCalculus	Int	0..1	Computational method month of use end. 0:Round-down 1: Daily payment 2: Round-up

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active	boolean	1..1	Flag of opening to the public of this information.
revision	long	1..1	Update frequency of this metadata.

Reference	Class	Multiplicity	Description
extensions	extensionValue	0..1	Relation of enhancing item added to registry option to value.
slaOption	document	0..1	Relation of registry option to SLA document.

7.1.8 category

The “category” class is general metadata that shows the kind and the classification of the data of the object.

Attribute	DataType	Multiplicity	Description
categoryId	string	1..1	Identifier given to category node.
categoryName	string	1..1	Name given to category node.
description	string	0..1	Explanation concerning category node.
revision	long	1..1	Update frequency of this metadata.

Reference	Class	Multiplicity	Description
subCategories	category	0..*	Relation to category nodes that becomes subcategory.
parentId	category	0..1	Relation to parent category.
iconId	picture	0..1	Relation of possession of icon image by category node to icon.

7.2 Registry access information

This part is the information model which indicates the information to access a registry system.

7.2.1 interface

The "interface“ class is a metaclass of interface information on registry component that serves or composes that the registry system offers.

Attribute	DataType	Multiplicity	Description
interfaceId	string	1..1	Identifier given to interface.
interfaceName	string	1..1	Name given to interface.
description	string	0..1	Explanation concerning interface.
interfaceUrl	string	0..1	URL to access interface.
interfaceVersion	string	0..1	Version in interface.

Reference	Class	Multiplicity	Description
specificationDocs	document	0..*	Relation to technical specification concerning interface.

7.3 Registry system administrative information

This part is the information model which indicates information about an administrative organization of a registry system.

7.3.1 provider

The "provider" class is a metaclass that shows the organization that manages the registry system and operates it.

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Attribute	DataType	Multiplicity	Description
provider Id	string	1..1	Unique ID in the RoR registry given to the registry operator.
provider Name	string	1..1	Name of registry operator organization.
description	string	0..1	Explanation concerning registry operator. (short chapter of introductory essay etc.)
active	boolean	1..1	Opening to the public/closed-door of registry operator information on the correspondence is shown.
revision	long	1..1	Update number for this object.

Reference	Class	Multiplicity	Description
logo Id	picture	0..1	Image data of logo mark of registry operator organization.
registryIdList	registrySummary	0..*	Registry system that registry operator manages.
contactInfo	contact	0..1	Where to make contact to registry operator.

7.4 Common component

This part is the information model used in common way in Registry summary.

7.4.1 document

The “document” class is a general metaclass that shows the document.

Attribute	DataType	Multiplicity	Description
documentId	string	1..1	Identifier of document data.
documentName	string	1..1	Name of document data.
description	string	0..1	Explanation concerning document data.
version	string	0..1	Number of versions of document data.
fileName	string	1..1	File name of document data.
binaryObject	string	1..1	The realities of document data. Document data of form in accordance with RFC 2397.
mimeType	string	1..1	MIME Type of document data. (RFC 822)
revision	long	1..1	Update frequency of this metadata.

7.4.2 picture

The “picture” class is a general metaclass that shows the image of the logo mark etc.

Attribute	DataType	Multiplicity	Description
pictureId	string	1..1	Identifier of image information.
titleName	string	1..1	Title of image information.
mimeType	string	1..1	MIME Type character string of image data. (RFC 822)
digitalImage	string	1..1	The realities of image data of form in accordance with RFC 2397.
revision	long	1..1	Update frequency of this metadata.

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7.4.3 contact

The "contact" class is a general metaclass that shows the where to make contact of the organization. This class uses as information on the where to make contact of the organization that the provider class shows and is used as information at the inquiry window of the registry system. This part defines only an abstraction class, so the attributes are not defined.

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