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OGC® Cataloguing of ISO Metadata (CIM)

Using the ebRIM profile of CS-W

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i. Preface

The OGC Catalogue Services 2.0 specification (OGC 04-021r3) establishes a general framework for implementing catalogue services that can be applied to meet the needs of stakeholders in a wide variety of domains.

The ebRIM application profile is based on the HTTP protocol binding described in Clause 10 of the Catalogue 2.0 specification; it qualifies as a 'Class 2' profile under the terms of ISO 19106 since it includes extensions permitted within the context of the base specifications, some of which are not part of the ISO 19100 series of geomatics standards. The ebRIM application profile also includes a Basic extension package of the OASIS ebXML Registry Information Model (ebRIM) providing artefacts of general utility in the geomatics domain.

This specification complements the ebRIM application profile of CS-W for the cataloguing of ISO 19115 and ISO 19119 compliant metadata record. It defines for this purpose a Core ISO Metadata extension package of ebRIM.

ii. Document terms and definitions

This document uses the specification terms defined in Subclause 5.3 of [OGC 05-008], which is based on the ISO/IEC Directives, Part 2. Rules for the structure and drafting of International Standards. In particular, the word "shall" (not "must") is the verb form used to indicate a requirement to be strictly followed to conform to this specification.

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iv. Revision history

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2007-04-27	0.1.6	N. Lesage	All	Clean-up of first draft (removal of comments and TBDs) DataResourceMetadata renamed DataMetadata for simplification Removal of redundant association types (ServiceMetadata, ApplicationMetadata, DatasetMetadata) Addition of OperatesOn association type between ServiceMetadata and DataMetadata Addition of implantation guidance
2007-05-07	0.1.6	Carl Reed	Various	Prepare for posting as DP.
2007-05-07	0.1.7	Marie-Lise	Various	Complete various TBDs and respond to comments

v. Changes to the OGC Abstract Specification

The OGC® Abstract Specification does not require any changes to accommodate the technical content of this document.

Foreword

This document depends primarily on the following base standards and specifications:

- OGC Catalogue Services Specification 2.0, with Technical Corrigendum 1 (OGC 04-021r3)
- OWS Common Implementation Specification 1.0 (OGC 05-008)
- Filter Encoding Implementation Specification 1.1 (OGC 04-095)
- OASIS ebXML Registry Information Model v3.0[1]
- IETF RFC 2616 (Hypertext Transfer Protocol -- HTTP/1.1)
- OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W (05-025)

This document includes 8 annexes. Annexes A, B, C, D, E and F are normative; annexes G and H are informative.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The OGC shall not be held responsible for identifying any or all such patent rights.

Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the specification set forth in this document, and to provide supporting documentation.

[1] The ebXML registry information model (ebRIM) is also published as ISO/TS 15000-3.

Introduction

The target audience for this document includes client and service developers, system testers, and users who want to acquire a deeper understanding of catalogue services. The specification encompasses three interrelated views that reflect different viewpoints on a catalogue service. Each viewpoint[2] focuses on different areas of concern:

- *Enterprise* – describes the general capabilities of the service in light of functional and non-functional requirements (for catalogue users and system testers);
- *Information* – defines the kinds of information handled by the catalogue and the policies to be enforced (for catalogue users, developers, and testers);
- *Computational* – specifies the public interfaces, allowable interactions, and protocol bindings (for developers and testers).

This document extends the ebRIM application profile of CS-W for the cataloguing of ISO 19115 and ISO 19119 compliant metadata.

The terms ‘catalogue’ and ‘registry’ are often used interchangeably, but the following distinction is made in this application profile: a registry is a specialized catalogue that exemplifies a formal registration process such as those described in ISO 19135 or ISO 11179-6. A registry is typically maintained by an authorized registration authority who assumes responsibility for complying with a set of policies and procedures for accessing and managing registry content. This profile does not stipulate any particular registration policies that must be enforced by a conforming implementation.

[2] The Reference Model of Open Distributed Processing (RM-ODP, ISO/IEC 10746) is the architectural framework adopted by the OGC and ISO/TC 211 for specifying software-intensive systems. In IEEE 1471 terminology the RM-ODP framework provides a set of library viewpoints.

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1 Scope

A catalogue implementation that conforms to this specification provides facilities for discovering and advertising information resources described through ISO 19115 and ISO 19119 compliant metadata records, with a specific focus on geospatial dataset, dataset collections and services. For this purpose, this specification extends the general and flexible catalogue information model, adding dedicated kinds of artifacts for the specific management of the targeted information resources. These artifacts includes, but are not limited to service offers, interface definitions, dataset descriptions, application schemas, and classification schemes. As any service complaint with the ebRIM profile of CS-W, it may be used to catalogue resources located in both local and remote repositories. Representations of these resources are exchanged using the standard HTTP/1.1 protocol.

2 Conformance

Conformance with this specification shall be checked using all the relevant tests specified by the Abstract Test Suite (ATS) in Annex A (normative). The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in ISO 19105: Geographic information — Conformance and Testing.

In addition to satisfying the requirements stipulated in all normative clauses and Annex A, a catalogue implementation must also satisfy all relevant requirements in the following base specifications:

- OGC Catalogue Services 2.0, Clause 10 (OGC 04-021r3, with Corr. 1)
- OGC Web Services Common Specification 1.0 (OGC 05-008)
- OGC Filter Encoding Implementation Specification 1.1 (OGC 04-095)
- OASIS ebXML Registry Information Model, Version 3.0
- OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W (OGC 05-025)

3 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

ISO 19105:2000, *Geographic information — Conformance and Testing.*

ISO 19106:2003, *Geographic Information – Profiles.*

ISO 19115:2003, *Geographic Information – Metadata*

ISO 19115:2003/Cor 1 2006, *Geographic information – Metadata - Corrigendum 1*

ISO 19119:2003, *Geographic Information – Services*

ISO 19119:2005/DAmd 1, *Geographic information – Services – Amendment 1*

ISO/TS 19139:2007, *Geographic information -- Metadata -- XML schema implementation*

IETF RFC 2616, *Hypertext Transfer Protocol -- HTTP/1.1*, Draft IETF Standard (June 1999), available [online]: <http://www.apps.ietf.org/rfc/rfc2616.html>.

IETF RFC 3066, *Tags for the Identification of Languages*, IETF Best Current Practice, (January 2001), available [online]: <http://www.ietf.org/rfc/rfc3066.txt>

OASIS ebRIM, *ebXML Registry Information Model Version 3.0*, OASIS Standard (May 2005), available [online]: <http://www.oasis-open.org/committees/download.php/13591/docs.oasis-open.orgregrepv3.0specsregrep-rim-3.0-os.pdf>.

OGC 04-095, *Filter Encoding Implementation Specification*, version 1.1.0 (3 May 2005), available [online]: <http://portal.opengeospatial.org/files/?artifact_id=8340>.

OGC 06-121r3, *OGC Web Services Common Specification,* version 1.0.0 with Corrigendum 1 (February 2007), available [online]: <http://portal.opengeospatial.org/files/?artifact_id=20040>

OGC 07-006, *OGC™Catalogue Services Specification*. Version 2.0.2 (February 2007), available [online]: <http://portal.opengeospatial.org/files/?artifact_id=12330&version=1>

OGC 07-045, *OGC Catalogue Services Specification 2.0.1 (with Corrigendum) - ISO19115/ISO19119 Application Profile for CSW 2.0*, version 1.0 (March 2007). Available [online]: <https://portal.opengeospatial.org/files/?artifact_id=20727>

In addition to this document, this specification includes several normative XML Schema files, which are available online in the OGC schema repository at this base URL <http://schemas.opengis.net/csw-ebrim/1.0.0>. These XML Schema files are also bundled with OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

4 Terms and definitions

For the purposes of this specification, the definitions specified in Clause 4 of the *OGC Web Services Common Specification* [OGC 05-008] shall apply, as well as the definitions specified in Clause 4 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025]. In addition, the following terms and definitions apply.

4.1
dataset
identifiable collection of data

NOTE Examples: a hardcopy map, a Geodesy set of parameters, a digital set of features

4.2
dataset collection
collection of datasets and dataset collections.

NOTE Examples include: a series, i.e. a set of dataset sharing the same product specification.

5 Conventions

5.1 Abbreviated terms

Most of the abbreviated terms listed in Subclause 5.1 of the OWS Common Implementation Specification [OGC 05-008] apply to this document as well as the terms listed in subclause 5.1 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], plus the following abbreviated terms :

CIM	Core ISO Metadata
CSW	Catalogue Service for the Web
ebRIM	ebXML Registry Information Model
HTTP	HyperText Transfer Protocol
IETF	Internet Engineering Task Force
RFC	Request For Comments
ISO	International Standardization Organisation
IEC	International Engineering Consortium
OASIS	Organization for the Advancement of Structured Information Standards
OGC	Open Geospatial Consortium
OWS	OGC Web Service
SUT	System Under Test
TBD	To Be defined
TS	Technical Specification
UML	Unified Modelling Language
URN	Unified Resource Name
XML	eXtensible Markup Language

5.2 UML notation

Some of the diagrams that appear in this document are presented using the Unified Modeling (UML) notation. Subclause 5.2 of [OGC 05-008] provides some general guidance regarding the use of class diagrams.

5.3 Namespace prefix conventions

Table 1 lists the namespaces used in this document and the specifications in which they are defined. The prefixes are **not** normative and are merely chosen for convenience; they may

appear in examples without being formally declared, and have no semantic significance. The namespaces to which the prefixes correspond are normative, however.

Table 1 — Namespace mappings

Prefix	Namespace URI	Specification
wrs	http://www.opengis.net/cat/wrs	CSW-ebRIM profile
rim	urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0	OASIS ebRIM 3.0
csw	http://www.opengis.net/cat/csw	CSW part (Clause 10) of OGC Catalogue Services 2.0
ows	http://www.opengeospatial.net/ows	OGC Common 1.0
ogc	http://www.opengis.net/ogc	OGC Filter 1.1
gml	http://www.opengis.net/gml	OGC GML 3.1.1
gmd	http://www.isotc211.org/2005/gmd	ISO/TS 19139
dc	http://purl.org/dc/elements/1.1/	Namespace Policy for the DCMI[a]
xlink	http://www.w3.org/1999/xlink	XML Linking Language (XLink) Version 1.0

a See <http://dublincore.org/documents/dcmi-namespace/>.

6 System context

6.1 Application domain

A metadata repository managed by a catalogue implementing this application profile deals with ISO 19115 and ISO 19119 compliant metadata with a specific focus on geospatial data, geospatial services and geospatial applications. This document does not attempt to specify a general-purpose catalogue. Rather, it allows the retrieval and management of the metadata objects referred to above.

This application profile has no specific disciplinary focus. All communities working with these sorts of geospatial information are addressed. Typical communities are surveying, environment, geology, landscaping, water management, power industry, telecommunications etc.

The intention is to implement the generally understood ISO19115/19119 information model based on the meta-model as defined in ebRIM (ISO/TS 15000-3) profile of CS-W. It should model at most as many ebRIM RegistryObjects as required to be able to provide the most important use-cases for discovery needed by the communities above-named.

This specification is based on the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile [OGC 05-025]. The essential capabilities of a catalogue service within a service-oriented architecture are described in clause 6.1 of the profile.

6.2 Essential use cases

This section describes essential use cases for the purpose of demonstrating typical interactions between users, as well as a catalogue service that supports the specified application profile. Figure 1 shows the overall system that contains major interactions between the actors.

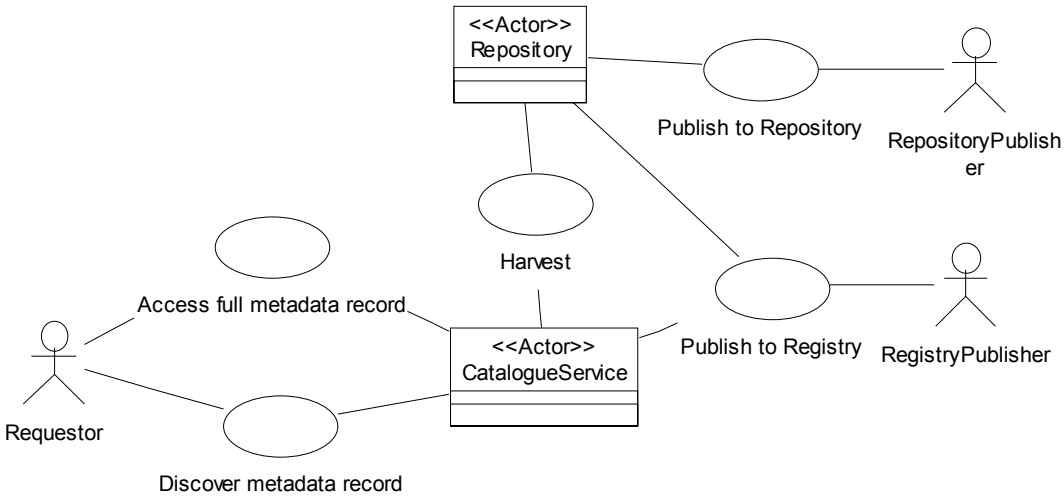

Figure 1: Overall system use cases

An actor is a person, organisation, or external system that plays a role in one or more interactions with the system. Five actors are identified:

Metadata Author (not depicted on the overview figure): The metadata author is responsible for creating ISO 19139-compliant metadata records on geographic resources. The metadata author acts for the organization responsible for the resource.

Metadata Editor: Software tool enabling the edition of ISO 19139 metadata

Repository Publisher: The repository publisher publishes the ISO 19139-compliant metadata records to the repository. The responsible individuals in the organization can thus access and maintain these metadata records.

Registry Publisher: The registry publisher publishes CIM-compliant descriptions of the ISO 19139-compliant metadata records to the ebRIM Registry through the catalogue service. By doing so, he enables the discovery of these description records by a requestor entity.

Requestor: This actor searches through a catalogue service for metadata descriptions and accesses ISO 19139 metadata records in the repository. Depending on the context of the catalogue service implementation, the requestor can be a member of the responsible organization or an external individual.

Repository: The repository stores ISO 19139 metadata records.

Catalogue Service: This is a system that handles the discovery and publishing of metadata entries. Furthermore, this actor has the ability to harvest metadata records from other

repositories. The catalogue service stores metadata descriptions in its registry. These metadata descriptions are connected to the corresponding ISO 19139 records in the repository.

The following sections describe the use cases in more detail.

6.2.1 Publish metadata

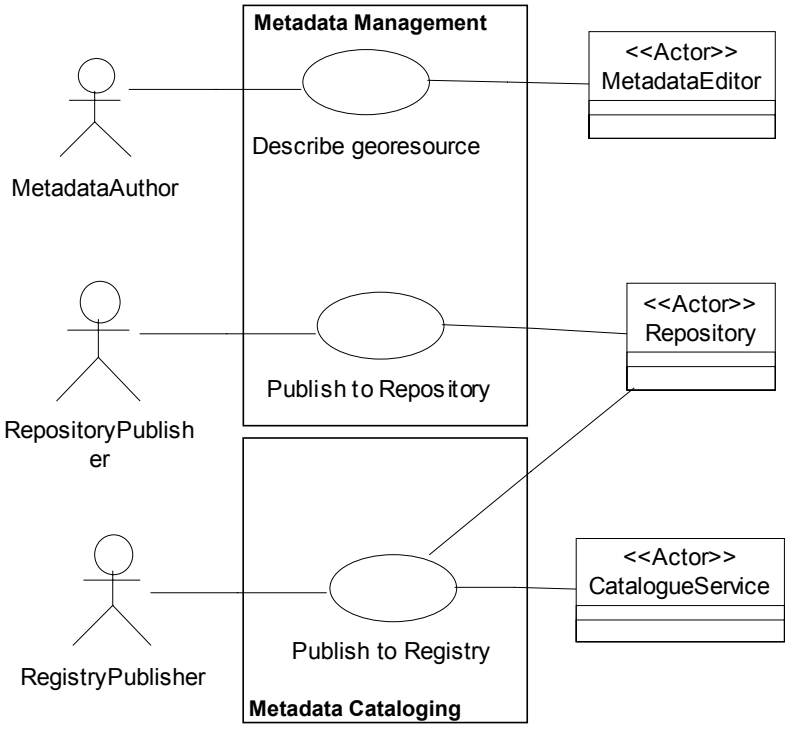

Figure 2: Publish metadata

Description: Two distinct and independent functionalities of the system are clearly identified. The first one deals with the management of metadata and metadata records of the resources produced by an organization. The metadata author describes geo-resources by applying ISO/TS19139. A geo-resource may be a service, a geodataset (single or collection) or an application. The repository publisher then publishes these records to a repository; they can then be managed by the organization. The metadata author and repository publisher act for the producing organization.

The second functionality concerns the cataloguing of metadata records that enables their discovery by users. To achieve this, the registry publisher publishes descriptions of the metadata records to a registry through the catalogue service. In order to give the user access to the full metadata records stored in the repository, the registry publisher links the descriptions of the catalogue to the appropriate items of the repository. By doing so, he gives a requestor access to descriptions of metadata records in the registry and to the full ISO 19139 metadata records in the repository.

Pre-conditions: The repository publisher knows the URL of the repository and has the right to access the repository. The registry publisher knows the URL of the catalogue service, has

knowledge about the transaction interface, has the right to access the catalogue service and has the right to link the catalogue objects to the repository items.

Post-conditions: The ISO 19139 metadata record is either successfully published to the repository or publishing fails due to a non-valid metadata record. A CIM-compliant description of the ISO 19139 metadata record is then either successfully published to the catalogue and a link is created to the corresponding repository item or publishing fails due to a non-valid metadata description.

6.2.2 Discover metadata

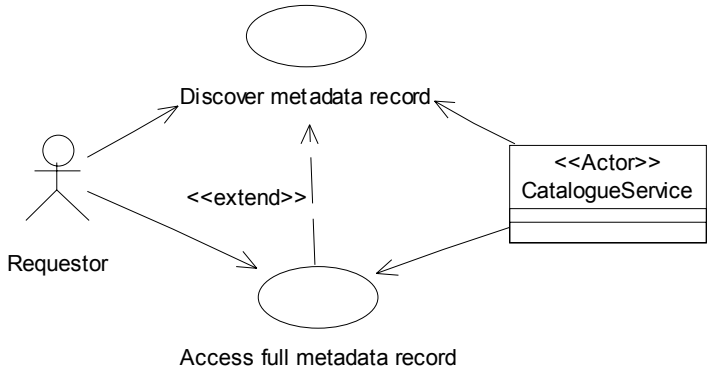

Figure 3: Discover metadata

Description: A requestor discovers metadata entries and then accesses specific ISO 19139 metadata records one at a time through the operations provided by the catalogue service. If a service is discovered that fits his search terms, he can bind to this service in accordance with the information in the result sets of the catalogue service. Depending on the context of the catalogue service implementation, the requestor can be a member of the responsible organization or an external individual.

Pre-conditions: The requestor knows the location of the catalogue service.

Post-Condition: The requestor receives a valid catalogue response (due to a valid request) with a result set that contains all the information that fits the requestor's query or the full ISO 19139 metadata record stored in the repository.

6.2.3 Harvest metadata

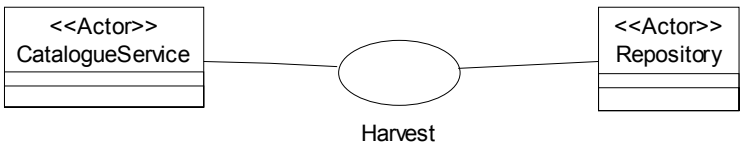

Figure 4: Harvest metadata

Description: A catalogue service may harvest metadata records from a given repository that contains ISO 19139 metadata records. If the catalogue successfully retrieves the resource and successfully processes it, then one or more corresponding registry objects are created or

updated. Brief representations of all modified records are returned to the client when processing is complete.

Pre-conditions: The repository resources are ISO 19139-compliant. The repository resources must be accessible over a network.

Post-Condition: If the request is processed successfully, the metadata descriptions corresponding to the ISO 19139 metadata record is inserted into the registry and are available immediately in case of an adequate query.

7 Information models

7.1 Capability classes

This specification adopts the capability classes defined in clause 6.5 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

7.2 Catalogue information model

7.2.1 ebXML registry information model (ebRIM)

7.2.1.1 Principles

This specification adopts the general description of the ebXML registry information model (ebRIM) provided in clause 6.2 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025]. The concept of repository item and extension package respectively described in clauses 6.3 and 6.4 of this application profile, are also fully relevant.

7.2.1.2 Management of spatial references

The statements expressed in clause 7.5 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] relatively to the management of spatial references in ebRIM are applicable.

7.2.2 CIM ebRIM information model

A UML modelling of the ebRIM information model supporting the registration of ISO 19115 and ISO 19119 metadata sets is provided in Annex B. A description of this modelling is provided in Annex C.

7.2.3 ISO information model

The ISO 19115/19119 Application Profile of CS-W supports distributed search with OGC CSW 2.0.2 base profile catalogs and catalogs based on other CSW 2.0.2 profiles, as described in Clause 7.6 of [OGC 07-045].

Interoperability between an ISO 19115/19119 ebRIM Profile service and an ISO 19115/19119 Profile service concerns:

1. An ISO 19115/19119 Application Profile client accessing an ISO ebRIM Application Profile service

2. An ISO 19115/19119 ebRIM Application Profile client accessing an ISO 19115/19119 Application Profile service

These aspects are depicted in Figure 5:

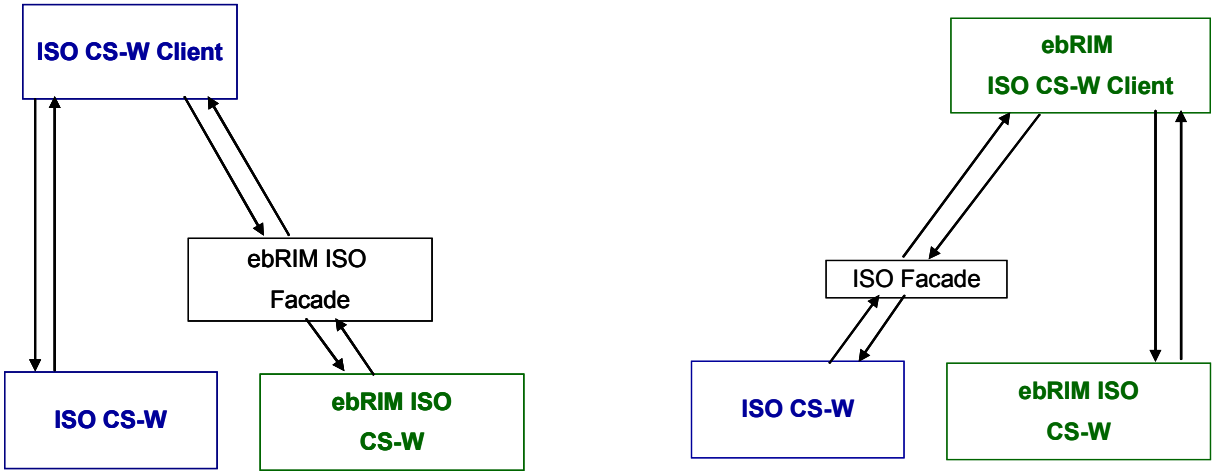

Figure 5 - Interoperability between ISO 19115/19119 Application Profile and ISO 19115/19119 Application Profile servers

Both aspects require the translation of the request into the information model of the server and the translation of the response into the information model of the client. However, due to the structure of the ISO Information Model and the constraints expressed in the ISO 19115/19119 Application Profile, the requests that can be performed by an ISO 19115/19119 Application Profile client are less complex in terms of scope and syntax than those performed by an ISO 19115/19119 ebRIM Application Profile client. Therefore, interoperability can be more easily achieved between an ISO 19115/19119 Application Profile client and an ISO 19115/19119 ebRIM Application Profile server than vice-versa.

To enable interoperability between an ISO 19115/19119 Application Profile client and an ISO 19115/19119 ebRIM Application Profile server, a service implementing the present profile can optionally support the ISO 19115/19119 Application Profile information model. Responses at the brief, summary and full levels returned by the ISO 19115/19119 ebRIM Application Profile server to an ISO 19115/19119 Application Profile client shall conform to the ISO 19139 templates described in Annex F that define the mappings between the CIM properties and ISO 19139 at each level.

7.3 Supported data bindings

7.3.1 ebXML data binding

7.3.1.1 Application schemas

7.3.1.1.1 External application schemas

The application schemas described in clause 6.6 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] are applicable.

7.3.1.1.2 Specific extensions

No specific extension of the external application schemas is required for the purpose of this specification.

7.3.1.2 Extension Packages

The general explanation about the management of extension packages provide in clause 6.4 of OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] are applicable.

A **Core ISO Metadata (CIM)** extension package is defined as part of this specification. All compliant implementations must support it (see Annex B). This CIM extension package is an extension of the Basic extensions package defined in Annex B of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025]. Additional packages may be defined by other parties as needed, and particularly;

- to extend the underlying information model defined in this document to support the cataloguing of ISO 19115 and ISO 19119 metadata. These extensions may aim at registering more ISO 19115 and ISO 19119 metadata element, user community specific metadata elements defined in a class 2 profile of ISO 19115 or ISO 19119, and metadata elements defined in standard extensions of ISO 19115 and ISO 19119, i.e., ISO 19115-2, Information Geographic –Metadata for Imagery
- to provide extension of the ebRIM information model for other dedicated resources, such as feature catalogues and feature types as defined in ISO 19110, spatial reference systems as defined in ISO 19111, gazetters and geographic identifiers as defined in ISO 19112, …

The CIM extension package, as well as the potential additional packages, employ elements of ebRIM and the Basic package as suggested in Figure 3.

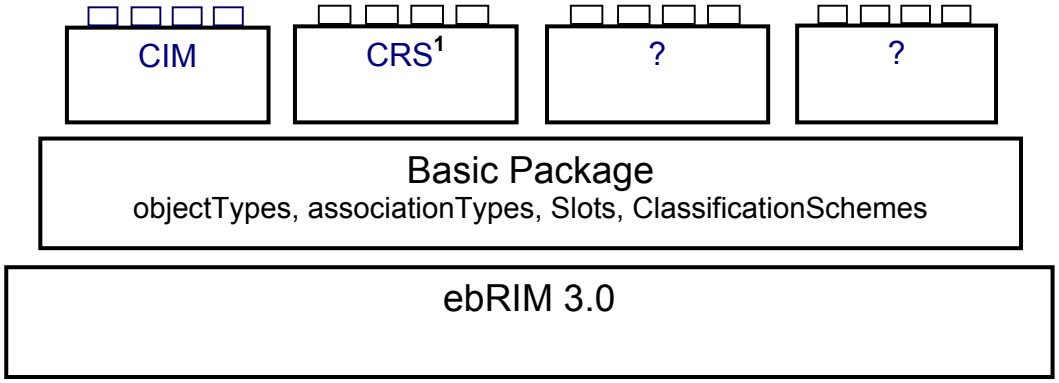

Figure 3 — Extension packages[1]

7.3.2 CSW record binding

7.3.2.1 Predefined property sets

The statements expressed in clause 7.4 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] concerning the predefined property sets, and their relationship with the ebRIM information items are applicable.

7.3.2.2 Mapping registry objects to CSW records

This specification remains compliant with the mapping of registry objects to CSW records defined in clause 7.6 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], but it defines a CIM information model (see clause 7.2.2 as well as Annexes B and C) supporting the registration of ISO 19115 and ISO 19119 metadata.

A mapping between the ebRIM CIM information Model and the metadata elements composing CS-W records is defined in Annex E.

7.4 Service information model

This application profile adopts the service information model of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

7.5 Native language support

The statements expressed in clause 7.7 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] relatively to the support of multilingual property values are applicable.

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[1] An OGC project currently focuses on developing CRS extension package

7.6 Distributed Search

As the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], this application profile does not support the ability to distribute a client request to other catalogues within a federation. But, an ebRIM catalogue can manage registry objects corresponding to resources managed in one or more item repositories.

Consequently, this specification enables a distributed management of the metadata about geospatial data, geospatial services and geospatial applications in distributed metadata repositories, but requires a publication of repository entries into one or more catalogue registries. This allows the cataloguing of a wide range of resources from a wide set of repositories by a chosen set of catalogues, ensuring that the only the relevant repository resources relevant are considered by a given catalogue.

8 External interfaces

8.1 Imported protocol bindings

8.1.1 HTTP method bindings

This specification makes use of the HTTP method bindings in the conditions defined in clause 7.1 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

This specification also adopts the requirements defined in clause 7.1 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] relatively to the use of common HTTP message header fields.

8.2 Interfaces

8.2.1 OGCWebService interface

This specification adopts the OGCWebService interface defined in clause 8 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

8.2.2 Discovery interface

8.2.2.1 Applicability of the discovery interface defined in the ebRIM profile of CS-W

This specification adopts the Discovery interface defined in clause 9 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], and particularly:

- The GetRecords operation defined in its clause 9.1;
- The GetRecordById operation defined in its clause 9.2;
- The DescribeRecord operation defined in its clause 9.3;
- The GetDomain operation defined in its clause 9.4;
- The GetRepositoryItem operation defined in its clause 9.5.

8.2.2.2 Specificity of the GetRepositoryItem operation

The only object types defined in the CIM Extension Package that are expected to be linked to repository items are : *:ServiceMetadata and *:DataMetadata.

8.2.3 Publication interface

8.2.3.1 Applicability of the publication interface defined in the ebRIM profile of CS-W

This specification adopts the Publication interface defined in clause 10 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], and particularly:

- The optional Harvest operation defined in its clause 10.1;
- The optional Transaction operation defined in its clause 10.2.

8.2.3.2 Building CIM ebRIM objects from an ISO 19115/19119 metadata record

The publication of an ISO 19115 / ISO 19119 metadata record needs to create a set of registry objects. The mapping between ISO 19115/ISO 19119 and the CIM Information Model provided in Annex F defines how to ensure the publication of the metadata records consistently.

8.2.4 Error handling

The statements expressed in clause 7 of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025] relatively to exception reports are applicable.

8.3 Query facilities

8.4 General implementation guidance

8.4.1 Technical issues

8.4.1.1 Multiplicity of slots

The UML Models of the ebRIM Core ISO Metadata (CIM) expresses the need to repeat the ebRIM slots. This is not possible accordingly to version 3.0 of ebRIM. Consequentely, the slots will not be repeated, but they will have instead multiple values.

8.4.2 Semantic issues

None.

8.5 Security considerations

None.

Annex A
(normative)

Abstract test suite

A.1 Test module for general capabilities

A.1.1 General capabilities

a) Test purpose: Confirm that the SUT satisfies conformance requirements that generally apply to all service interactions.

b) Test method: Falsification testing of HTTP response.

c) Reference: OGC 05-025r1

d) Test type: Capability

A.1.2 Test case for Content-Type header

a) Test case identifier:
urn:x-ogc:specification:csw-ebrim:atc:general:ContentTypeHeaderTest

b) Test purpose(s): The Content-Type message header must correctly identify the media type of the entity-body in the response (if present).

c) Test method: Check the value of the Content-Type header. Pass if it correctly identifies the media type of the entity-body. Fail otherwise.

d) Reference: OGC 05-025r1, Subclause 7.2; IETF RFC 2616, 7.2.1; IETF RFC 3023.

e) Test type: Basic

A.1.3 Test case for valid XML entity body in response message

a) Test case identifier:
urn:x-ogc:specification:csw-ebrim:atc:general:ValidXmlRspTest

b) Test purpose(s): The body of a response message that specifies an XML content type shall be schema valid.

c) Test method: For all response messages that specify a Content-Type header value corresponding to an XML media type (per RFC 3023), validate the document element in the entity body against its type definition. Pass if validation succeeds. Fail otherwise.

d) Reference: OGC 05-025r1, Clause 8.3.

e) Test type: Basic

A.2 Test module for Discovery operations

A.2.1 Discovery operations

a) Test purpose: Confirm that the SUT satisfies conformance requirements that apply to operations provided by the Discovery interface.

b) Test method: Falsification testing of HTTP response.

c) Reference: OGC 05-025r1, Clause 9.

d) Test type: Capability

A.2.2 Test case for validation of GetRecords request

a) Test case identifier:
urn:x-ogc:specification:csw-ebrim:atc:discovery:ValidateGetRecordsReqTest

b) Test purpose(s): A service shall validate a GetRecords request if the csw:GetRecords/@resultType attribute has the value “validate”.

c) Test method: Check that the entity body in the request is *at least* schema valid; additional constraints may also apply (e.g., type name values must identify known types). Pass if **all** of the following are true: (a) the request is valid and the document element in the response is csw:Acknowledgement; (b) the request is invalid and the document element in the response is ows:ExceptionReport. Fail otherwise.

d) Reference: OGC 05-025r1, IETF RFC 2616, 7.2.1; IETF RFC 3023.

e) Test type: Basic

Annex B
(normative)

The Core ISO Metadata (CIM) ebRIM Model

B.1 Introduction

The Core ISO Metadata (CIM) information model is expressed in UML. The UML diagrams follow the UML notation defined in clause 5.2. They are specifically constrained to respect the specific constraints of the ebXML Registry Information Model.

The following classes stereotypes are used:

- <<ExtrinsicObject>> corresponds to the ebRIM object types deriving directly or indirectly from the ebRIM extrinsic object.
- <<RegistryObject>> corresponds to the ebRIM object types deriving directly or indirectly from the ebRIM registry object.
- <<Classification Scheme>> corresponds to the definition a classification scheme. The attribute of a classification scheme have necessarily the <<node>> stereotype.

The following attribute stereotypes are used:

- <<slot>> corresponds to ebRIM slots. The name of the UML attribute is the identifier of the corresponding slot.
- <<classification>> corresponds to an ebRIM classification. The name of the UML attribute is the name of the Classification Node or Classification Scheme defining the classification. When a data type is defined, it represents the context of the classification, i.e. the name of a classification of the classification.
- <<node> corresponds to a classification node of a classification scheme or a parent classification node

The name of an association is the name of the ebRIM association type. The associations are unidirectional and binary like the ebRIM association types. The UML class connected to the navigable side of the association corresponds to the target ebRIM object types.

Note 1: The Core ISO Metadata (CIM) information model expresses a specific use of the underlying ebRIM data structure of the ISO Metadata Registry. Such registry shall satisfy the minimum cardinalities, but may contain information not defined in the CIM information model.

Note 2: An ISO Metadata Registry focuses on the registration of the resource metadata including all object and association types described in clause B.2 to B.6. The resource metadata is a set of information providing a metadata point of view on four types of information resources (application, service, dataset and dataset collection) constituting the context of the Metadata. The object types corresponding to the information resources may be further described by different object types providing complementary points of view on the information resources. The service model, service grounding and service profile object types

defined in the Basic Extension Package of the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025], expresses three different points of view on the service information resource which are complementary to the service metadata defined herein. Points of view other than metadata may also be expressed on data information resources, e.g. feature catalogues, product specifications... The object and association types defined in clause B.7 are optional. Their implementation by a registry becomes useful when the registry manages different points of views on the information resources.

B.2 Resource Metadata

B.2.1 General Properties of the Resource Metadata

The resource metadata object types are abstract; they can only be instantiated through the derived object types (i.e. ServiceMetadata and DataMetadata).

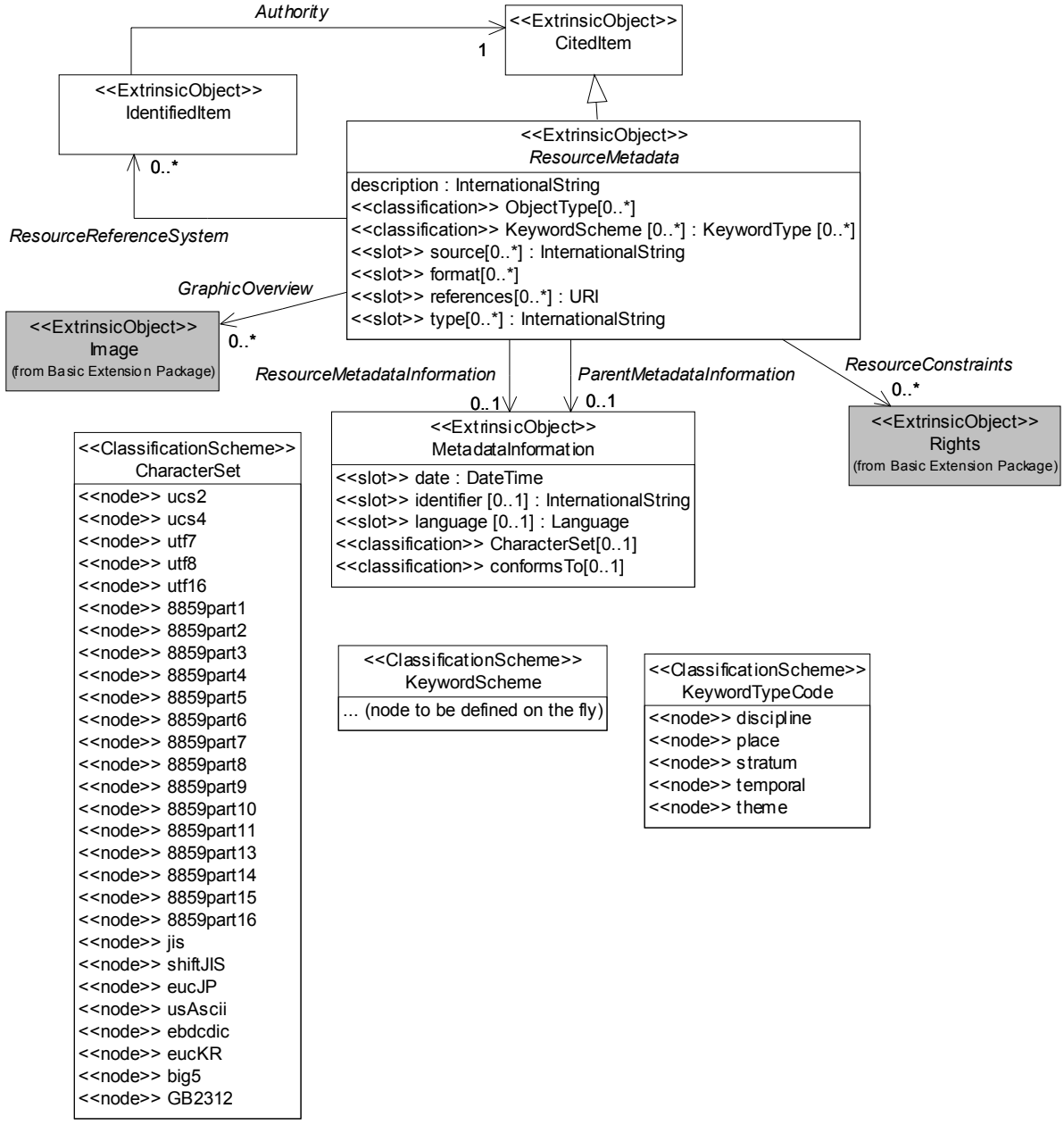

Figure 6 – Resource Metadata

The data resource and service metadata object types are the heart of this extension package. All the object types described in clause B.3 to B.6 are subcomponents of the resource metadata, which enables an optimized management of the registry information.

B.2.2 Data Resource Metadata

The data resource metadata describes information resources focusing on their data content. It typically provides metadata about a dataset and dataset collection. It may also concern an application when the focus is put on the application data.

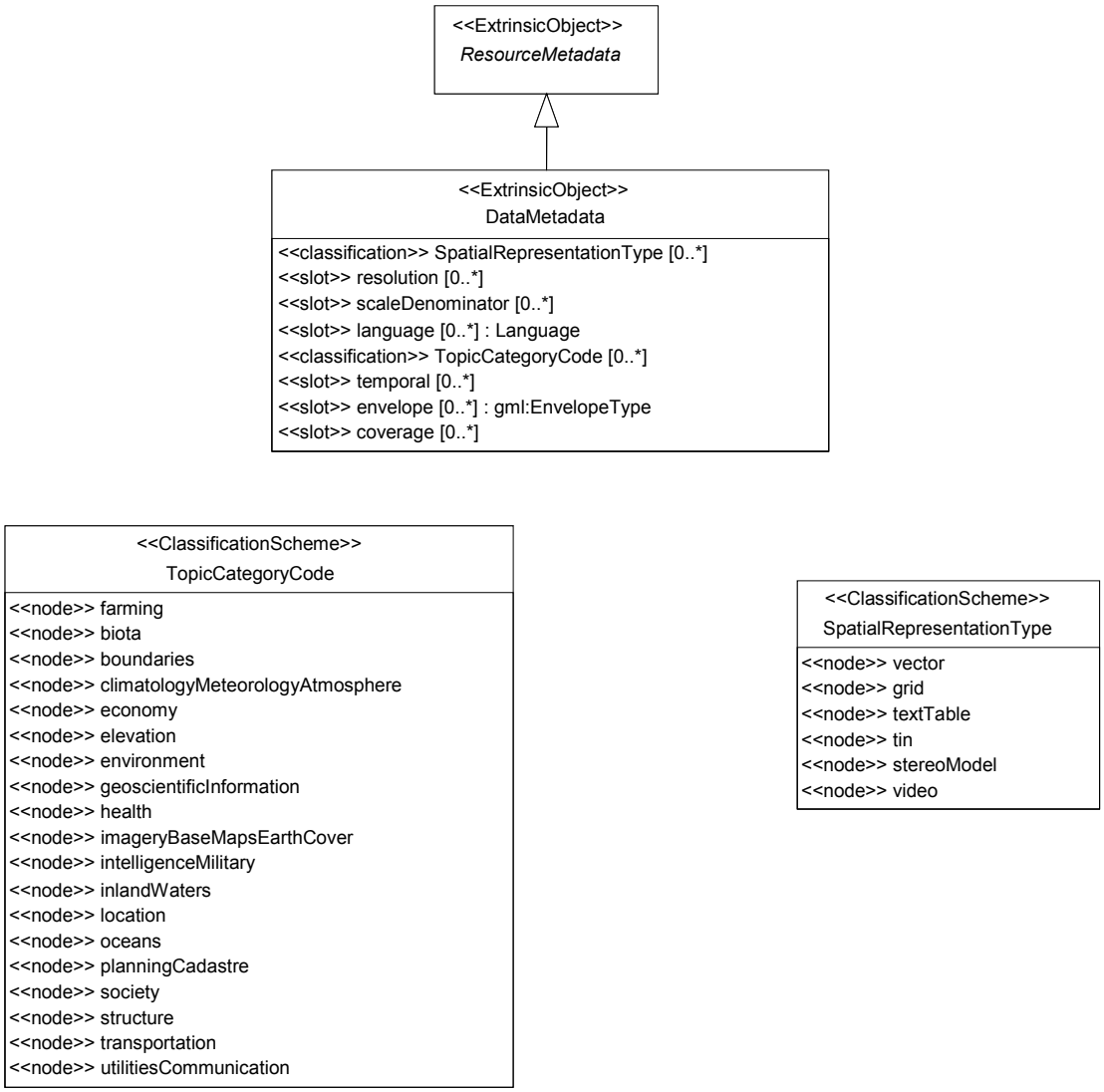

Figure 7 – Data Metadata

B.2.3 Service Metadata

The service metadata describes information resources focusing on the interface of the service. It is also applicable to applications when it exposes operations.

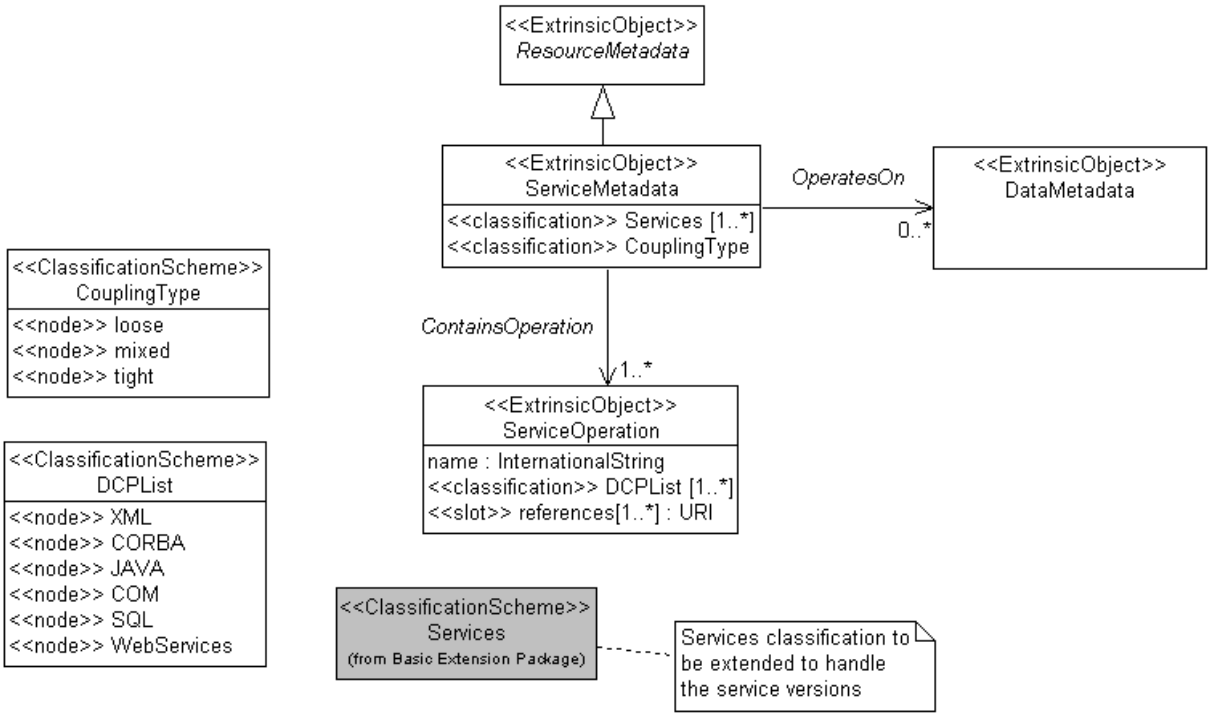

Figure 8 – Service Metadata

B.3 Constraint Information

Different types of constraints related to the use and access to the information resources may be provided as part of their metadata.

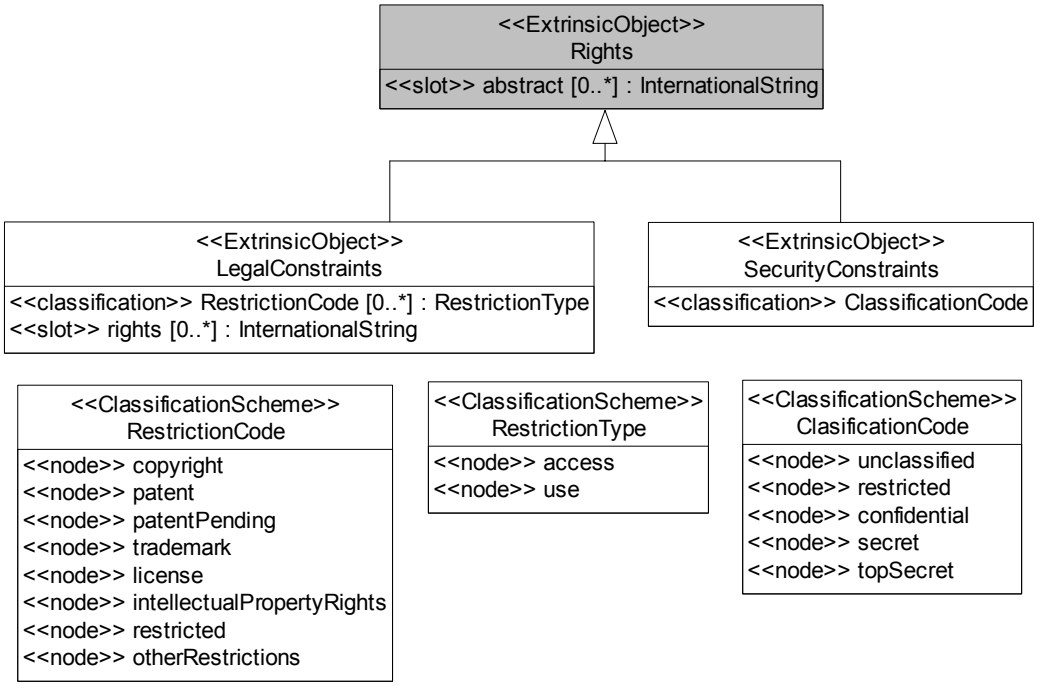

Figure 9 – Constraint Information

B.4 Reference System information

The metadata related to the information resource reference systems is limited to a detailed identification.

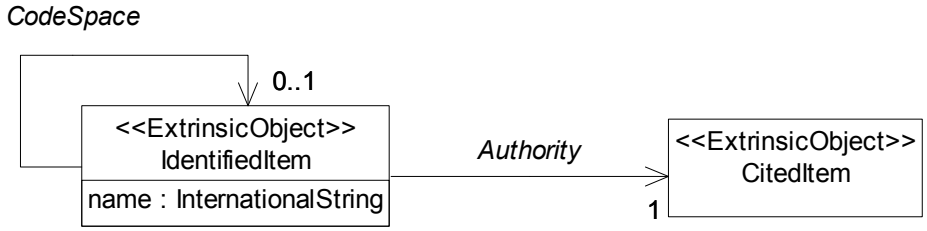

Figure 10 – Reference System Information

B.5 Browse graphic information

The metadata related to graphical illustration of the resource is handled through the Image object type.

Figure 11 - Browse Graphic information

B.6 Citation information

ISO 19115 and ISO19119 define an important number of cited items. In this extension package, the metadata resources are cited items which may be later associated to other cited items, such as feature catalogues, portrayal catalogues…

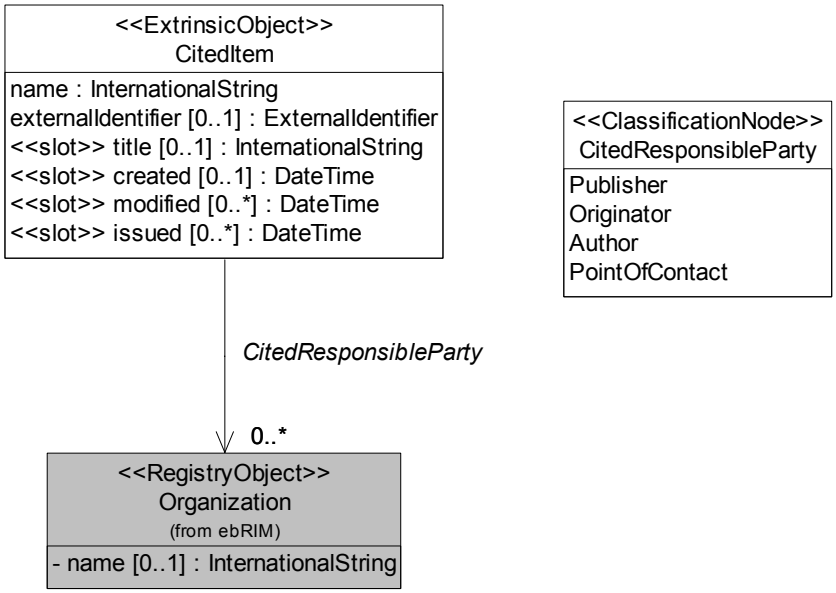

Figure 12 – Citation

B.7 Information Resources

B.7.1 Metadata Context

This extension package focuses on the four types of information resources defined hereafter. The information resources and their associations constitute the context of the resource metadata. Other information resources may be described using the resource metadata introduced in clause B.2.

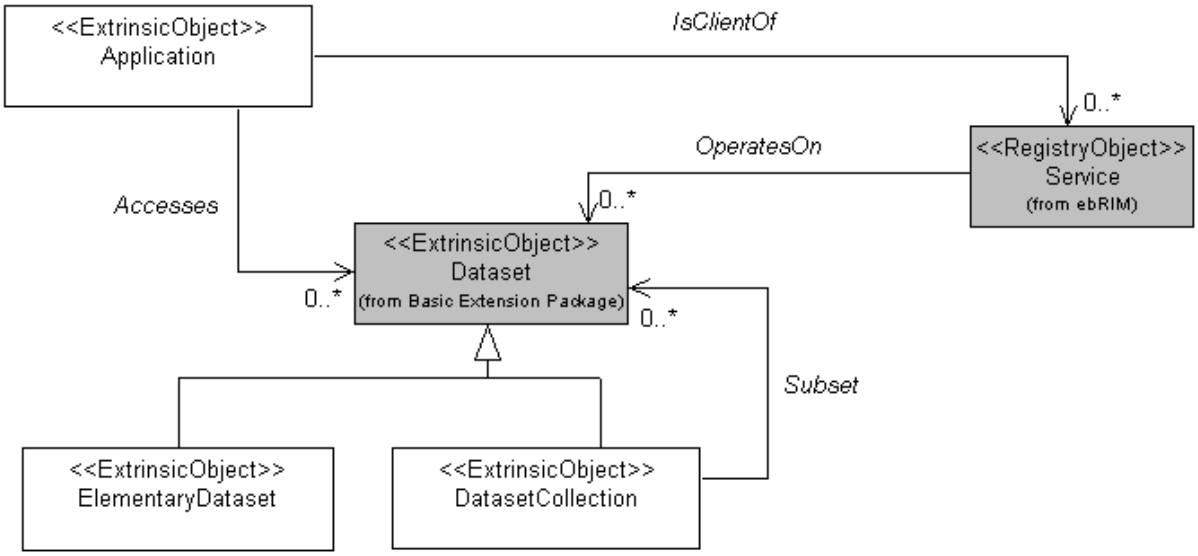

Figure 13 – Metadata Context

B.7.2 Information resources and their metadata

The interrelations between the information resources described in B.7.1 and the resource metadata are defined hereafter.

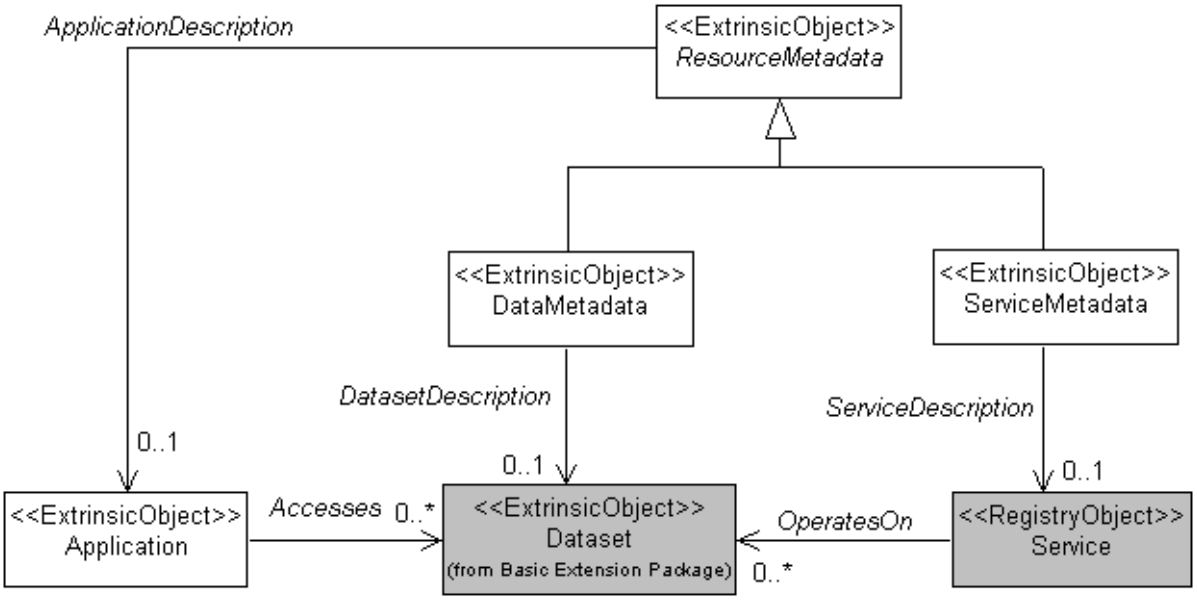

Figure 14 – Mapping between the information resources and the resource metadata

Annex C
(normative)

The Core ISO Metadata (CIM) data dictionary

C.1 Overview

C.1.1 Introduction

This data dictionary describes the characteristics of the Core ISO Metadata UML model defined in Annex B. The dictionary is specified in a hierarchy to establish relationships and an organization for the information. The dictionary is categorised into sections for the description of the UML classes of the model.

The slot value types and classifications are described in clauses C.3 and C.4.

C.1.2 Notation

Each UML model class equates to a data dictionary entity. Each UML model class attribute equates to a data dictionary element. The shaded rows define entities. The classes and attributes within the data dictionary are defined by six attributes, described below. Besides, an seventh column provides additional information.

C.1.2.1 Name

A label assigned to a class or an attribute. The associations linking a class to another class are handled as roles. In this case, the Name of the role is that of the target class of the association. Classes start with an upper case letter, with no spaces. Multiple words are concatenated, with each new subword starting with a capital letter (example: XnnnYmmm). Class names are unique within the entire data dictionary of this specification. Attribute names are unique within a class, not the entire data dictionary. Attribute names are made unique, within an application, by the combination of the class and attribute names (example: Dataset.title).

C.1.2.2 Definition

The class or attribute description.

C.1.2.3 Obligation/Condition

This is a descriptor indicating whether a class or attribute shall always be documented in the registry or sometimes be documented (i.e. contains value(s)). This descriptor may have the following values:

- Mandatory (M): The class or attribute shall be documented.

- Conditional (C): Specifies an electronically manageable condition under which at least one metadata entity or a metadata element is mandatory. 'Conditional' is used for one of the three following possibilities:

    - Expressing a choice between two or more options. At least one option is mandatory and must be documented.

    - Documenting a class or an attribute if another element has been documented.

    - Documenting an attribute if a specific value for another attribute has been documented.

  To facilitate reading by humans, the specific value is used in plain text. If the answer to the condition is positive, then the class or the attribute shall be mandatory.

- Optional (O): The metadata entity or the metadata element may be documented or may not be documented. Optional classes may have mandatory elements; those elements only become mandatory if the optional class is used.

C.1.2.4 Maximum occurrence

Specifies the maximum number of instances the role or the attribute may have. Single occurrences are shown by "1"; repeating occurrences are represented by "N". Fixed number occurrences other than one are allowed, and will be represented by the corresponding number (i.e. "2", "3"…etc).

C.1.2.5 Stereotype

Specifies the stereotype on which the class or attribute is based.

C.1.2.6 Data type

Specifies a set of distinct values for representing the role or attribute; for example, Integer, String, InternationalString, DateTime and Boolean.

C.2 Data dictionary

C.2.1 Resource Metadata

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	ResourceMetadata	metadata about a repository resource	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of CitedItem	
	description	brief narrative summary of the content of the resource(s)	M	1		InternationalString	
	ObjectType	nature or genre of the content of the resource for which the metadata is provided	O	N	<<classification>>	ObjectRef	Reference to a node in the ObjectType classification (Dataset/Service/Application)
	KeywordScheme	provides category keywords, their type, and reference source	O	N	<<classification>>	Classification of keyword type and keyword	
	source	general explanation of the data producer's knowledge about the lineage of a	O	N	<<slot>>	InternationalString	http://purl.org/dc/elements/1.1/source (from the Basic Package)

		dataset					
	format	name and version of the data transfer format(s)	O	N	<<slot>>	Classification of formats and format versions	http://purl.org/dc/elements/1.1/format (from the Basic Package)
	references	information about online sources from which the resource can be obtained	O	N	<<slot>>	URI	http://purl.org/dc/terms/references (Dublin Core)
	type	description of the nature or genre of the content of the resource for which the metadata is provided	O	N	<<slot>>	InternationalString	http://purl.org/dc/elements/1.1/type (from the Basic Package)
	Association type: ApplicationDescription	provides information on the application described in the metadata	O	1		Application	
	Association type: ResourceReferenceSystem	description of the spatial reference systems applicable to the related resources	O	N		IdentifiedItem	
	Association type: ResourceMetadataInformation	provides information on the metadata	O	1		Record	

		record					
	Association type: ParentMetadataInformation	provides information on the metadata record to which this metadata record is a subset	O	1		Record	
	Association type: Constraints	provides information about constraints which apply to the resource(s)	O	N		Rights	
	Association type: GraphicOverview	Graphic that illustrates the resource	O	N		Image	Use of the Image Object Type and GraphicOverview association defined in the Basic Package
	MetadataInformation	information on the metadata container record	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>		
	date	date that the metadata was created	M	1	<<slot>>	DateTime	http://purl.org/dc/elements/1.1/date; If the date is not known, the date element is set to 0.
	identifier	unique identifier for this metadata record	O	1	<<slot>>	InternationalString	http://purl.org/dc/elements/1.1/identifier
	language	language used for documenting metadata	O	1	<<slot>>	Language	http://purl.org/dc/elements/1.1/language Language basic type defined in ebRIM

		metadata					
	CharacterSet	full name of the character coding standard used for the metadata set	O	1	<<classification>>		Corresponds to MD_CharacterSetCode
	conformsTo	name and version (profile) of the metadata standard used	O	1	<<slot>>	Classification of standards and standard versions	http://purl.org/dc/terms/conformsTo (Dublin Core)

C.2.2 Data Resource Metadata

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	DataMetadata	specific metadata about a repository data resource	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of ResourceMetadata	
	SpatialRepresentationType	method used to spatially represent geographic information	O	N	<<classification>>		Corresponds to MD_SpatialRepresentationTypeCode
	resolution	ground sample distance which provides a general understanding of the density of spatial data in the dataset	O	N	<<slot>>	-	Corresponds to spatialResolution.MD_Resolution.distance
	scaleDenominator	level of detail expressed as the scale of a comparable hardcopy map or chart	O	N	<<slot>>	-	Corresponds to spatialResolution.MD_Resolution.equivalentScale
	language	language(s) used within the dataset	M	N	<<slot>>	InternationalString	

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	TopicCategoryCode	main theme(s) of the dataset	M	N	<<classification>>		Corresponds to MD_TopicCategoryCode
	temporal	Temporal extent of the resource	O	N	<<slot>>	-	http://purl.org/dc/elements/1.1/temporal (from the Basic Package)
	Envelope	Bounding Envelope of the resource	O	N	<<slot>>	gml:EnvelopeType	http://purl.org/dc/elements/1.1/Envelope (from the Basic Package)
	coverage	Provides a URI reference to an internal or external geocoding scheme (e.g. a thesaurus or classification scheme), or absent if using an uncontrolled vocabulary.	O	N	<<slot>>	-	http://purl.org/dc/elements/1.1/coverage (from the Basic Package)
	Association type: DatasetDescription	provides information on the dataset described in the metadata	O	1		Dataset	

C.2.3 Service Metadata

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	ServiceMetadata	specific metadata about a repository service resource	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of ResourceMetadata	
	Services	a service type name and version from a registry of services.	M	N	<<classification>>		Classification extended from urn:x-ogc:specification:csw-ebrim:ClassificationScheme:ISO-19119:Services defined in the Basic Package to handle service versions
	CouplingType	type of coupling with the Dataset	M	1	<<classification>>		
	Association type: ContainsOperation	Provides information about the operations that the service comprises	M	N		ServiceOperation	
	Association type: OperatesOn	Associates the Metadata of a service with the Metadata of the data that the service operates on as input or output	0	N		DataMetadata	

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	ServiceOperation	describes the signature of one and only one method provided by the service	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of ExtrinsicObject	
	name	a unique identifier for this interface	M	1		InternationalString	
	DCPList	Distributed Computing Platforms on which the operation has been implemented	M	N	<<classification>>		Corresponds to DCPList
	references	Handle for accessing the service interface	M	N	<<slot>>	URI	http://purl.org/dc/terms/references (Dublin Core)

C.2.4 Constraint Information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Rights	Information about the rights held in and over the resource	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object	Defined in the Basic Package
	abstract	limitation affecting the fitness for use of the	O	N	<<slot>>		http://purl.org/dc/elements/1.1/abstract

		resource or metadata.					
	LegalConstraints	restrictions and legal prerequisites for accessing and using the resource or metadata	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object (Rights)	
	RestrictionCode	Use and access constraints	O	N	<<classification>>	RestrictionType	
	rights	other restrictions and legal prerequisites for accessing and using the resource or metadata	O	N	<<slot>>	InternationalString	http://purl.org/dc/elements/1.1/rights
	SecurityConstraints	handling restrictions imposed on the resource or metadata for national security or similar security concerns	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object (Rights)	
	ClassificationCode	name of the handling restrictions on the resource or metadata	M	1	<<classification>>		Corresponds to MD_ClassificationCode

C.2.5 ReferenceSystem information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	IdentifiedItem	information about an identified item	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object	
	name	a unique identifier for this item	M	1		InternationalString	

	Association type: CodeSpace	Item identifier code space	O	N		IdentifiedItem	
	Association type: Authority	Authority in charge of the management of the identified item	O	1		CitedItem	

C.2.6 Citation information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	CitedItem	Information related to a cited item	Use obligation from referencing object	Use maximum occurrence from referencing object	<<RepositoryObject>>	Specialisation of RepositoryObject	
	name	name by which the cited resource is known	M	1		InternationalString	
	externalIdentifier	value uniquely identifying the resource within a namespace	O	1		ExternalIdentifier	
	title	short name or other language name of the dataset	O	1	<<slot>>	InternationalString	http://purl.org/dc/terms/title (from the Basic Package)
	created	date of creation of the resource	O	1	<<slot>>	DateTime	http://purl.org/dc/terms/created (Dublin Core) If the date is not known, the date element is set to 0.

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Modified	date on which the resource was changed	O	N	<<slot>>	DateTime	http://purl.org/dc/terms/modified (from the Basic Package) If the date is not known, the date element is set to 0.
	Issued	date of formal issuance (e.g., publication) of the resource	O	N	<<slot>>	DateTime	http://purl.org/dc/terms/issued (Dublin Core) If the date is not known, the date element is set to 0.
	Association type: CitedResponsibleParty	identification of, and means of communication with, person(s) and organization(s) associated with the resource(s)	O	N		Organization	The association type is classified with the CitedResponsibleParty classification scheme that specifies the role of the organization (corresponds to MD_RoleCode).

C.2.7 Browse graphic information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Image	A symbolic visual resource other than text	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object	
	name	name of the file that contains the graphic	M	1		InternationalString	

C.2.8 Metadata Context

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Dataset	Description of a geographic data set (from ISO 19115)	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of ExtrinsicObject	
	ElementaryDataset	Description of a geographic data set	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of Dataset	Correponds to DS_Dataset in ISO 19115 Figure 3
	DatasetCollection	Description of a collection of geographic data sets	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of Dataset	Correponds to DS_Aggregate in ISO 19115 Figure 3
	Association Type: Subset	Dataset of which the dataset collection is a superset	O	N		Dataset	
	Service	identification of capabilities which a service provider makes available to a service user through a set of interfaces that define a behaviour	Use obligation from referencing object	Use maximum occurrence from referencing object	<<RegistryObject>>	Specialisation of RegistryObject	Defined in ebRIM

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Association type: OperatesOn	Associates a Service offer with a description of the data that the service operates on as input or output (from ISO 19119).	O	N		Dataset	
	Application	Information resource that is accessible over the Internet and does not fit into the category of services	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of ExtrinsicObject	From ISO CSW AP
	Association type: Accesses	Datasets which the application can access	O	N		Dataset	
	Association type: IsClientOf	Service of which the application is a client	O	N		Service	
	Association type: ApplicationMetadata	Information about the ISO 19115/19119 metadata of the application	O	1		ResourceMetadata	

C.3 Slot value types

Specification of the value type of the different slots

Slots concerned:

coverage, temporal, scaleDenominator

C.4 Classifications

C.4.1 CharacterSet

Code	Description
ucs2	16-bit fixed size Universal Character Set, based on ISO/IEC 10646
ucs4	32-bit fixed size Universal Character Set, based on ISO/IEC 10646
utf7	7-bit variable size UCS Transfer Format, based on ISO/IEC 10646
utf8	8-bit variable size UCS Transfer Format, based on ISO/IEC 10646
utf16	16-bit variable size UCS Transfer Format, based on ISO/IEC 10646
8859part1	16-bit variable size UCS Transfer Format, based on ISO/IEC 10646
8859part2	ISO/IEC 8859-2, Information technology – 8-bit single-byte coded graphic character sets – Part 2: Latin alphabet No. 2
8859part3	ISO/IEC 8859-3, Information technology – 8-bit single-byte coded graphic character sets – Part 3: Latin alphabet No. 3
8859part4	ISO/IEC 8859-4, Information technology – 8-bit single-byte coded graphic character sets – Part 4: Latin alphabet No. 4
8859part5	ISO/IEC 8859-51, Information technology – 8-bit single-byte coded graphic character sets – Part 5: Latin/Cyrillic alphabet
8859part6	ISO/IEC 8859-6, Information technology – 8-bit single-byte coded graphic character sets – Part 6: Latin/Arabic alphabet
8859part7	ISO/IEC 8859-7, Information technology – 8-bit single-byte coded graphic character sets – Part 7: Latin/Greek alphabet
8859part8	ISO/IEC 8859-8, Information technology – 8-bit single-byte coded graphic character sets – Part 8: Latin/Hebrew alphabet

Code	Description
8859part9	ISO/IEC8859-9, Information technology – 8-bit single-byte coded graphic character sets – Part 9: Latin alphabet No. 5
8859part10	ISO/IEC 8859-10, Information technology – 8-bit single-byte coded graphic character sets – Part 10: Latin alphabet No. 6
8859part11	ISO/IEC 8859-11, Information technology – 8-bit single-byte coded graphic character sets – Part 11: Latin/Thai alphabet
8859part13	ISO/IEC 8859-13, Information technology – 8-bit single-byte coded graphic character sets – Part 13: Latin alphabet No. 7
8859part14	ISO/IEC 8859-14, Information technology – 8-bit single-byte coded graphic character sets – Part 14: Latin alphabet No. 8 (Celtic)
8859part15	ISO/IEC 8859-15, Information technology – 8-bit single-byte coded graphic character sets – Part 15: Latin alphabet No. 9
8859part16	ISO/IEC 8859-16, Information technology – 8-bit single-byte coded graphic character sets – Part 16: Latin alphabet No. 10
jis	□orean□e code set used for electronic transmission
shiftJIS	□orean□e code set used on MS-DOS based machines
eucJP	□orean□e code set used on UNIX based machines
usAscii	united states ASCII code set (ISO 646 US)
ebdcdic	ibm mainframe code set
eucKR	□orean code set
big5	traditional Chinese code set used in Taiwan, Hong Kong of China and other areas
GB2312	simplified Chinese code set

C.4.2 CitedResponsibleParty

Code	Description
Publisher	party who published the resource
Originator	party who created the resource
Author	party who authored the resource
PointOfContact	party who can be contacted for acquiring knowledge about or acquisition of the resource

C.4.3 ClassificationCode

Code	Description
unclassified	available for general disclosure
restricted	not for general disclosure
confidential	available for someone who can be entrusted with information
secret	kept or meant to be kept private, unknown, or hidden from all but a select group of people
topSecret	of the highest secrecy

C.4.4 CouplingType

Code	Description
loose	service loosely coupled to datasets
mixed	service loosely and tightly coupled to different datasets
tight	service tightly coupled to datasets

C.4.5 DCPList

Code	Description
XML	XML-based Distributed Computing Platform
CORBA	corba-based Distributed Computing Platform
JAVA	java-based Distributed Computing Platform
COM	COM-based Distributed Computing Platform
SQL	SQL-based Distributed Computing Platform
WebServices	web service-based Distributed Computing Platform

C.4.6 KeywordTypeCode

Code	Description
discipline	keyword identifies a branch of instruction or specialized learning
place	keyword identifies a location
stratum	keyword identifies the layer(s) of any deposited substance
temporal	keyword identifies a time period related to the dataset
theme	keyword identifies a particular subject or topic

C.4.7 RestrictionCode

Code	Description
copyright	exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
patent	government has granted exclusive right to make, sell, use or license an invention or discovery
patentPending	produced or sold information awaiting a patent
trademark	a name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer
license	formal permission to do something
intellectualPropertyRights	rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity
restricted	withheld from general circulation or disclosure
otherRestrictions	limitation not listed

C.4.8 RestrictionType

Code	Description
access	restriction concerning the access to the resource
use	restriction concerning the use to the resource

C.4.9 SpatialRepresentationType

Code	Description
vector	vector data is used to represent geographic data
grid	grid data is used to represent geographic data
textTable	textual or tabular data is used to represent geographic data
tin	triangulated irregular network
stereoModel	three-dimensional view formed by the intersecting homologous rays of an overlapping pair of images
video	scene from a video recording

C.4.10 TopicCategoryCode

Code	Description
farming	rearing of animals and/or cultivation of plants
biota	flora and/or fauna in natural environment
boundaries	legal land descriptions
climatologyMeteorologyAtmosphere	processes and phenomena of the atmosphere
economy	economic activities, conditions and employment
elevation	height above or below sea level
environment	environmental resources, protection and conservation
geoscientificInformation	information pertaining to earth sciences
health	health, health services, human ecology, and safety
imageryBasedMapsEarthCover	base maps
intelligenceMilitary	military bases, structures, activities

Code	Description
inlandWaters	inland water features, drainage systems and their characteristics
location	positional information and services
oceans	features and characteristics of salt water bodies (excluding inland waters)
planningCadastre	information used for appropriate actions for future use of the land
society	characteristics of society and cultures
structure	man-made construction
transportation	means and aids for conveying persons and/or goods
utilitiesCommunication	energy, water and waste systems and communications infrastructure and services

Annex D
(normative)

The Core ISO Metadata (CIM) extension package

D.1 Introduction

The Core ISO Metadata (CIM) extension package introduces artefacts for the cataloguing of geospatial dataset, dataset collections and services metadata conforming basically to ISO 19115 and ISO 19119. All conforming implementations must deploy this package, the members of which are summarized in the following subclauses. The assigned package identifier complies with the 'ogc' URN scheme: "urn:x-ogc:specification:csw-ebRIM-cim:package:CIM".

The CIM extension package extends the Basic extension package defined in Annex B of the ebRIM profile of CS-W [05-025]. It requires the same canonical ebRIM classification schemes as those detailed in B.1 of [05-025].

D.2 CIM extrinsic objects

The CIM extension package adds the extrinsic object types listed in Table D.1. Each object type is assigned an identifier based on the 'ogc' URN scheme; the asterisk in the type identifier denotes the following string, which has been omitted for convenience in the table:

urn:x-ogc:specification:csw-ebrim-cim:ObjectType

Table D.1 — New extrinsic object types included in the CIM

Object type ID	Description
*:Application	Information resource that is accessible over the Internet and does not fit into the category of services (See the Service extrinsic Object defined as part of the Basic Extension Package of the ebRIM profile of CS-W [05-025]).
*:DatasetCollection	A collection of datasets sharing the same product specification. It may more generally understood as a more general aggregation of datasets (See DS_Aggregate class of ISO 19115) **Inherits from:** urn:x-ogc:specification:csw-ebrim:ObjectType:Dataset
*:ElementaryDataset	A dataset not having any subset. The Dataset Extrinsic Object of the Basic Extension Package of the ebRIM profile of CS-W [05-025] serves as an abstract root class for ElementaryDataset and DatasetCollection. **Inherits from:** urn:x-ogc:specification:csw-ebrim:ObjectType:Dataset

Object type ID	Description
*:ResourceMetadata	Metadata about a repository resource **Inherits from:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:CitedItem
*:DataMetadata	Metadata about a repository resource focusing on the data content (typically a Dataset or DatasetCollection, as well as certain kind of Application) **Inherits from:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata
*:ServiceMetadata	Metadata about a repository resource focusing Service or Application Interface **Inherits from:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata
*:ResponsibleParty	Set of informations about the identity of person(s), and/or position, and/or organization(s) associated with the resource
*:MetadataInformation	Metadata related to the record containing the resource metadata.
*:LegalConstraints	Restrictions and legal prerequisites for accessing and using the resource or its metadata **Inherits from:** urn:x-ogc:specification:csw-ebrim:ObjectType:Rights
*:SecurityConstraints	Handling restrictions imposed on the resource or metadata for national security or similar security concerns **Inherits from:** urn:x-ogc:specification:csw-ebrim:ObjectType:Rights
*:IdentifiedItem	Information about an identified item
*:ServiceOperation	Describes the signature of one and only one method provided by the service
*:CitedItem	Information related to a cited item

D.3 CIM association types

The CIM extension package adds the association types listed in Table D.2. Each association type is assigned an identifier based on the 'ogc' URN scheme; the asterisk in the type identifier denotes the following string, which has been omitted for convenience in the table:

urn:x-ogc:specification:csw-ebrim-cim:AssociationType

Table D.2 — New association types included in the CIM

Association type ID	Description
*:IsClientOf	Associates a Application with a set of Service **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Application **Target object type:** urn:x-ogc:specification:csw-ebrim:ObjectType:Service
*:Accesses	Associates a Application with a set of Dataset **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Application **Target object type:** urn:x-ogc:specification:csw-ebrim:ObjectType:Dataset
*:Subset	Associates DatasetCollection with a set of Dataset **Source object type:** urn:x-ogc:specification:csw-ebrim:ObjectType:DatasetCollection **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Dataset
*:DatasetDescription	Associates a description of DataMetadata with a Dataset **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType: DataMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim:ObjectType:Dataset
*:ServiceDescription	Associates a description of Service Metadata with a Service **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ServiceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim:ObjectType: Service
*:ApplicationDescription	Associates a description of Metadata Record with an Application **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata **Target object type** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Application

Association type ID	Description
*:ResourceMetadataInformation	Associates a Resource Metadata with its Metadata Information **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Record
*:ParentMetadataInformation	Associates Resource Metadata with the Metadata Information of an information resource which is a superset of the Resource Metadata **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:Record
*:ResourceReferenceSystem	Associates Resource Metadata with a set of IdentifiedItem corresponding to the description of reference systems **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:IdentifiedItem
*:CitedResponsibleParty	Name and position information for an individual or organization that is responsible for the resource. The association Type has a set of subtypes operating to the same object types: PointOfCOntact, Author, Originator, Publisher. **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:CitedItem **Target object type:** urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization
*:ContainsOperation	Provides information about the operations that the service comprises **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ServiceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ServiceOperation
*:ResourceConstraints	Provides information about constraints which apply to the resource(s) **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ResourceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim:ObjectType:Rights

Association type ID	Description
*:CodeSpace	Provides the identifier of the code space to which an IdentifiedItem pertains **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:IdentifiedItem **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:IdentifiedItem
*:Authority	Provides the CitedItem corresponding to the Authority responsible for the IdentifiedItem **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:IdentifiedItem **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:CitedItem
*:OperatesOn	Associates the Metadata of a service with the Metadata of the data that the service operates on as input or output **Source object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:ServiceMetadata **Target object type:** urn:x-ogc:specification:csw-ebrim-cim:ObjectType:DataMetadata

D.4 CIM classification schemes

The CIM extension package adds the classification schemes listed in Table D.3. Each classification scheme is defined in its own file and is assigned an identifier based on the 'ogc' URN scheme; the asterisk in the scheme identifier column denotes the following string, which has been omitted for convenience in the table:

urn:x-ogc:specification:csw-ebrim:ClassificationScheme

Table D.3 — New classification schemes included in the CIM

File name	Classification scheme ID	Description
Scheme-ISO19115-TopicCategory.xml	*:ISO-19115:TopicCategoryCode	Defines a classification of application domains to which spatial data are related
Scheme-ISO19115-SpatialRepresentation.xml	*:ISO-19115:SpatialRepresentationType	Defines a classification of ways to represent spatial data, e.g. vector, grid...
Scheme-ISO19115-CharacterSet.xml	*:ISO-19115:CharacterSet	Defines a classification character sets
Scheme-ISO19115-KeywordType.xml	*:ISO-19115:KeywordTypeCode	Defines a classification of keyword types

File name	Classification scheme ID	Description
KeywordType.xml		of keyword types
Scheme-ISO19115-KeywordTypeScheme.xml	*:ISO-19115:KeywordScheme	Empty classification of keywords to be expanded by a user community, classifying each node as a KeywordTypeCode
Scheme-ISO19115-RestrictionCode.xml	*:ISO-19115:RestrictionCode	Restriction code applicable to a given RestrictionType
Scheme-ISO19115-RestrictionType.xml	*:ISO-19115:RestrictionType	Restriction type to which a restriction code can be applied
Scheme-ISO19115-ClassificationCode.xml	*:ISO-19115:ClassificationCode	Security classification
Scheme-ISO19115-DCPList.xml	*:ISO-19115:DCPList	Defines a classification of DCP (Distributed Computing Platforms)
Scheme-ISO19115-CouplingType.xml		

D.5 CIM stored queries

To be defined.

D.6 CIM slots

The general principles and specific slots defined in B.5 of [05-025r3] are applicable.

The CIM extension package adds slots for few DCMI metadata terms as well as OGC specific slots as listed in Table D.3.

Table D.3 — Slots defined in the CIM package

Slot name	Definition
http://purl.org/dc/terms/issued	Date of publication
http://purl.org/dc/terms/created	Date of creation of the resource
http://purl.org/dc/terms/modified	Date of revision of the resource

urn:x-ogc:specification:csw-ebrim-cim:Slot:resolution	Resolution of the resource
urn:x-ogc:specification:csw-ebrim-cim:Slot:scaleDenominator	Scale denominator of the resource

A classification scheme defined in the Basic Extension Package is extended here to provide a code for each slot. The code is the last term of the slot name. It is used within the UML modelling of the CIM as the attribute name for slots.

Annex E
(normative)

Mapping between the Core ISO Metadata (CIM) information model and the metadata elements of CS-W records

E.1 Introduction

This annex describes the mappings to the CIM model of:

- The OGC Core Queryable and Returnable properties, defined in the Catalogue Service specification. A mapping of these properties to ISO 19115 and ISO 19119 is specified in the ISO 19115/19119 Application Profile of CS-W [OGC 07-045].
- The additional queryable properties defined in [OGC 07-045] where they are mapped to the ISO 19115/19119 model.
- The additional summary returnable elements defined in [OGC 07-045]

These queryables are detailed in tables, which define:

- The name of the queryable or returnable property
- Its definition
- Its data type (except for returnables)
- Its mapping to the CIM model. This mapping is expressed as a path in the UML model with further constraints when necessary.

E.2 Mapping of the OGC Core Queryables and Returnables

E.2.1 OGC Core Queryables

NOTE: “Title”, “AnyText” and “Identifier” are mandatory queryables. Core queryable properties that cannot have a value assigned (e.g. the information is not available in the information model of the catalogue instance) shall be considered as having a value of NULL.

Table E.1 - Mapping of the OGC Core Queryable

OGC Core Queryable	Definition	Data type	Property mapping to CIM
Subject	The topic of the content of the resource	CharacterString	ResourceMetadata. <<classification>> KeywordScheme
Title	A name given to the	CharacterString	ResourceMetadata.name

	resource		
Abstract	A summary of the content of the resource	CharacterString	ResourceMetadata.description
Format	The physical or digital manifestation of the resource [f]	Codelist: application/xml, text/html, text/plain	ResourceMetadata. <<slot>> format
Identifier	An unambiguous reference to the resource within a given context	Identifier	ResourceMetadata.externalIdentifier
Modified	Date on which the resource was last changed	Date-8601, example: 1963-06-19	ResourceMetadata.<<slot>>modified (http://purl.org/dc/terms/modified slot defined in the Basic Package)
Anytext	This queryable represents the catalogue entry as a whole. Query-Sample: …AnyText like '%satellite image%'…	CharacterString	ResourceMetadata and associated classes.
Type	The nature or genre of the content of the resource. Type can include general categories, genres or aggregation levels of content. [g]	Codelist: Dataset, DatasetCollection, Service	ResourceMetadata.<<classification>> ObjectType
BoundingBox	A bounding box for identifying a geographic area of interest	BoundingBox, see Table E.2	The only mandatory Coordinate Reference System here is WGS84 (EPSG::4326).
CRS	Coordinate Reference System	Identifier	CRS of the spatial extent or scope of the content of the resource.

	(Authority and ID) for spatial extent of the resource-content		This Identifier is an URN of the CRS: <Prefix><Authority>::<ID>" Example of such an URN is: "urn:opengis:crs:EPSG::4326". Here is <Authority> = "EPSG" and <ID>" = "4326" Mapping <Authority>: ResourceMetadata.IdentifiedItem.CitedItem .Organization.name (ResourceReferenceSystem, Authority and Organization associations) Mapping <ID>: ResourceMetadata.IdentifiedItem. name (ResourceReferenceSystem association)
Association	Complete statement of a one-to-one relationship	Association	Because of the imprecise specification of this queryable property, it will not be supported in this version. The modelling of Association will be done by additional queryables. This queryable is not supported in the ISO 19915/19119 Application Profile of CS-W.

a Dublin Core Metadata Element Set, version 1.1:ISO Standard 15836-2003 (February 2003)

b Typically, a Subject will be expressed as keywords, key phrases or classification codes that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.

c DCMI metadata term <http://dublincore.org/documents/dcmi-terms/>.

d Same semantics as EX_GeographicBoundingBoxclass in ISO 19115.

f Dublin Core Metadata Element Set, version 1.1:ISO Standard 15836-2003: Typically, Format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource.

g Dublin Core Metadata Element Set, version 1.1:ISO Standard 15836-2003: Type includes terms describing general categories, functions, genres, or aggregation levels for content. To describe the physical or digital manifestation of the resource, use the FORMAT element.

Table E.2 - Composition of compound element "BoundingBox"

OGC Core Queryable	**Definition**	**Data type**	**Property mapping to CIM**
WestBoundLongitude	Western-most coordinate of the limit of the dataset extent, expressed in longitude in decimal degrees (positive east)	numeric	DataMetadata.<<slot>>Envelope (http://www.opengis.net/gml/Envelope slot defined in the Basic Package) The WestBoundLongitude corresponds to the longitude of "lowerCorner" in the Envelope.

SouthBoundLatitude	Southern-most coordinate of the limit of the dataset extent, expressed in latitude in decimal degrees (positive north)	numeric	DataMetadata.<<slot>>Envelope (http://www.opengis.net/gml/Envelope slot defined in the Basic Package) The SouthBoundLatitude corresponds to the latitude of "lowerCorner" in the Envelope.
EastBoundLongitude	Eastern-most coordinate of the limit of the dataset extent, expressed in longitude in decimal degrees (positive east)	numeric	DataMetadata.<<slot>>Envelope (http://www.opengis.net/gml/Envelope slot defined in the Basic Package) The EastBoundLongitude corresponds to the longitude of "upperCorner" in the Envelope.
NorthBoundLatitude	Northern-most, coordinate of the limit of the dataset extent, expressed in latitude in decimal degrees (positive north)	numeric	DataMetadata.<<slot>>Envelope (http://www.opengis.net/gml/Envelope slot defined in the Basic Package) The NorthBoundLongitude corresponds to the latitude of "upperCorner" in the Envelope.

E.2.2 OGC Core Returnables

NOTE: "dc:title" and "dc:identifier" are mandatory returnables.

Table E.3 - Mapping to common returnable properties

Dublin Core metadata element name	Term used in application profile	Definition	Property Mapping to CIM
dc:creator	Creator	An entity primarily responsible for making the resource.	Responsible originator organisation for the Dataset (and DatasetCollection) and/or the Service: ResourceMetadata.Organization.name with the CitedResponsibleParty association classified with 'Originator' value (CitedResponsibleParty association)
dc:publisher	Publisher	An entity	Responsible publisher organisation for the Dataset

		responsible for making the resource available.	(and DatasetCollection) and/or the Service: ResourceMetadata.Organization.name with the CitedResponsibleParty association classified with 'Publisher' value (CitedResponsibleParty association)
dc:contributor	Contributor	An entity responsible for making contributions to the resource.	Responsible contributor organisation for the Dataset (and DatasetCollection) and/or the Service: ResourceMetadata.Organization.name with the CitedResponsibleParty association classified with 'Author' value (CitedResponsibleParty association)
dc:language	Language	A language of the resource.	DataMetadata.<<slot>>language (http://purl.org/dc/elements/1.1/language slot defined in the Basic Package)
dc:rights	Rights	Information about rights held in and over the resource.	ResourceMetadata.Rights (ResourceConstraints association)
dc:title	Title	A name given to the resource.	ResourceMetadata.name
dc:subject	Subject	The topic of the resource.	ResourceMetadata.<<classification>>KeywordScheme
dct:abstract	Abstract	A summary of the content of the resource.	ResourceMetadata.description
dc:date	Modified	Date on which the resource was changed.	ResourceMetadata.<<slot>>modified (http://purl.org/dc/terms/modified slot defined in the Basic Package)
dc:type	Type	The nature or genre of the resource.	ResourceMetadata.<<classification>> objectType (http://purl.org/dc/elements/1.1/type slot)
dc:format	Format	The file format, physical medium, or dimensions of the resource.	ResourceMetadata. <<slot>> format
dc:identifier	Identifier	An unambiguous reference to the resource within a given context.	ResourceMetadata.externalIdentifier

dc:source	Source	A reference to the resource from which the described resource is derived.	(not supported in ISO CSW Application Profile)
dc:relation	Relation, Source, Target	A reference to a related resource.	In case of a tightly-coupled service this may include a reference to the identifier of a given tightly coupled dataset. ServiceMetadata.Service.Dataset.DataMetadata. MetadataInformation.<<slot>>identifier with ServiceMetadata.<<classification>>CouplingType = 'tight' (ServiceDescription, OperatesOn, DatasetDescription and ResourceMetadataInformation associations)
dct:spatial	Envelope, CRS	Spatial characteristics of the intellectual content of the resource.	See Table E.4

Table E.4 - Mapping dct:spatial

Name	**Term used in application profile**	**Property Mapping to CIM**
BoundingBox		
	WestBoundLongitude	see Table E.2
	SouthBoundLatitude	see Table E.2
	EastBoundLongitude	see Table E.2
	NorthBoundLatitude	see Table E.2
CRS	CRS	CRS of the spatial extent or scope of the content of the resource. This Identifier is an URN of the CRS: <Prefix><Authority>::<ID>" Example of such an URN is: "urn:opengis:crs:EPSG::4326". Here is <Authority> = "EPSG" and <ID>" = "4326" Mapping <Authority>: ResourceMetadata.IdentifiedItem.CitedItem .Organization.name (ResourceReferenceSystem, Authority and Organization associations)

		Mapping <ID>: ResourceMetadata.IdentifiedItem.name (ResourceReferenceSystem association)

E.2 Mapping of the ISO Profile Queryables and Returnables

E.2.1 Mapping of the ISO Profile Queryables

The ISO 19115/19119 Application Profile of CS-W defines additional queryable properties which shall be supported by implementations of this application profile.

The catalogue should deliver all supported queryable properties in its Capabilities document. The following should be noted: If a catalogue entry holds a null-value for queryable X, this entry does not fulfil any query constraint on that queryable except “is Null”.

If search properties are applied on an information resource which does not support this search property, the catalogue throws an exception. However, there are also additional search properties which are common to all information resources.

Table E.5 - ISO Profile additional queryable properties common to all information resources

Name	Definition	Data type	Property Mapping to CIM
FileIdentifier	File identifier of the metadata	Identifier	ResourceMetadata.MetadataInformation.<<slot>> identifier (ResourceMetadataInformation association and http://purl.org/dc/elements/1.1/identifier slot defined in the Basic Package)
MetadataLanguage	The language of the metadata set.	CharacterString: ISO 639-2:2002 language codes (three letters)	ResourceMetadata. MetadataInformation.<<slot>> language (http://purl.org/dc/elements/1.1/language slot defined in the Basic Package)
Datestamp	Datestamp (revision date) of the metadata	Date-8601, example: 2006-06-07	ResourceMetadata. MetadataInformation.<<slot>> date (http://purl.org/dc/elements/1.1/date slot defined in the Basic Package)
AlternateTitle	Alternate title of the georesource	CharacterString	ResourceMetadata.<<slot>>title (http://purl.org/dc/elements/1.1/title slot defined in the Basic

			Package)
CreationDate3	Creation Date of the georesource	Date-8601, example: 1963-06-19	ResourceMetadata.<<slot>> created (http://purl.org/dc/terms/created slot from Dublin Core)
OrganisationName	Name of the organisation providing the resource	CharacterString	Contact organisation for the Dataset (and DatasetCollection) and/or the Service: ResourceMetadata.Organization. name with the CitedResponsibleParty association classified with 'PointOfContact' value (CitedResponsibleParty association)
HasSecurityConstraints	Are there any security constraints?	Boolean (CharacterString), one of "true" or "false"	Existence of an instance of ResourceMetadata.SecurityConstraints
HierarchyLevelName	Hierarchy levels for which the metadata set is provided.	CharacterString	ResourceMetadata.<<slot>>type (http://purl.org/dc/elements/1.1/type slot defined in the Basic Package)
ParentIdentifier	File identifier of the metadata to which this metadata is a subset (child)	Identifier	ResourceMetadata. MetadataInformation.<<slot>> identifier (ParentMetadataInformation association)
KeywordType	Methods used to group similar keywords	Codelist (MD_KeywordTypeCode), one of: discipline, place, stratum, temporal, theme	ResourceMetadata.<<classification>>KeywordScheme
Format	This queryable is a refinement of the OGC core queryable 'Format'. The data type is changed to 'CharacterString' to support any ISO compliant resource format description	CharacterString	ResourceMetadata.<<slot>> format

[3] RevisionDate can be queried by the "Modified" property of OGC core queryables

The following additional search properties for information resources of the types ‘dataset’, ‘datasetcollection’ and ‘application’ are defined in [OGC 07-045]. They shall be supported by compliant catalogue service implementations.

Table E.6 - Additional ISO Profile queryable properties for datasets, dataset collection and applications

Name	Definition	Data type	Property Mapping to CIM
TopicCategory	Main theme(s) of the dataset.	CodeList. ISO19115:MD_TopicCategoryCode	DataMetadata.<<classification>> TopicCategoryCode
Language	Language(s) used within the dataset	CharacterString: ISO 639-2:2002 language codes (three letters)	DataMetadata.<<slot>> language (http://purl.org/dc/elements/1.1/language slot defined in the Basic Package)
GeographicDescriptionCode	Description of the geographic area using identifiers.	CharacterString	DataMetadata.<<slot>> coverage (http://purl.org/dc/elements/1.1/coverage slot defined in the Basic Package)
SpatialResolution	Factor which provides a general understanding of the density of spatial data in the dataset.	Spatial Resolution:one of Denominator or DistanceValue / DistanceUOM, see Table .	DataMetadata.<<slot>> resolution for ground sample distance resolution; DataMetadata.<<slot>> scaleDenominator for equivalent scale resolution
TempExtent_begin	Temporal extent information: begin	DateTime-8601	DataMetadata.<<slot>> temporal (http://purl.org/dc/terms/temporal slot defined in the Basic Package)
TempExtent_end	Temporal extent information: end	DateTime-8601	DataMetadata.<<slot>> temporal (http://purl.org/dc/terms/temporal slot defined in the Basic Package)
Type	Refinement of the core queryable ‘Type’ considering the resource type ‘application’. This queryable is understood as being derived from core queryable ‘Type’.	Codelist: Dataset, DatasetCollection, Service, Application	ResourceMetadata.<<slot>> type (http://purl.org/dc/elements/1.1/type slot defined in the Basic Package)

Table E.7 - Composition of SpatialResolution

Name	Definition	Datatype	Property Mapping to CIM

Denominator	Level of detail expressed as a scale factor or a ground distance. Here: the number below the line in a vulgar fraction. Only used, if DistanceValue and DistanceUOM are not used.	Integer	To be defined
DistanceValue	Sample ground distance. Here: the distance as decimal value. Only used, if Denominator is not used.	Float, sample: 12.75	To be defined
DistanceUOM	Sample ground distance. Here: the name of the unit of measure. Only used, if Denominator is not used.	CodeList, one of: meter, …	To be defined

The following additional search properties for information resources of type 'service' are defined in the ISO 19115/19119 Application Profile of CS-W. They shall be supported by compliant catalogue service implementations.

Table E.8 - Additional ISO Profile queryable properties for services

Name	Definition	Data type	Property Mapping to CIM
ServiceType	Name of a service type.	ServiceTypeID, Codelist4: "WFS", "WMS",…	Service.<<classification>> Services Extends the classification defined in the Basic Extension Package to include versioning information
ServiceTypeVersion	The version of a service type.	Codelist5: "1.0", "2.0", "1.1.1",…	Service.<<classification>> Services Extends the classification defined in the Basic Extension Package to include versioning information

[4] The official OGC mnemonics should be used.

[5] The official OGC version numbers should be used

OperatesOn	Name of the identifier of a given tightly coupled dataset.	Identifier. Example: OperateOn = "58f202ac-22cf-11d1-b12d-002035b29092"	ServiceMetadata.Service.Dataset.DataMetadata.Record.<<slot>>identifier with ServiceMetadata.<<classification>> CouplingType = 'tight' (ServiceDescription, OperatesOn, DatasetDescription and ResourceMetadataInformation associations, http://purl.org/dc/elements/1.1/identifier slot defined in the Basic Package)
Operation	Name of a service operation.	CharacterString One of the available operations. Example: Operation = "Insert"	ServiceMetadata.ServiceOperation.name (ContainsOperation association)
DCP	Communication service handling the communication between the objects.	Codelist, one of: Java, Corba, SQL, XML, COM, WebService	ServiceMetadata.ServiceOperation.<<classification>> DCPList
CouplingType	The coupling type of this service.	Codelist, one of: loose, mixed, tight	ServiceMetadata.<<classification>> CouplingType

E.2.2 ISO Profile Returnables at the summary level

The ISO 19115/19119 Application Profile of CS-W specifies through an XML Schema a set of elements to be returned at a maximum to a valid catalogue service request with the ElementSetName parameter set to SUMMARY.

The ISO Profile summary returnables include the OGC Core Returnables, described in Table 3 and 4. The following table details only the additional ISO Profile summary elements. They are expressed as concepts along with their definition and ISO 19139 path.

ISO 19115/19119 path	Term	Definition	Property Mapping to CIM
MD_Metadata. identificationInfo. MD_DataIdentification.characterSet. MD_CharacterSetCode@codeListValue	CharacterSet	Character set of the metadata set	MetadataInformation. <<classification>> CharacterSet

MD_Metadata. distributionInfo. MD_Distribution. distributionFormat. MD_Format.version	FormatVersion	Version of the format	ResourceMetadata. <<slot>> format (http://purl.org/dc/elements/1.1/format slot defined in the Basic Package) The slot type is a two-level classification that handles format name and format version.
MD_Metadata. identificationInfo. AbstractMD_Identification. graphicOverview.MD_BrowseGraphic. fileName	GraphicOverview	Graphic that illustrates the resource	ResourceMetadata.Image.name (GraphicOverview association)
MD_Metadata. hierarchyLevelName	HierarchyLevelName	Description of the nature or genre of the content of the resource for which the metadata is provided	ResourceMetadata. <<slot>> type (http://purl.org/dc/elements/1.1/type slot defined in the Basic Package)
MD_Metadata. dataQuality. DQ_DataQuality.lineage.LI_Lineage. statement	Lineage	General explanation of the data producer's knowledge about the lineage of a dataset	ResourceMetadata. <<slot>> source (http://purl.org/dc/elements/1.1/source slot defined in the Basic Package)
MD_Metadata. characterSet. MD_ScopeCode@codeListValue	MetadataCharacterSet	Full name of the character coding standard used for the metadata set	ResourceMetadata. <<classification>> CharacterSet
MD_Metadata. metadataStandardName	MetadataStandardName	Name of the metadata standard used	MetadataInformation. <<slot>> conformsTo (http://purl.org/dc/terms/conformsTo slot from Dublin Core) The slot type is a two-level classification of standard name and standard version.
MD_Metadata. metadataStandardVersion	MetadataStandardVersion	Version (profile) of the metadata standard used	MetadataInformation. <<slot>> conformsTo (http://purl.org/dc/terms/conformsTo slot from Dublin Core). The slot type is a two-level classification of standard name and standard version.

MD_Metadata. distributionInfo. MD_Distribution.transferOptions. MD_DigitalTransferOption.onLine.CI_OnlineResource. linkage.URL	OnlineResource	Information about online sources from which the resource can be obtained	ResourceMetadata. <<slot>> references (http://purl.org/dc/terms/references slot from Dublin Core)
MD_Metadata.parentIdentifier	ParentIdentifier	Information on the metadata set to which this metadata set is a subset	ResourceMetadata.MetadataInformation. <<slot>> identifier (ParentMetadataInformation association)
MD_Metadata.identificationInfo. AbstractMD_Identification. citation.CI_Citation.identifier	ResourceIdentifier	value uniquely identifying the resource within a namespace	ResourceMetadata.externalIdentifier
MD_Metadata. identificationInfo. MD_DataIdentification. language	ResourceLanguage	Language(s) used within the dataset	DataMetadata. <<slot>> language (http://purl.org/dc/elements/1.1/language slot defined in the Basic Package)
MD_Metadata.referenceSystemInfo.MD_ReferenceSystem.referenceSystemIdentifier.RS_Identifier.codeSpace	ReferenceSystemCodeSpace	Item identifier code space	ResourceMetadata.IdentifiedItem.IdentifiedItem.name (ResourceReferenceSystem and Codespace associations)
MD_Metadata.referenceSystemInfo.MD_ReferenceSystem.referenceSystemIdentifier.RS_Identifier.version	ReferenceSystemVersion	TBD	TBD
MD_Metadata. identificationInfo. AbstractMD_Identification. citation.CI_Citation.date. CI_Date[dateType.CI_DateTypeCode.@codeListValue='revision'].date.Date	RevisionDate	Date on which the resource was changed	ResourceMetadata. <<slot>> modified
MD_Metadata.identificationInfo.SV_ServiceIdentification. couplingType.SV_CouplingType.code@codeListValue	ServiceCoupling	Type of coupling with the Dataset	ServiceMetadata. <<classification>> CouplingType
MD_Metadata.identificationInfo.SV_ServiceIdentification. containsOperation. SV_OperationMetadata. operationName	ServiceOperationName	A unique identifier for this interface	ServiceMetadata.ServiceOperation.name (ContainsOperation association)

MD_Metadata.identificationInfo.SV_ServiceIdentification. containsOperation. SV_OperationMetadata. DCP	ServiceOperationDCP	Distributed Computing Platforms on which the operation has been	ServiceMetadata.ServiceOperation. <<classification>> DCPList
MD_Metadata.identificationInfo.SV_ServiceIdentification. containsOperation. SV_OperationMetadata. connectPoint.CI_OnlineResource.linkage.URL	ServiceOperationConnectPoint	Handle for accessing the service interface	ServiceMetadata.ServiceOperation. <<slot>> references (http://purl.org/dc/terms/references slot from Dublin Core)
MD_Metadata.identificationInfo.SV_ServiceIdentification. serviceType	ServiceType	A service type name and version from a registry of services	Service. <<classification>> Services Extends the classification defined in the Basic Extension Package to include version information
MD_Metadata.identificationInfo.SV_ServiceIdentification. serviceTypeVersion	ServiceTypeVersion	A service type name and version from a registry of services	Service. <<classification>> Services Extends the classification defined in the Basic Extension Package to include version information
MD_Metadata.identificationInfo.MD_DataIdentification. spatialResolution.MD_Resolution	SpatialResolution	Factor which provides a general understanding of the density of spatial data in the dataset	DataMetadata. <<slot>> resolution for a ground sample distance resolution DataMetadata. <<slot>> scaleDenominator for an equivalent scale resolution
MD_Metadata.identificationInfo.MD_DataIdentification. spatialRepresentationTypeCode.MD_SpatialRepresentationTypeCode@codeListValue	SpatialRepresentationType	Method used to spatially represent geographic information	DataMetadata. <<classification>> SpatialRepresentationType

Annex F
(normative)

Mapping between the Core ISO Metadata (CIM) information model and ISO 19115 / ISO 19119

F.1 Introduction

This Annex describes the mapping between the Core ISO Metadata (CIM) information model and ISO 19115 / ISO 19119. The principle is to define how to set up a consistent set of ebRIM registry objects from a given ISO 19115/IOS 19119 metadata record. The mapping between CIM and ISO 19115/ISO19119 is presented through 3 column tables:

- the first column defines the ISO 19115/ISO19119 class properties;
- the second column defines the CIM implementation of each property
- the last column provides complementary explanations when needed.

F.2 Registration of a metadata record

A metadata record is an instance of the class MD_Metadata or one of its subclasses. Each metadata record will require:

- the creation of a Registry Object based on the MetadataInformation Extrinsic Object to handle the information related to the metadata record itself: file identifier, language used and date of creation, as defined in Table ;
- the creation of a Registry Object based on the DataMetadata or ServiceMetadata Extrinsic Objects for each instance of MD_Metadata.identificationInfo to handle among other things some of the properties of MD_Metadata: hierarchy level information and possibly links to the metadata record and parent metadata record information stored in two instances of the MetadataInformation Extrinsic Object. Table defines the mapping of this information to DataMetadata and/or ServiceMetadata. The mapping of the actual content of MD_Metadata.identificationInfo to DataMetadata and ServiceMetadata is defined in clause F.3.
- when the parentIdentifier attribute is instantiated, a second instance of MetadataInformation will be created, along with an instance of the ParentMetadataInformation association between ResourceMetadata and MetadataInformation.

Table F.1 depicts the mapping of MD_Metadata properties to the Extrinsic Object MetadataInformation.

Table F.1 - Metadata Information (MetadataInformation Extrinsic Object)

ISO 19115/ ISO 19119	CIM	Comments
fileIdentifier	<<slot>> identifier	
language	<<slot>> language	
characterSet	<<classification>> CharacterSet	For each character set
parentIdentifier	<<slot>> identifier	Concerns the second instance of MetadataInformation, when parentIdentifier is instantiated in the metadata
hierarchyLevel	-	See Table
hierarchyLevelName	-	Ignored
contact	-	Ignored
dateStamp	<<slot>> date	
metadataStandardName	<<slot>> conformsTo	Slot type is a two-level classification that handles both standard name and standard version
metadataStandardVersion	<<slot>> conformsTo	Slot type is a two-level classification that handles both standard name and standard version
datasetURI	-	Ignored
locale	-	Ignored
spatialRepresentationInfo	-	Ignored
referenceSystemInfo	-	See Table F.2
metadataExtensionInfo	-	Ignored
identificationInfo	-	See Table F.2
contentInfo	-	Ignored
distributionInfo	-	See Table F.2
dataQualityInfo	-	See Table 2
portrayalCatalogueInfo	-	Ignored
metadataConstraints	-	Ignored
applicationSchemaInfo	-	Ignored
metadataMaintenance	-	Ignored

Some properties of MD_Metadata are mapped to the Extrinsic Object ResourceMetadata. An instance of DataMetadata or ServiceMetadata is created for each instance of MD_Metadata.identificationInfo. This implies to duplicate some pieces of information of MD_Metadata in each of the instance of DataMetadata and ServiceMetadata pertaining to a unique metadata record. This mapping is defined in Table F.2.

Table F.2 - Metadata Information (ResourceMetadata Extrinsic Object)

ISO 19115/ ISO 19119	CIM	Comments

ISO 19115/ ISO 19119	CIM	Comments
fileIdentifier	-	See Table F.1
language	-	See Table F.1
characterSet	-	Ignored
parentIdentifier	-	See Table F.1
hierarchyLevel	<<slot>>type	For each instance of the property. Each 'type' slot contains a reference to a node of the ObjectType classification scheme. This concerns the nodes: Dataset, Service and Application.
hierarchyLevelName	-	Ignored
Contact	-	Ignored
dateStamp	-	Ignored
metadataStandardName	-	Ignored
metadataStandardVersion	-	Ignored
datasetURI	-	Ignored
locale	-	Ignored
spatialRepresentationInfo	-	Ignored
referenceSystemInfo	See Clause F.5	For each instance of the property
metadataExtensionInfo	-	Ignored
identificationInfo	See Clause F.3	For each instance of the property
contentInfo	-	Ignored
distributionInfo	See Clause F.6	For each instance of the property distributionFormat of the instance of MD_Distribution corresponding to the distributionInfo property
dataQualityInfo	-	Ignored
portrayalCatalogueInfo	-	Ignored
metadataConstraints	-	Ignored
applicationSchemaInfo	-	Ignored
metadataMaintenance	-	Ignored

F.3 Registration of the information resources

F.3.1 Preamble

Each instance of MD_Metadata.identificationInfo describes an information resource concerned by the metadata record. In this profile, the cardinality of this property is restricted to 1..1 for the ISO 19139 metadata files stored in the ebRIM Repository. The restriction on this cardinality makes it easier to manage the associations between the registry objects and repository items. Besides, it is compliant with the ISO 19115/19119 Application Profile of CS-W and does not prevent metadata producers to store internally metadata files with multiple MD_Metadata.identificationInfo properties in a single MD_Metadata element.

The information resource will be:

- a Dataset or Dataset Collection if MD_Metadata.hierarchyLevel is set to ‘dataset’. In this case, the metadata record will contain one property Metadata.identificationInfo of type MD_DataIdentification or one of its subtypes;
- a Service if MD_Metadata.hierarchyLevel is set to ‘service’. In this case, the metadata record will contain one property Metadata.identificationInfo of type SV_ServiceIdentification or one of its subtypes;
- an Application if MD_Metadata.hierarchyLevel is set to ‘application’. In this case, the metadata record will contain one property Metadata.identificationInfo of type MD_DataIdentificarion or SV_ServiceIdentification or one of their subtypes;

There are many possible ways to defined whether the information resource if a dataset or a dataset collection:

- if the value of MD_Metadata.hierarchyLevel is series, then it is a dataset collection;
- in the case of an ISO 19139 compliant metadata record, the value of the MD_Metadata.hierarchyLevel property may serve as a discriminator since ISO 19139 extends the MD_ScopeCode codelist to add specific values for aggregation;
- the instance of MD_DataIdentification may aggregate instances of MD_AggregateInformation defining whether the resource is an aggregate or a dataset;
- the instance of MD_Metadata may be associated with or aggregated to an instance of DS_Dataset, DS_Aggregate or one of their subclasses allowing the discrimination.
- MD_Metadata.parentIdentifier may be used to access the information resources aggregating the information resources of the current metadata record.

Whatever the context is, it is then possible to instantiate also the Subset association type between the generated instances of Dataset and Dataset Collection.

An application resource can only be identified through the value of MD_Metadata.hierarchyLevel (set to ‘application’). It is then possible to instantiate the IsClientOf and OperatesOn association types between Application and Service and Application and Dataset.

A service resource is identified through the value of MD_Metadata.hierarchyLevel (set to ‘service’) and the existence of at least one instance of Metadata.identificationInfo of type SV_ServiceIdentification. It is then possible to instantiate the OperatesOn association type between Service and Dataset.

Dataset, DatasetCollection, Application and Service along with the associations that connect them are part of the Metadata Context of the CIM. Instantiating these classes is optional. A valid catalogue service can only implement the classes defined in the

Resource Metadata, Data Metadata, Service Metadata, Constraint Information, Reference System Information, Graphic Overview and Citation sections of the CIM.

F.3.2 Registration of a Dataset, a Dataset Collection or an Application

A information resource of type dataset or dataset collection, identified as such as described in F.3.1 implies to create an instance of the Dataset Extrinsic Object or the DatasetCollection Extrinsic Object. An instance of MD_Metadata.identificationInfo of type MD_DataIdentification in the metadata record implies to create an instance of DataMetadata based on the properties of the instance of MD_DataIdentification.

A value of 'application' for the MD_Metadata.hierarchyLevel attribute implies to create an instance of the Application Extrinsic Object. An instance of MD_Metadata.identificationInfo of type MD_DataIdentification in the metadata record implies to create an instance of DataMetadata based on the properties of the instance of MD_DataIdentification.

Application, Dataset and DatasetCollection instances are part of the metadata context and do not have any attributes. An MD_Metadata.identificationInfo instance of type MD_DataIdentification is mapped to an instance of the DataMetadata Extrinsic Object, as defined in Table F.3.

Table F.3 - From MD_DataIdentification to DataMetadata

ISO 19115/ ISO 19119	CIM	Comments
citation	See Table F.4	
abstract	description	
purpose	-	Ignored
credit	-	Ignored
status	-	Ignored
pointOfContact	Association CitedResponsibleParty targeting an instance of Organization. The association is classified with the value 'PointOfContact' from the CitedResponsibleParty classification.	
resourceMaintenance	-	Ignored
graphicOverview	-	Ignored
resourceFormat	-	Ignored
descriptiveKeywords	<<classification>> KeywordScheme	The classification defines both the keyword type, the keyword and its thesaurus.
resourceSpecificUsage	-	Ignored
resourceConstraints	An association ResourceConstraints targeting an instance of Rights as defined in Clause F.4	For each resourceConstraints

ISO 19115/ ISO 19119	CIM	Comments
aggregateInformation	-	Ignored
spatialRepresentationType	<<classification>> SpatialRepresentationType	For each spatialRepresentationType
spatialResolution	<<slot>> resolution or <<slot>> scaleDenominator depending on the type of spatial resolution.	For each spatialResolution
language	<<slot>> language	For each language The slot 'language' is of type Language, defined in the ebRIM specification.
characterSet	<<classification>> CharacterSet	For each characterSet
topicCategory	<<classification>> TopicCategoryCode	For each topicCategory
environmentDescription	-	Ignored
extent	See Clause F.7	For each extent
supplementalInformation	-	Ignored

The instance of MD_DataIdentification.citation is used to instantiate other attributes of the same instance of DataMetadata as defined in Table F.4.

Table F.4 - From CI_Citation to DataMetadata

ISO 19115/ ISO 19119	CIM	Comments
title	name	
alternateTitle	<<slot>>title	
date	- <<slot>> created for creation - <<slot>> modified for revision - <<slot>> issued for publication	
edition	-	Ignored
editionDate	-	Ignored
identifier.MD_Identifier.code	externalIdentifier	Identifiers with no codespace do not carry sufficient information and are not mapped to externalIdentifier, for which the codespace is required.
citedResponsibleParty	Association CitedResponsibleParty + an instance of Organization as defined in Table F.16	For each instance of citedResponsibleParty. The role of the responsible party classifies the association CitedResponsibleParty (CitedResponsibleParty classification)
presentationForm	-	Ignored
series	-	Ignored
otherCitationDetails	-	Ignored

ISO 19115/ ISO 19119	CIM	Comments
collectiveTitle	-	Ignored
ISBN	-	Ignored
ISSN	-	Ignored

F.3.3 Registration of a service or an application

A value of 'service' for the MD_Metadata.hierarchyLevel attribute implies to create an instance of the Service Registry Object. An instance of MD_Metadata.identificationInfo of type SV_ServiceIdentification in the metadata record implies to create an instance of ServiceMetadata based on the properties of the instance of SV_ServiceIdentification.

A value of 'application' for the MD_Metadata.hierarchyLevel attribute implies to create an instance of the Application Extrinsic Object. An instance of MD_Metadata.identificationInfo of type SV_ServiceIdentification in the metadata record implies to create an instance of ServiceMetadata based on the properties of the instance of SV_ServiceIdentification.

Service and Application instances are part of the metadata context and do not have any attributes. MD_Metadata.identificationInfo of type SV_ServiceIdentification is mapped to the Extrinsic Object ServiceResourceMetadata, as defined in Table F.5.

Table F.5 - From SV_ServiceIdentification to ServiceMetadata

ISO 19115/ ISO 19119	CIM	Comments
citation	See Table F.4	
abstract	description	
purpose	-	Ignored
credit	-	Ignored
status	-	Ignored
pointOfContact	Association CitedResponsibleParty targeting an instance of Organization. The association is classified with the value 'PointOfContact' from the CitedResponsibleParty classification.	
resourceMaintenance	-	Ignored
graphicOverview	-	Ignored
resourceFormat	-	Ignored
descriptiveKeywords	<<classification>> KeywordScheme	The classification defines both the keyword type, the keyword and its thesaurus.
resourceSpecificUsage	-	Ignored
resourceConstraints	An association ResourceConstraints targeting an instance of Rights as defined in	For each resourceConstraints

ISO 19115/ ISO 19119	CIM	Comments
	Clause F.4	
aggregateInformation	-	Ignored
serviceType	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information.
serviceTypeVersion	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information.
accessProperties	-	Ignored
restrictions	-	Ignored
extent	-	Ignored
couplingType	<<classification>> CouplingType	
coupledResource	-	Ignored
containsOperations	See Table F.6	For each containsOperation
operatesOn	ServiceDescription assoctaion between ServiceMetadata and Service, OperatesOn association between Service and Dataset and DatasetDescription association between Dataset and DataMetadata	For each operatesOn

Each instance of SV_ServiceIdentification.containsOperation implies to create an instance of the association ContainsOperations between ServiceMetadata and ServiceOperation along with an instance of ServiceOperation as defined in Table F.6.

Table F.6 - From SV_OperationMetadata to ServiceOperation

ISO 19115/ ISO 19119	CIM	Comments
operationName	name	
DCP	<<classification>>DCPList	For each DCP
operationDescription	-	Ignored
invocationName	-	Ignored
connectPoint.CI_OnlineResource.linkage	<<slot>> references	For each instance of the property

F.4 Registration of Constraint Information

Unique instances of Rights, LegalConstraints or SecurityConstraints are created based on the properties of the instance of MD_Constraints, MD_LegalConstraints and/or MD_SecurityConstraints. An instance of the association ResourceConstraints from an instance of ResourceMetadata to Rights and/or one of its subclass must be created for each instance of the association between MD_Identification and MD_Constraints.

Each instance of MD_Identification.resourceConstraints of type MD_Constraints, MD_LegalConstraints or MD_SecurityConstraints implies to create an instance of Rights as defined in Table F.7.

Table F.7 - From MD_Constraints to Rights

ISO 19115/ ISO 19119	CIM	Comments
useLimitation	<<slot>>abstract	

Each instance of MD_Identification.resourceConstraints of type MD_LegalConstraints implies to create an instance of Rights (cf. Table) and of LegalConstraints as defined in Table F.8.

Table F.8 - From MD_LegalConstraints to LegalConstraints

ISO 19115/ ISO 19119	CIM	Comments
accessConstraints	<<classification>> RestrictionCode	Access and use constraints are managed through the classification RestrictionType, which is itself classified with the values of the RestrictionCode classification. RestrictionType identifies the constraint type: access or use; RestrictionCode identifies the precise access or use restriction (e.g copyright, patent…).
useConstraints	<<classification>> RestrictionCode	Access and use constraints are managed through the classification RestrictionType, which is itself classified with the values of the RestrictionCode classification. RestrictionType identifies the constraint type: access or use; RestrictionCode identifies the precise access or use restriction (e.g copyright, patent…).
otherConstraints	<<slot>> rights	

Each instance of MD_Identification.resourceConstraints of type MD_SecurityConstraints implies to create an instance of Rights (cf.Table F.7) and of SecurityConstraints as defined in Table F.9.

Table F.9 - From MD_SecurityConstraints to SecurityConstraints

ISO 19115/ ISO 19119	CIM	Comments
classification	<<classification>> ClassificationCode	
useNote	-	Ignored
classificationSystem	-	Ignored

ISO 19115/ ISO 19119	CIM	Comments
handlingDescription	-	Ignored

F.5 Registration of Reference System Information

Each instance of MD_Metadata.referenceSystemInfo implies to create an instance of IdentifiedItem as defined in Table F.10 along with an instance of the association ReferenceSystem between an instance of ResourceMetadata and the IdentifiedItem instance.

The existence of an instance of MD_Metadata.referenceSystemInfo will possibly imply to create an instance of CitedItem along with an instance of the association Auhority between IdentifiedItem and CitedItem.

Table F.10 - From RS_Identifier to IdentifiedItem

ISO 19115/ ISO 19119	CIM	Comments
authority	Authority association between IdentifiedItem and CitedItem. See Table F.15 for a description of CitedItem.	
code	name	
codeSpace	Codespace association to another instance of IdentifiedItem	
version	-	Currently not handled

F.6 Registration of Distribution Information

Each instance of MD_Metadata.distributionInfo.MD_Distribution.distributionFormat implies to create an instance of Format as defined in Table F.11 and an instance of the association between ResourceMetadata and Format.

Table F.11 - From MD_Format to Format

ISO 19115/ ISO 19119	CIM	Comments
name	name	
version	-	Ignored
amendmentNumber	-	Ignored
specification	-	Ignored
fileDecompressionTechnique	-	Ignored
formatDistributor	-	Ignored

F.7 Registration of Geographic and Temporal Extent Information

Each instance of MD_DataIdentification.extent implies to create instance(s) of the slots temporal and/or envelope and/or coverage for the DataMetadata instance.

Each instance EX_Extent.geographicElement of type EX_GeographicBoundingBox implies to create an instance of the slot envelope in the DataMetadata instance, as defined in Table F.12.

Table F.12 - From EX_GeographicBoundingBox to <<slot>> envelope

ISO 19115/ ISO 19119	CIM	Comments
eventTypeCode	-	Ignored
westBoundLongitude	<<slot>> envelope (of type gml:Envelope)	The WestBoundLongitude corresponds to the longitude of "lowerCorner" in gml:Envelope.
eastBoundLongitude	<<slot>>envelope (of type gml:Envelope)	The EastBoundLongitude corresponds to the longitude of "upperCorner" in gml:Envelope
southBoundLatitude	<<slot>> envelope (of type gml:Envelope)	The SouthBoundLatitude corresponds to the latitude of "lowerCorner" in gml:Envelope.
northBoundLatitude	<<slot>> envelope (of type gml:Envelope)	The NorthBoundLongitude corresponds to the latitude of "upperCorner" in gml:Envelope

Each instance EX_Extent.geographicElement of type EX_GeographicDescription implies to create an instance of the slot coverage in the DataMetadata instance, as defined in Table F.13.

Table F.132 - From EX_GeographicDescription to <<slot>> coverage

ISO 19115/ ISO 19119	CIM	Comments
eventTypeCode	-	Ignored
geographicIdentifier	<<slot>> coverage (of type IdentifiedItem)	

Each instance EX_Extent.temporalElement of type EX_GeographicBoundingBox implies to create an instance of the slot temporal in the DataMetadata instance, as defined in Table F.14.

Table F.14 - From EX_TemporalExtent to <<slot>> temporal

ISO 19115/ ISO 19119	CIM	Comments
extent	<<slot>> temporal	-

F.8 Registration of Citation and Responsible party information

F.8.1 Registration of Citation information

The type CI_Citation is mapped to the Extrinsic Object CitedItem in the CIM as defined in Table F.15.

Table F.15 - From CI_Citation to CitedItem

ISO 19115/ ISO 19119	CIM	Comments
title	name	
alternateTitle	<<slot>>title	
date	- <<slot>> created for creation - <<slot>> modified for revision - <<slot>> issued for publication	
edition	-	Ignored
editionDate	-	Ignored
identifier.MD_Identifier.code	externalIdentifier	Identifiers with no codespace do not carry sufficient information and are not mapped to externalIdentifier, for which the codespace is required.
citedResponsibleParty	Association CitedResponsibleParty + an instance of Organization as defined in Table F.16.	For each instance of citedResponsibleParty. The role of the responsible party classifies the association CitedResponsibleParty (CitedResponsibleParty classification)
presentationForm	-	Ignored
series	-	Ignored
otherCitationDetails	-	Ignored
collectiveTitle	-	Ignored
ISBN	-	Ignored
ISSN	-	Ignored

F.8.2 Registration of Responsible Party information

The type CI_ResponsibleParty is mapped to the Registry Object Organization as defined in Table F.15. The attribute CI_ResponsibleParty.role is implemented as a classification on the association CitedResponsibleParty.

Table F.16 - From CI_ResponsibleParty to Organization

ISO 19115/ ISO 19119	CIM	Comments
individualName	-	Ignored

ISO 19115/ ISO 19119	CIM	Comments
		If needed, it is possible to provide this information through the Organization.primaryContact property, which contains a reference to an instance of Person.
organizationName	name	
positionName	-	Ignored
contactInfo	-	Ignored
role	Handled through the CitedResponsibleParty classification on the CitedResponsibleParty association.	

Annex G
(informative)

W3C WSDL interface description

This application profile adopts the W3C WSDL interface description defined in the OGC Catalogue Services – ebRIM (ISO/TS 15000-3) profile of CS-W [OGC 05-025].

Annex H
(informative)

Examples

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