Open Geospatial Consortium

Posted Date: 2014-02-28

Approval Date: 2014-04-22

Publication Date: 2014-04-28

Reference URL for this document: http://www.opengis.net/doc/ISx/csw-ebrim-i15/1.0

Internal reference number of this document: OGC 13-084r2

Version: 1.0

Category: OGC® Extension Package Standard

Editors: Uwe Voges, Frédéric Houbie, Nicolas Lesage, Marie-Lise Vautier

OGC I15 (ISO19115 Metadata) Extension Package of CS-W ebRIM Profile 1.0

Extension Package Standard

Warning

This document is an OGC Member approved international standard. This document is available on a royalty free, non-discriminatory basis. Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Document type:	OGC® Extension Package Standard
Document subtype:	Class 2 (ISO 19106)
Document stage:	Approved
Document language:	English

Contents

Page

Figures

Page

i. Abstract

The OGC Catalogue Services 2.0 specification (OGC 07-006r1) 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 (OGC 07-110r4) 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 (OGC 07-144r4) of the OASIS ebXML Registry Information Model (ebRIM) providing artefacts of general utility in the geomatics domain.

This document provides an extension package aligned with the ebRIM application profile of CS-W for the cataloguing of ISO 19115, ISO19115-2 and ISO 19119 compliant metadata. It was initially produced during the ESA HMA (Heterogeneous Missions Accessibility) initiative [HMA] and related projects. Some input came from the OGC OWS9 initiative.

This document supersedes the former document OGC Cataloguing of ISO Metadata (CIM) using the ebRIM profile of CS-W, OGC 07-038r3 (Version: 0.1.12).

ii. Keywords

The following are keywords to be used by search engines and document catalogues.

ogcdoc, OGC document, OGC Catalogue Services, catalogue, ebRIM, HMA, extensionPackage, ISO19115, ISO19119, csw:Record, filter, RIM, GetCapabilities, GetDomain, GetRecords, GetRecordById, GetRepositoryItem, metadata, spatial, ESA, SAFE, HMA-S

iii. Preface

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium 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 standard set forth in this document, and to provide supporting documentation.

iv. Document contributor contact points

All questions regarding this document should be directed to the editor or the contributors:

Name	Organization
Uwe Voges – u.voges<at>conterra.de	CON TERRA (Germany)
Frédéric Houbie – frederic.houbie<at>geomatys.com	GEOMATYS (France)
Maria Rosaria Barone - mariarosaria.barone<at>intecs.it	INTECS (Italy)
Lorenzo Bigagli – lorenzo.bigagli<at>cnr.it	CNR (Italy)
David Burggraf – dsburggraf<at>gmail.com	GALDOS (Canada)
Udo Einspanier – u.einspanier<at>conterra.de	CON TERRA (Germany)
Nicolas Lesage – nicolas.lesage<at>ign.fr	IGN (France)
Marie-Lise Vautier – marie-lise.vautier<at>ign.fr	IGN (France)
Marcellin Prudham – marcellin.prudham<at>ign.fr	IGN (France)
Gilles Cebelieu – gilles.cebelieu<at>ign.fr	IGN (France)
Didier Richard – didier.richard<at>ign.fr	IGN (France)
Patrick Floissac - patrick.floissac<at>magellium.fr	MAGELLIUM (France)
Jef Vanbockryck - jef.vanbockryck<at>cronos.be	CRONOS (Belgium)
Yaman Ustuntas - yaman.ustuntas<at>cronos.be	CRONOS (Belgium)

v. Changes to the OGC Abstract Specification

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

vi. 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.

vii. Foreword

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

OGC Catalogue Services Specification 2.0, with Technical Corrigendum 2 (OGC 07-006r1)

OGC™ CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW, version 1.0.1, (OGC 07-110r4 2009/02/05)

OGC™ CSW-ebRIM Registry Service – Part 2 : Basic extension package, version 1.0.1, (OGC 07-144r4 2009/02/05)

OGC™ CSW-ebRIM Registry Service – Part 3: Abstract Test Suite (1.0.1), version 1.0.1, (OGC 08-103r2 2009/02/05)

OWS Common Implementation Specification 1.0 (OGC 05-008c1)

Filter Encoding Implementation Specification 1.1 (OGC 04-095)

OASIS ebXML Registry Information Model v3.0

IETF RFC 2616 (Hypertext Transfer Protocol -- HTTP/1.1)

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium Inc. 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 standard set forth in this document, and to provide supporting documentation.

It shall be noted that for alignment with ebXML RIM 3.0 and with the OGCCSW-ebRIM Registry Service some Identifiers used in this spefication are not aligned with the current OGC-NA recommended HTTP URI practice.

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[1] 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).

The terms ‘catalogue’ and ‘registry’ are often used interchangeably, but the following distinction is made in this specification: 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.

[1] 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.

OGC I15 (ISO19115 Metadata) Extension Package of CS-W ebRIM Profile 1.0

1 Scope

A catalogue implementation that conforms to this specification provides facilities for discovering and advertising information resources described through ISO 19115, ISO 19115-2 and ISO 19119 compliant (ISO19139 encoded) metadata records, with a specific focus on geospatial dataset, dataset collections and services. For this purpose, this specification customizes the general and flexible catalogue information model, adding dedicated kinds of artifacts for the specific management of the targeted information resources. The principal means for doing this is by defining an extension package to take advantage of the extensibility points offered by ebRIM; these extensibility points encompass:

- new types of extrinsic objects and external links;
- new kinds of associations that link registry objects;
- additional classification schemes—or classification nodes that augment an existing scheme—for classifying registry content;
- predefined queries that reflect commonly executed search patterns;
- additional slots to further characterize particular types of registry objects.

As any service complaint with the ebRIM profile of CS-W, it may be used to catalogue ISO19115, ISO19115-2 and ISO19119 resources (ISO19139 encoded) located in both local and remote repositories. Representations of these resources are exchanged using the standard HTTP/1.1 protocol.

2 Compliance

Compliance with this standard shall be checked using all the relevant tests specified in Annex A (normative) of this document. The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site[2].

All requirements and conformance-classes described in this document are owned by the standard identified as http://www.opengis.net/spec/csw-ebrim-i15/1.0. Requirements and conformance-classes, requirements and conformance test URIs defined in this document are relative to this URI.

Any implementation claiming conformance with a conformance class shall pass all the associated tests defined in the abstract test suite.

---

2 www.opengeospatial.org/cite

2.1 Requirements classes of the base specifications

An implementation candidate to this specification shall be conformant to the minimal mandatory requirements of OGC CS-W [07-006r1] and to one of level 1 or level 2 of conformance of the ebRIM profile of CS-W defined in OGC 07-110r4. As stated in clause 2 of OGC 07-110r4, this conformance statement concerns:

- The requirements stipulated for the corresponding conformance level of OGC 07-110r4;
- The applicable requirements in all normative base specifications.

2.2 Requirements classes of the I15 EP

This specification defines two levels of requirements.

2.2.1 Requirements class /conf/core: The Core

This requirements class defines requirements for all I15 EP based catalogues covering:

- Support of SOAP 1.2[3].
- Availability of the I15 Extension Package including all RegistryObjects related to the Core.
- Verification that filters in GetRecords requests including I15 Core RegistryObjects are correctly understood;
- Verification that GetRecords / GetRecordById-full responses correctly include I15 Core RegistryObjects (including their correct ordering)
- Correct implementation of the mappings between the ISO 19139 file and the core I15 Extension Package;
- Verification that repository items are accessed through the extrinsic objects of type ElementaryDataset, DatasetCollection, ServiceMetadata and Application.

2.2.2 Requirements class /conf/extension: Extension for additional model elements

This requirements class extends the core requirements class. It defines mainly a number of additional extrinsic objects and association types primarily concerned with the quality, acquisition and context of the resource metadata. This conformance class supports OWS9 (OGC 12-144) and OGC 11-035 requirements.

This requirements class covers:

- Availability of all additional RegistryObjects related to the Extension within the I15 Extension Package.

---

[3] Support of SOAP 1.2 is optional in the ebRIM profile of CSW (OGC 07-110r4). It is mandatory in the I15 Extension Package. Due to the way the ebRIM profile of CSW's ATS is structured (cf. ATC 26 to 28 in OGC 08-103r2), it is necessary to include a test case in the ATS of this specification verifying that SOAP 1.2 is supported by the implementation under test. Further testing of SOAP capabilities is specified in the CSW ebRIM ATS and needs not be repeated in the ATS of this specification

- Verification that filters in GetRecords requests including I15 Extension RegistryObjects are correctly understood.
- Verification that GetRecords / GetRecordById-full responses correctly include I15 Extension RegistryObjects.
- Verification that the metadata of an ISO 19139 document describing a dataset or dataset collection, an application or a service are correctly mapped to the appropriate extension extrinsic objects, attributes, slots, associations and classifications.
- Verification that the harvest operation definition advertises the support for ISO 19139 metadata

2.3 Conformance requirements

An implementation candidate to conformance shall pass all applicable tests specified in the Abstract Test Suite of the ebRIM profile of CS-W documented in OGC 08-103 belonging to level 1 (minimal support) or level 2.

In complement to this, it shall pass the conformance tests specified in the I15 EP Abstract Test Suite (see Annex A) belonging to core conformance class (minimal support) or extension conformance class. The mappings between the I15 requirements to a requirements class and the associated conformance class is shown in the table below.

Table 1 — Requirements to Requirements Class / Conformance Class mappings

Requirements	I15 EP Requirement Class (/req)	I15 EP Conformance Class (/conf)
/req/core/SOAP1.2, /req/core/packageMembership, /req/core/GetRecords, /req/core/ServicesTaxonomy, /req/core/ContentFullResponse, /req/core/OrderOfFullResponse, /req/core/ResourceMetadata, /req/core/KeywordAndThesaurusInformation, /req/core/DataMetadata, /req/core/ServiceMetadata, /req/core/Application, /req/core/ConstraintInformation, /req/core/BrowseGraphicInformation, /req/core/Citation, /req/core/MetadataPointOfContact, /req/core/QualityConformanceInformation, /req/core/GetRepositoryItem, /req/core/BPDataset, /req/core/BPService, /req/core/BPServiceOperatesOn	/req/core – The Core	/conf/core – The Core
/req/extension/packageMembership, /req/extension/GetRecords,	/req/extension – Extension for additional I15 model elements	/conf/extension – Extension for additional I15 model elements

/req/extension/ContentFullResponse, /req/extension/ReferenceSystemInformation, /req/extension/QualityInformation, /req/extension/AcquisitionInformation, /req/extension/ResourceMetadataContext, /req/extension/Harvest		

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, Geographic Information – Services, 21/06/2006, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=39890

ISO 19139, Geographic Information – Metadata XML (ISO 19139:2007), http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=32557

ISO 19119:2005/PDAM 1 - Extensions of the service metadata model, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44268

ISO 19115-2:2009 - Geographic information -- Metadata -- Part 2: Extensions for imagery and gridded data

ISO 19139-2, Geographic Information – Metadata – XML Schema Implementation – Part 2: Extensions for imagery and gridded data –DRAFT

ISO 19135:2005, Geographic information -- Procedures for item registration

ISO/IEC 11179, Information Technology -- Metadata registries (MDR)

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

IETF RFC 3406, *Uniform Resource Names (URN) Namespace Definition Mechanisms*, Best Current Practice (October 2002), available [online]: <http://www.apps.ietf.org/rfc/rfc3406.html>.

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 05-008c1, *OGC Web Services Common Specification,* version 1.0.0 (February 2007), available [online]: <http://portal.opengeospatial.org/files/?artifact_id=8798>

OGC 07-006r1, *OpenGIS Catalogue Services Specification 2.0.2 - W*ith Technical Corrigendum 2 (February 2007), available [online]: http://portal.opengeospatial.org/files/?artifact_id=20555

OGC 07-045, *OGC Catalogue Services Specification 2.0.2 – ISO Metadata Application Profile*, version 1.0 (July 2007). Available [online]: <http://portal.opengeospatial.org/files/?artifact_id=21460>

OGC 07-110r4 OGC™ *CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW, version 1.0.1, 2009/02/05.*

OGC 07-144r4 OGC™ CSW-ebRIM Registry Service – Part 2 : Basic extension package, version 1.0.1, 2009/02/05

OGC 08-103r2 OGC™ CSW-ebRIM Registry Service – Part 3: Abstract Test Suite (1.0.1), version 1.0.1, 2009/02/05

OGC 12-144 Open Geospatial Consortium OWS9 Architecture – Registry ER, Version 0.2.0, 2012/11/21

OGC 11-035 Open Geospatial Consortium EO Product Collection, Service and Sensor Discovery using the CS-W ebRIM Catalogue, Version 1.0.

Dublin Core Metadata Initiative, *DCMI Metadata Terms*, available [online]: <http://dublincore.org/documents/dcmi-terms/>.

HMA - Heterogeneous Missions Accessibility – Design Methodology, Architecture and Use of Geospatial Standards for the Ground Segment Support of Earth Observation missions ESA TM-21 http://www.esa.int/About_Us/ESA_Publications/ESA_TM-21_Heterogeneous_Missions_Accessibility

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/2.0.2/. These XML Schema files are also bundled with OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110r4].

4 Terms and definitions

For the purposes of this specification, the definitions specified in Clause 4 of the *OGC Web Services Common Specification* [OGC 05-008c1] shall apply, as well as the definitions

specified in Clause 4 of the OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110]. In addition, the following terms and definitions apply.

4.1 dataset

identifiable collection of data

NOTE Examples: a hardcopy map, an Earth Observation (EO) Image, a Geodesy set of parameters, a digital set of features

4.2 dataset collection

collection of datasets and dataset collections.

NOTE a series, i.e. a set of dataset sharing the same product specification (e.g. a series of EO Images of the the same satellite (e.g. MSG) and the same sensor (e.g. SEVIRI/optical) at different times).

5 Conventions

5.1 Abbreviated terms

Most of the abbreviated terms listed in Subclause 5.1 of the OWS Common Implementation Specification [OGC 05-008c1] apply to this document as well as the terms listed in subclause 5.1 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110], plus the following abbreviated terms :

I15	Cataloguing ISO19115 Metadata
CSW	Catalogue Service for the Web
ebRIM	ebXML Registry Information Model
ESA	European Space Agency
HMA	ESA´s Heterogeneous Mission Accessibility (HMA) project
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 05-008c1] provides some general guidance regarding the use of class diagrams.

5.3 Namespace prefix conventions

Table 2 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 2 — Namespace mappings

Prefix	Namespace URI	Specification
wrs	http://www.opengis.net/cat/wrs/1.0	WRS profile (OGC 07-110)
rim	urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0	OASIS ebRIM 3.0
csw	http://www.opengis.net/cat/csw/2.0.2	CSW part (Clause 10) of OGC Catalogue Services 2.0.2 (07-006r1)
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/>.

5.4 Presentation of requirements and recommendations

Requirements are presented using the following style:

Req /req/<requirements class id>/<local requirement id>

<requirement text>

/req/<requirements class id>/<local requirement id> is the unique identifier within the document. It is the path fragement that appended to the URI identified in Clause 2 provides the URI of the requirement which can be used to unamibiguously identify the requirement.

<requirement text> is the requirement itself.

Recommentdation are written in bold text, normative verbs like SHALL are written in captials.

6 Catalog infrastructure overview (Enterprise Viewpoint)

6.1 Application domain

A metadata repository managed by a catalogue implementing this extension package deals with ISO 19115, ISO 19115-2 and ISO 19119 compliant metadata (ISO19139 encoded) 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 extension package has no specific disciplinary focus. All communities working with these sorts of geospatial information are addressed. Typical communities are earth observation, meteorology, energiewende, surveying, environment, geology, landscaping, water management, telecommunications etc.

The intention is to implement the generally understood ISO19115/19115-2/19119 information model based on the metamodel as defined in ebRIM 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 named above.

This specification is based on the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110]. The essential capabilities of a catalogue service within a service-oriented architecture are described in clause 6.1 of the profile. It is further aligned with the ISO 19115 and ISO 19119 extensions defined in [OGC 07-045].

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 extension package. Figure 1 shows the overall system that contains major interactions between the actors.

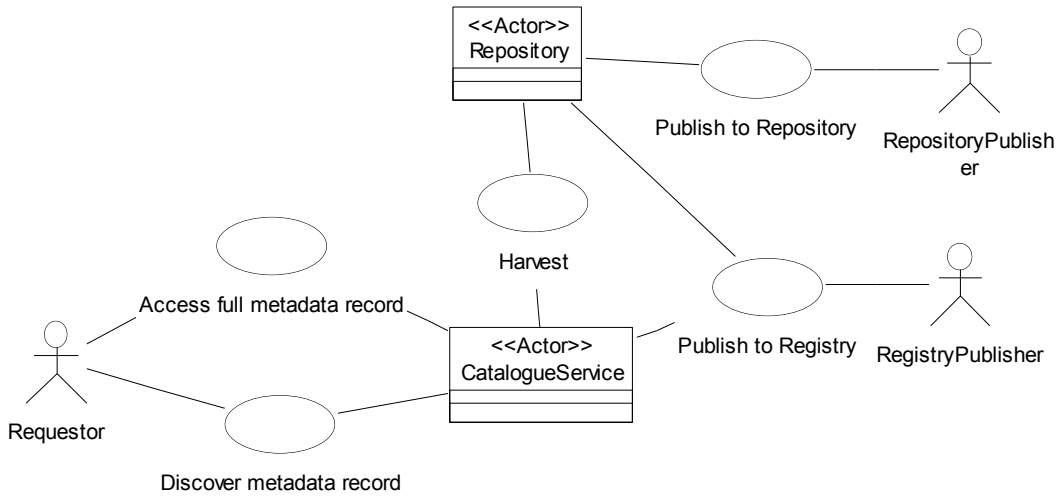


Figure 1: Overall system use cases

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 I15-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

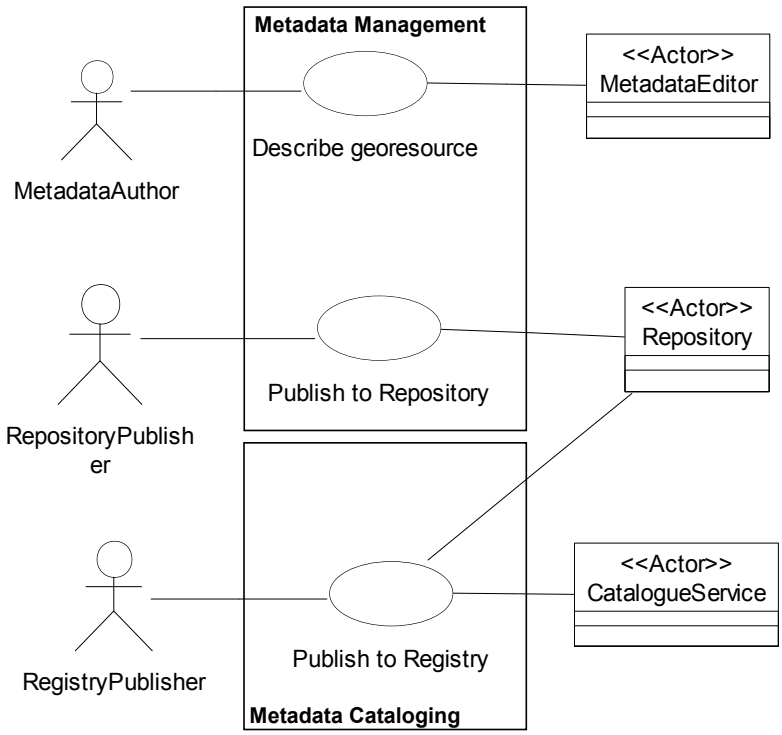


Figure 2: Publish metadata

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 19139. 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 I15-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

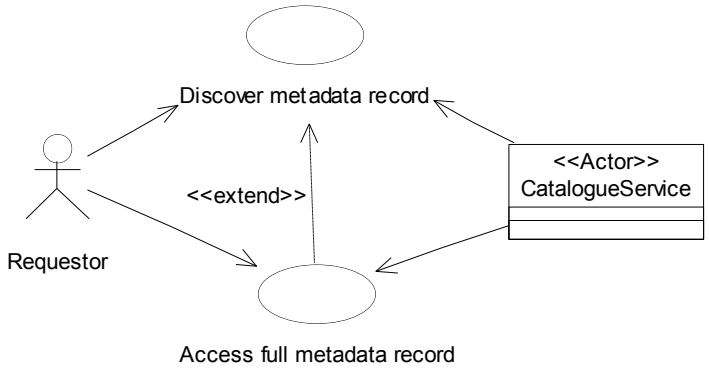


Figure 3: Discover metadata

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

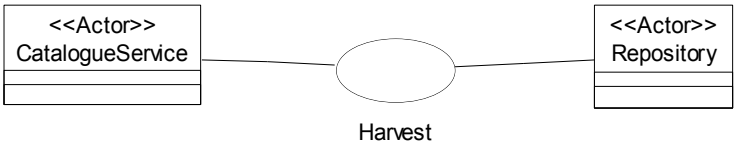


Figure 4: Harvest metadata

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 The I15 Registry Package

7.1 Purpose

The general explanations about the management of extension packages provided in clause 17 of OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110r4] are applicable.

This document defines the **Cataloguing ISO 19115/15-2/19 metadata (I15)** extension package. All compliant implementations must support it (see Annex A). This I15 extension package is an extension of the Basic extensions package defined in OGC *CSW-ebRIM Registry Service* - Part 2: Basic extension package [OGC 07-144r4].

Req /req/core/packageMembership

The **Cataloguing ISO 19115/15-2/19 Metadata (I15)** extension package SHALL itself be the member of a 'root' package that contains all packages supported by the service. The identifier of this root package is: "urn:ogc:def:ebRIM-RegistryPackage:OGC:Root". A package dependency SHALL be indicated using an association of the following type: "urn:oasis:names:tc:ebxml-regrep:AssociationType:Uses". The extension package SHALL include all RegistryObjects related to the Core.

Req /req/extension/packageMembership

The **Cataloguing ISO 19115/15-2/19 Metadata (I15)** extension package SHALL additionally (to the Core) inlude all RegistryObjects related to the Extension.

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, 19115-2 and ISO 19119 metadata. These extensions may aim at registering more ISO 19115, 19115-2 and ISO 19119 metadata elements, user community specific metadata elements defined in a class 2 profile of ISO 19115, 19115-2 or ISO 19119, and metadata elements defined in standard extensions of ISO 19115 and ISO 19119.
- 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, gazetteers and geographic identifiers as defined in ISO 19112, …

The I15 extension package, as well as the potential additional packages, employs elements of ebRIM and the Basic package (see figure 5).

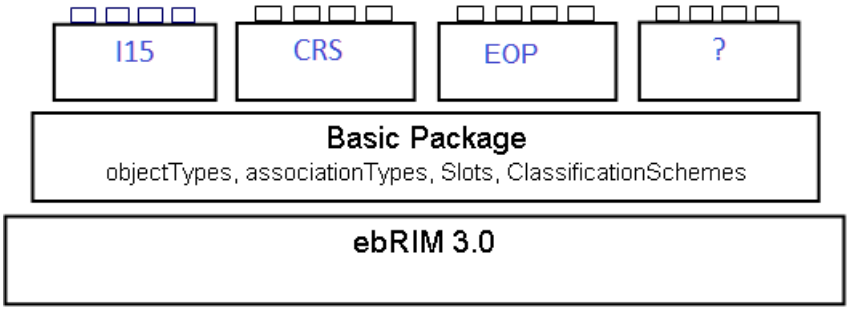


Figure 5: Extension Packages

7.2 Modelling Notations and Conventions

The Cataloguing ISO19115/15-2/19 Metadata (I15) 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 of a classification scheme. The attribute of a classification scheme have necessarily the <<Classification Node>> stereotype.
- <<Classification Node>> corresponds to a classification node of a classification scheme or a parent classification node

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.

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 Cataloguing ISO19115/15-2/19 Metadata (I15) 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 I15 model.

Note 2: An ISO Metadata Registry focuses on the registration of the resource metadata including all object and association types described in clause 9.1 and 9.2. 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). The object types

corresponding to the information resources may further be 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 *CSW-ebRIM Registry Service* - Part 2: Basic extension package [OGC 07-140], expresses three different points of view on the service information resource which are complementary to the service metadata defined herein. The object and association types of the extension requirements class are optional. Their implementation by a registry becomes useful when the registry manages additional points of views on the information resources.

7.2.1 ebXML Slot Types Definition

In order to map the ISO metadata to an ebRIM structure, we need to define the range of slot types that will be used in the model. Slot types range should be defined in the CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110r4] , but since its not the case, the definition takes place in this document.

The following table defines the types allowed for the slotType attribute of ebXML slots. Several slot types are based on datatypes defined in the XML Schemas scope.

Table 3 — Slot Types Defintion

Slot Types	Definition and representation of the slot values
URI	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:URI* Represent a Uniform Resource Identifier (URI). An URI value can be absolute or relative, and may have an optional fragment identifier (i.e., it may be a URI Reference). This type should be used to specify the intention that the value fulfills the role of a URI as defined by the RFC 2396, as amended by the RFC 2732.
Boolean	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:Boolean* Defined as the mathematical concept of binary-valued logic. Accepted values are *true* and *false*.
DateTime	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:DateTime* Consist of objects with integer-valued year, month, day, hour and minute properties, a decimal-valued second property, and a boolean timezone property. Each such object also has one decimal-valued method or computed property, timeOnTimeline, whose value is always a decimal number; the values are dimensioned in seconds, the integer 0 is 0001-01-01T00:00:00 and the value of timeOnTimeline for other dateTime values is computed using the Gregorian algorithm as modified for leap-seconds. The timeOnTimeline values form two related “timelines”, one for timezoned values and one for non-timezoned values. Lexical representation is ISO 8601. For example, *2002-10-10T12:00:00-05:00* (noon on 10 October 2002, Central Daylight Savings Time as well as Estearn Standard Time in the U.S.) is *2002-10-10T17:00:00Z*, five hours later than *2002-10-10T12:00:00Z*.
Double	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:Double*

Slot Types	Definition and representation of the slot values
	Consist of the values *m x 2^e* where *m* is an integer whose absolute value is less than *2^53* and *e* is an integer between *-1075* and *970*, inclusive. In addition, float also contains the following three special numbers : positive infinity (*INF*), negative infinity (*-INF*) and not-a-number (*NaN*). Positive infinity is greater than all other non-NaN values, negative infinity is smaller than all other non-NaN values. NaN equals itself but is incomparable with any other value. Allowed lexical representations includes *-1E4*, *1267.43233E12*, *17.78e-2*, *12*, *0*, *INF*, …
Float	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:Float* Consist of the values *m x 2^e* where *m* is an integer whose absolute value is less than *2^24* and *e* is an integer between *-149* and *104*, inclusive. In addition, float also contains the following three special numbers : positive infinity (*INF*), negative infinity (*-INF*) and not-a-number (*NaN*). Positive infinity is greater than all other non-NaN values, negative infinity is smaller than all other non-NaN values. NaN equals itself but is incomparable with any other value. Valid lexical representations include *-1E4*, *12.43E12*, *7.8e-2*, *12*, *0*, *INF*, …
GM_Object	URN: *urn:ogc:def:dataType:ISO-19107:2003:GM_Object* Represent a GML geometry, expressed in its XML format.
Integer	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:Integer* Defined as the mathematical concept of the integer numbers. Accepted values are integers from *-2147483648* (inclusive) to *+2147483647* (inclusive). Note that if the sign is ommited, "+" is assumed.
String	URN: *urn:oasis:names:tc:ebxml-regrep:DataType:String* Represent alphanumeric character strings.
InternationalString[4]	URN *: urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString* *This slot type is not defined in the ebRIM specification nor the Basic Package. The I15 specification requires this type to allow multilingual value for slots. For implementations,a slot type using this definition has to be added:* <rim:ClassificationNode code="InternationalString" parent="urn:oasis:names:tc:ebxml-regrep:classificationScheme:DataType" lid="urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString" id="urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString" /> The encoding of such a slot is done like this : <rim:SlotList xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0" xmlns:wrs="http://www.opengis.net/cat/wrs/1.0"> <rim:Slot name="http://purl.org/dc/elements/1.1/rights" slotType="urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString"> <wrs:ValueList>

[4] This type should be defined at the upper level of the specification, the ebRIM Application Profile of CS-W. A change request has been published to the OGC.

Slot Types	Definition and representation of the slot values
	<wrs:AnyValue> <rim:InternationalString> <rim:LocalizedString charset="UTF-8" xml:lang="en-US" value="Example to be used without any restriction"/> </rim:InternationalString> </wrs:AnyValue> </wrs:ValueList> </rim:Slot> </rim:SlotList>

7.3 The I15 model

7.3.1 Resource Metadata

7.3.1.1 General Properties of the Resource Metadata

The ResourceMetadata object type[5] is abstract; it can only be instantiated through the derived object types: DatasetMetadata (with the derived types ElementaryDataset and DatasetCollection), ServiceMetadata and Application. Those object types are the heart of the I15 model. Those four ExtrinsicObject types represent the concrete ISO19115(-2)/ISO19119 (ISO19139(-2) encoded) metadata instances for which RepositoryItems are available.

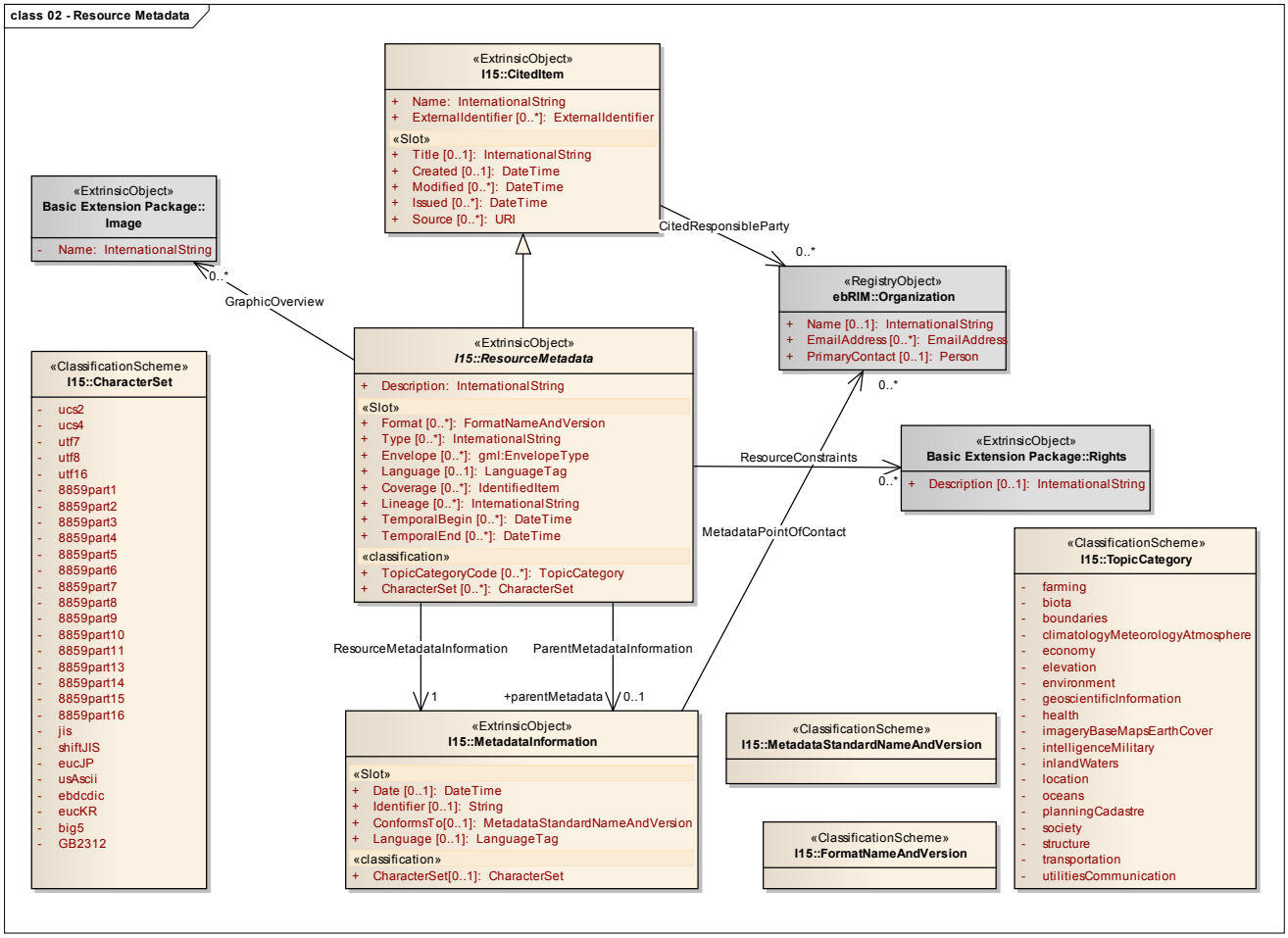


Figure 6 – Resource Metadata

Req / req/core/ResourceMetadata

[5] It shall be noted that each RegistryObject instance has an *objectType* attribute which value SHALL be a reference to a ClassificationNode in the ObjectType ClassificationScheme. The *objectType* for almost all objects in the information model matches the ClassificationNode that corresponds to the name of their class. So the ObjectType ClassificationScheme has to be extended by adding additional ClassificationNodes to support the newly defined classes of a RegistryPackage.

Every I15 metadata resource entry is described by an ExtrinsicObject which is derived from the ExtrinsicObject ResourceMetadata. ResourceMetadata is derived from the CitedItem ExtrinsicObject and has an association to the MetadataInformation ExtrinsicObject. Every I15 catalogue SHALL support the slots, datatypes, classifications related to the ExtrinsicObjects ResourceMetadata and MetadataInformation and the association between them.

7.3.2 Keyword and Thesaurus information

Keywords related to the resource are handled through classifications of the Resource ExtrinsicObjects by keywordNodes which either belong to one of the default Keyword Classification schemes like *KeywordSchemeUntyped* (which contains all the keywords not defined in a specific thesaurus) or classifications by keywordNodes which belong to a classification Scheme associated to a thesaurus..

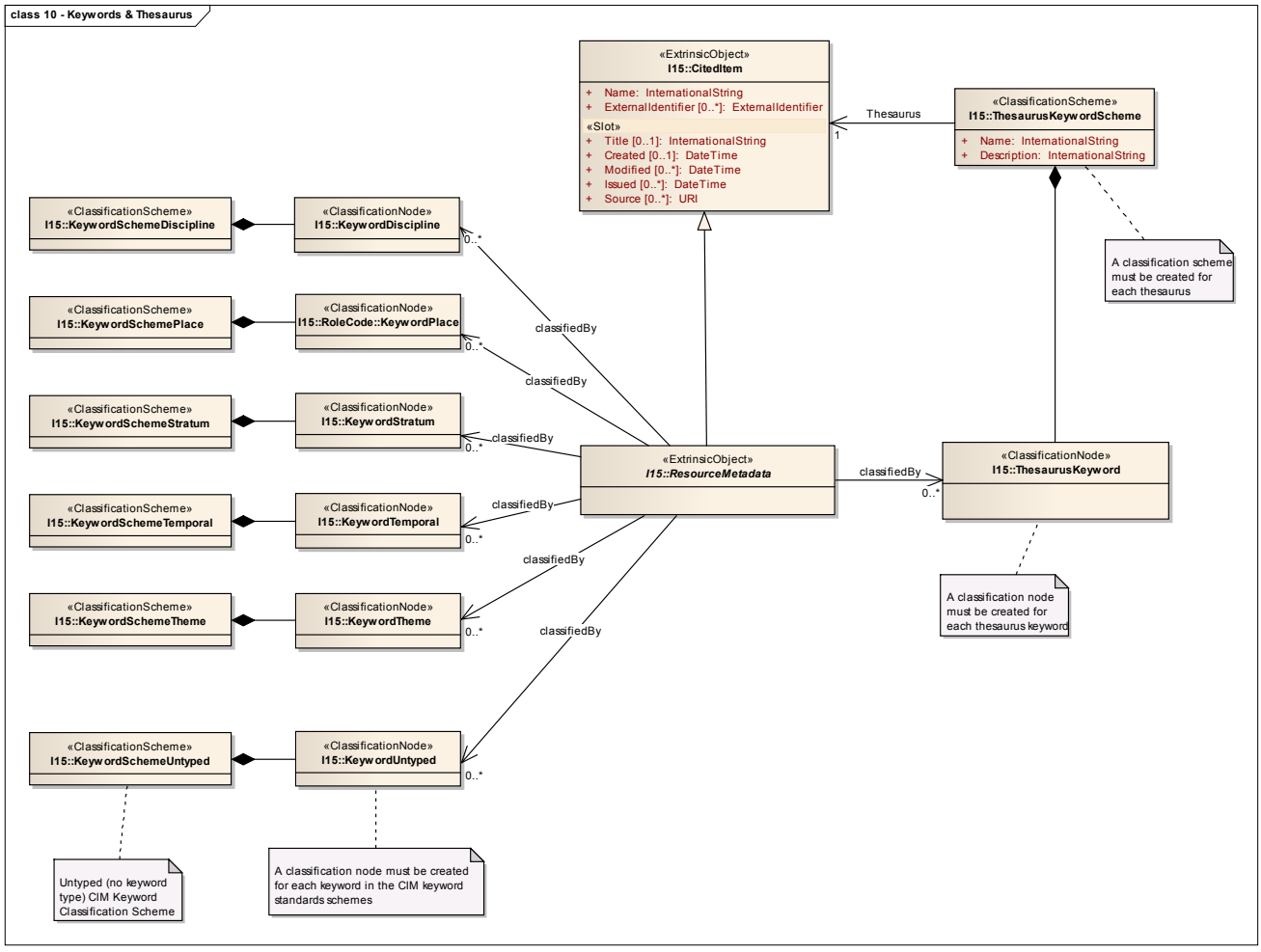


Figure 7 – Keyword and Thesaurus information

Optionally the metadata can be further classified by keywordNodes which belong to one of the predefined Classification Schemes 'KeywordScheme<KeywordType>' (e.g. KeywordSchemeDiscipline) in case that the keyword is additionally classified by an ISO keywordtype.

Req /req/core/KeywordAndThesaurusInformation

Every I15 metadata resource entry may be classified by different kinds of keywords resulting from a list of predefined keyword schemes or domain specific thesaurus based keyword schemes.

7.3.2.1 Data Metadata

The (abstract) data resource metadata (DataMetadata) describes information resources focusing on data content. It typically provides metadata about a dataset (ElementaryDataset) or a dataset collection (DatasetCollection) by which the data metadata is instantiated through derivation.

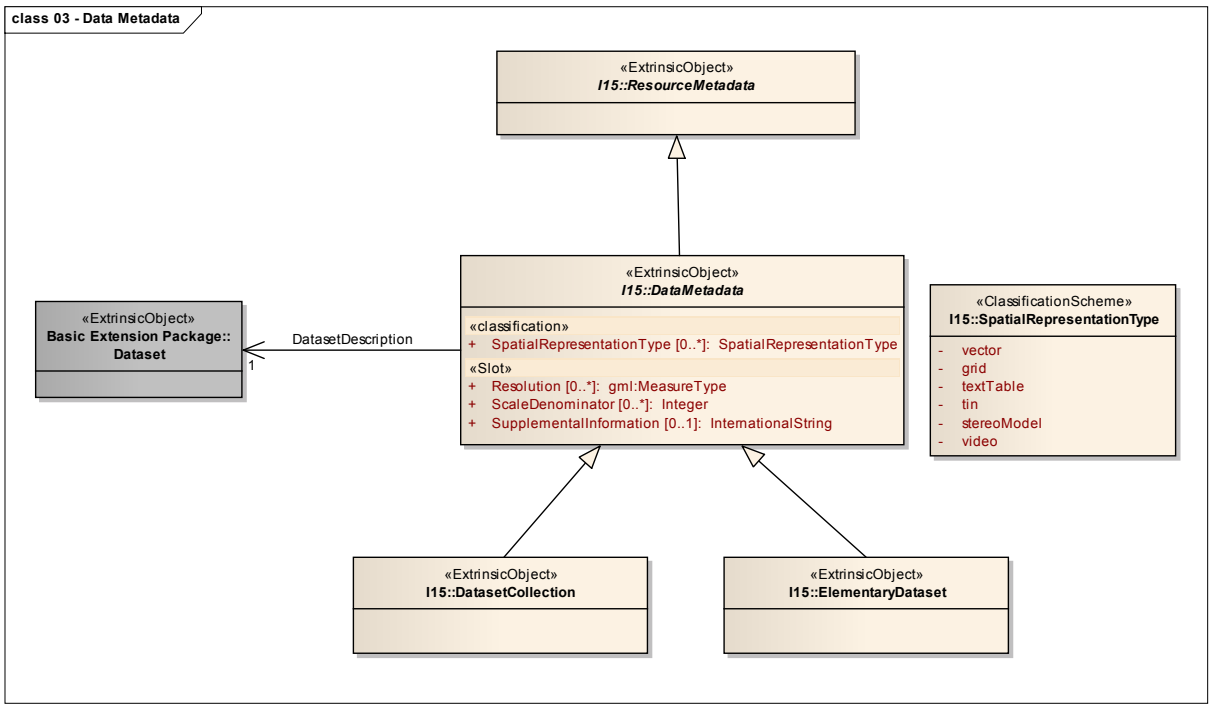


Figure 8 – Data Metadata

Req /req/core/DataMetadata

Every I15 metadata resource entry describing data resource metadata SHALL be defined by an ExtrinsicObject ElementaryDataset (describing a dataset) or a DatasetCollection (describing a dataset collection) which are both derived from the abstract ExtrinsicObject DataMetadata.

Req /req/core/BPDataset

To be aligned with the Basic Extension Package for every ElementaryDataset and DatasetCollection ExtrinsicObject a Dataset ExtrinsicObject (as defined in the Basic

Extension Package) SHALL be created.

7.3.2.2 Service Metadata

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

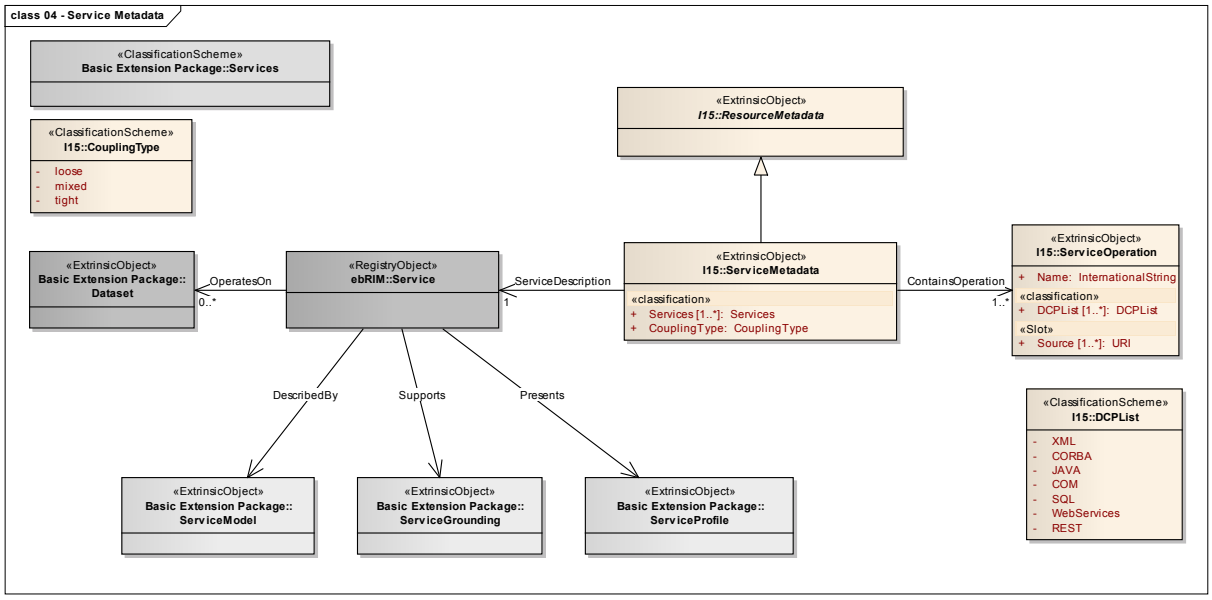


Figure 9 – Service Metadata

Req /req/core/ServiceMetadata

Every I15 metadata resource entry describing service metadata SHALL be represented by an ExtrinsicObject ServiceMetadata, which is derived from the ExtrinsicObject ResourceMetadata having one or more associations to the ServiceOperation ExtrinsicObject. So every I15 catalogue managing service metadata SHALL support the slots, datatypes, classifications related to the ExtrinsicObjects ServiceMetadata and ServiceOperation.

Req /req/core/BPService

To be aligned with the Basic Extension Package for every ServiceMetadata ExtrinsicObject a Service ExtrinsicObject (associated by ServiceDescription) plus the associated ServiceModel, ServiceGrounding and ServiceProfile (as defined in the Basic Extension Package) SHALL be created and the corresponding slots SHALL be filled (considering the specifications of the Basic Extension Package) by using the appropriate information from the ISO19139 instance.

Req /req/core/BPServiceOperatesOn

To be aligned with the Basic Extension Package for every ServiceMetadata ExtrinsicObject having an OperatesOn association to an ElementaryDataset or DatasetCollection ExtrinsicObject an OperatesOn association between the associated Service ExtrinsicObject and the corresponding Dataset ExtrinsicObject (see 11.3.2) as defined in the Basic Extension Package) SHALL be created.

7.3.2.1 Application Metadata

An Application ExtrinsicObject describes information resources focusing on applications.

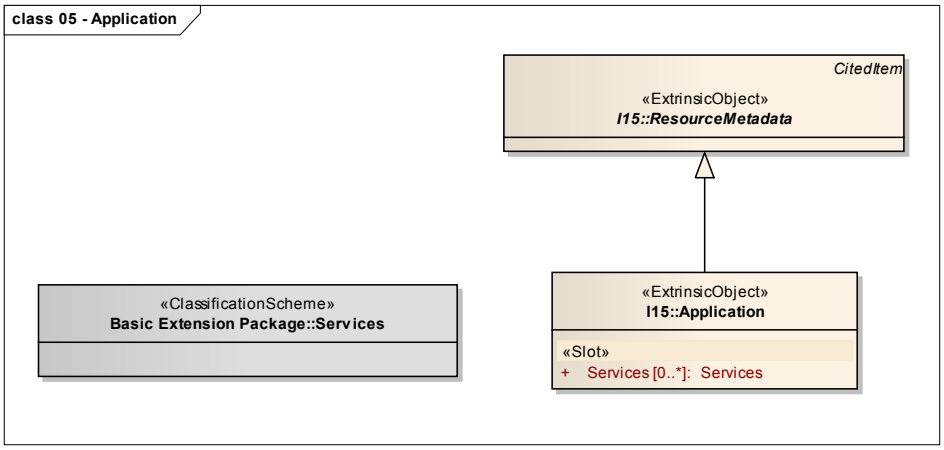


Figure 10 – Application

Req /req/core/Application

Every I15 metadata resource entry describing application metadata SHALL be described by an ExtrinsicObject Application. So every I15 catalogue SHALL support the ExtrinsicObject Application.

7.3.3 Constraint Information

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

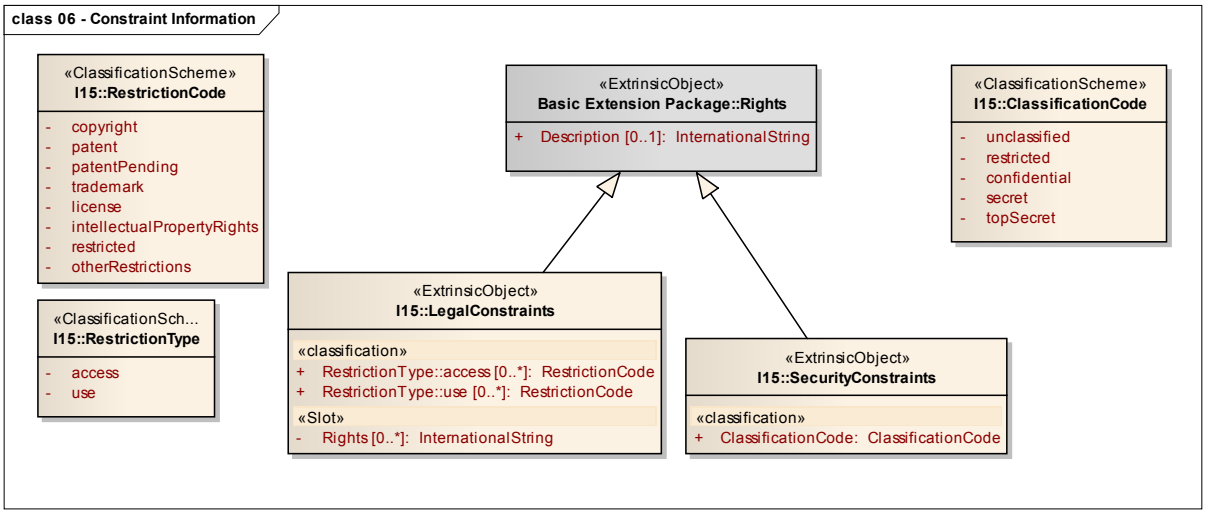


Figure 11 – Constraint Information

Req /req/core/ConstraintInformation

Every I15 metadata resource entry may have different types of constraints. So every I15 catalogue SHALL support the ExtrinsicObject Rights and it´s derived ExtrinsicObjects, it´s slots, classifications and associations.

7.3.4 Browse graphic information

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

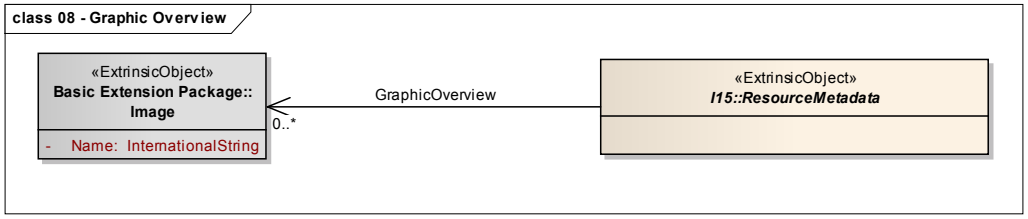


Figure 12 - Browse Graphic information

Req /req/core/BrowseGraphicInformation

Every I15 metadata resource entry may have zero or more Images. So every I15 catalogue SHALL support the association to ExtrinsicObject Image from ResourceMetadata.

7.3.5 Citation information

ISO 19115 and ISO19119 define an important number of cited items. In this extension package, the metadata resources are cited items.

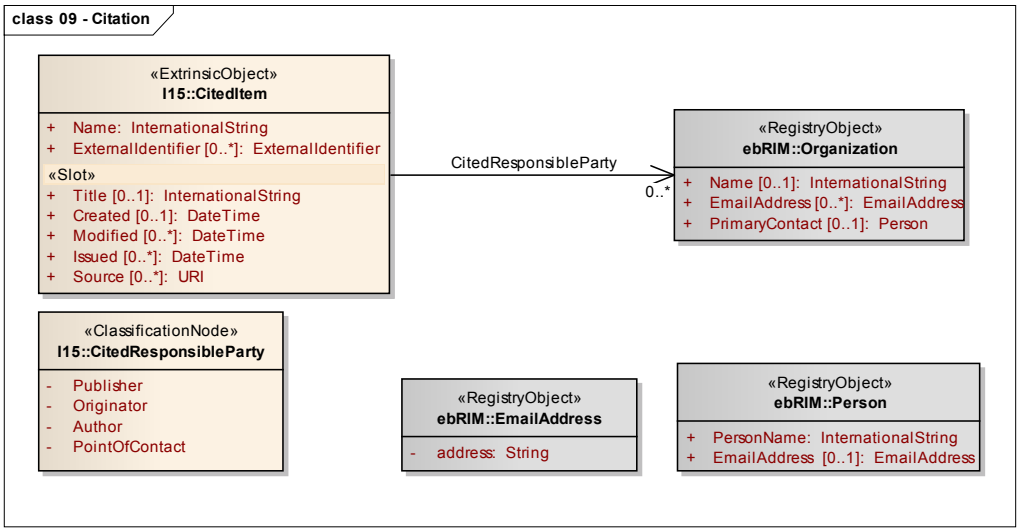


Figure 13 – Citation

Req /req/core/Citation

Every I15 metadata resource entry is described by an ExtrinsicObject which is a cited item (derived from the ExtrinsicObject ResourceMetadata which is itself derived from the ExtrinsicObject CitedItem). A CitedItem may have zero or more associations to an Organization RegistryObject which is classified by a CitedResponsibleParty. So every I15 catalogue SHALL support the slots and associations assigned to the CitedItem ExtrinsicObject.

7.3.6 Metadata Point of Contact

The point of contact for the metadata can be provided through the MetadataPointOfContact association.

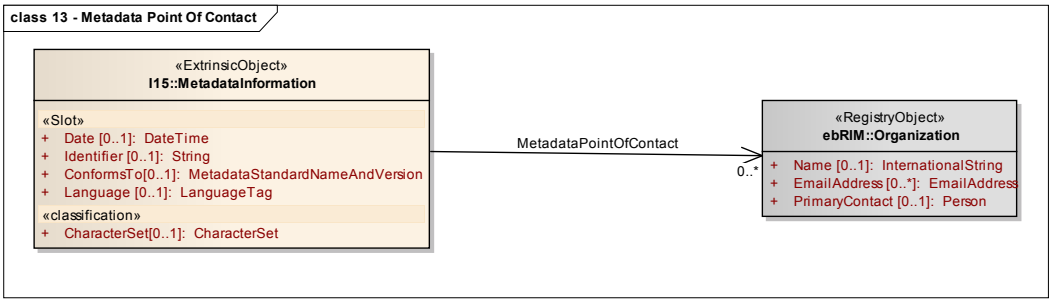


Figure 14 – Metadata Point of Contact

Req /req/core/MetadataPointOfContact

Every I15 metadata resource entry may have an association to a MetadataInformation ExtrinsicObject. The latter one may have one or more associations to an Organization RegistryObject which is classified as MetadataPointOfContact.

7.3.7 QualityConformance Information

Conformance information may be provided as part of the metadata.

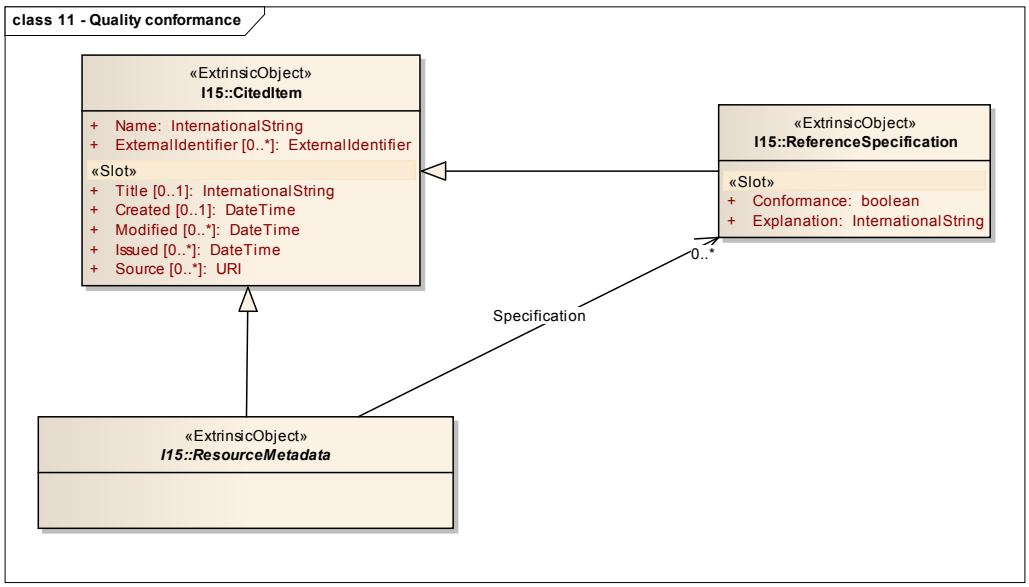


Figure 15 – QualityConformanceInformation

Req /req/core/QualityConformanceInformation

Every I15 metadata resource entry may have an association to a ReferenceSpecification ExtrinsicObject. So every I15 catalogue SHALL support the ReferenceSpecification ExtrinsicObject and it´s slots and the association from ResourceMetadata.

7.3.8 Reference System information

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

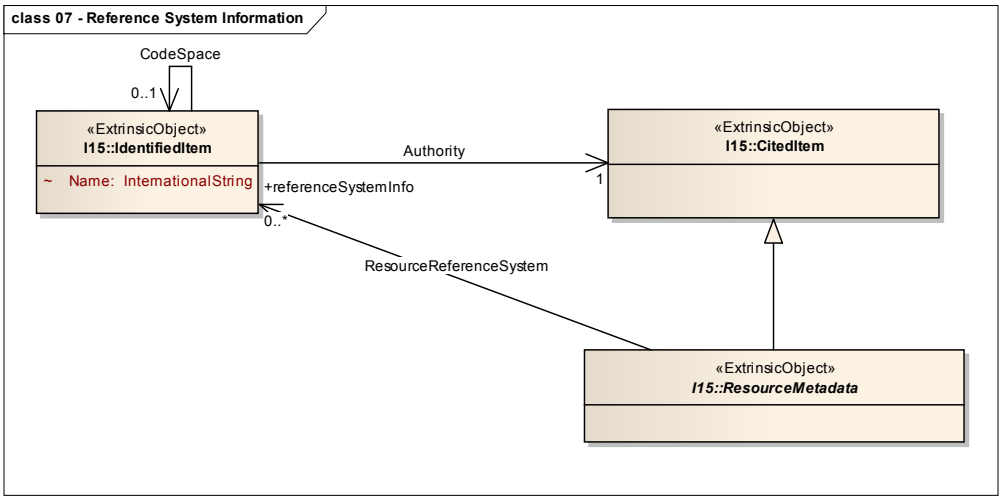


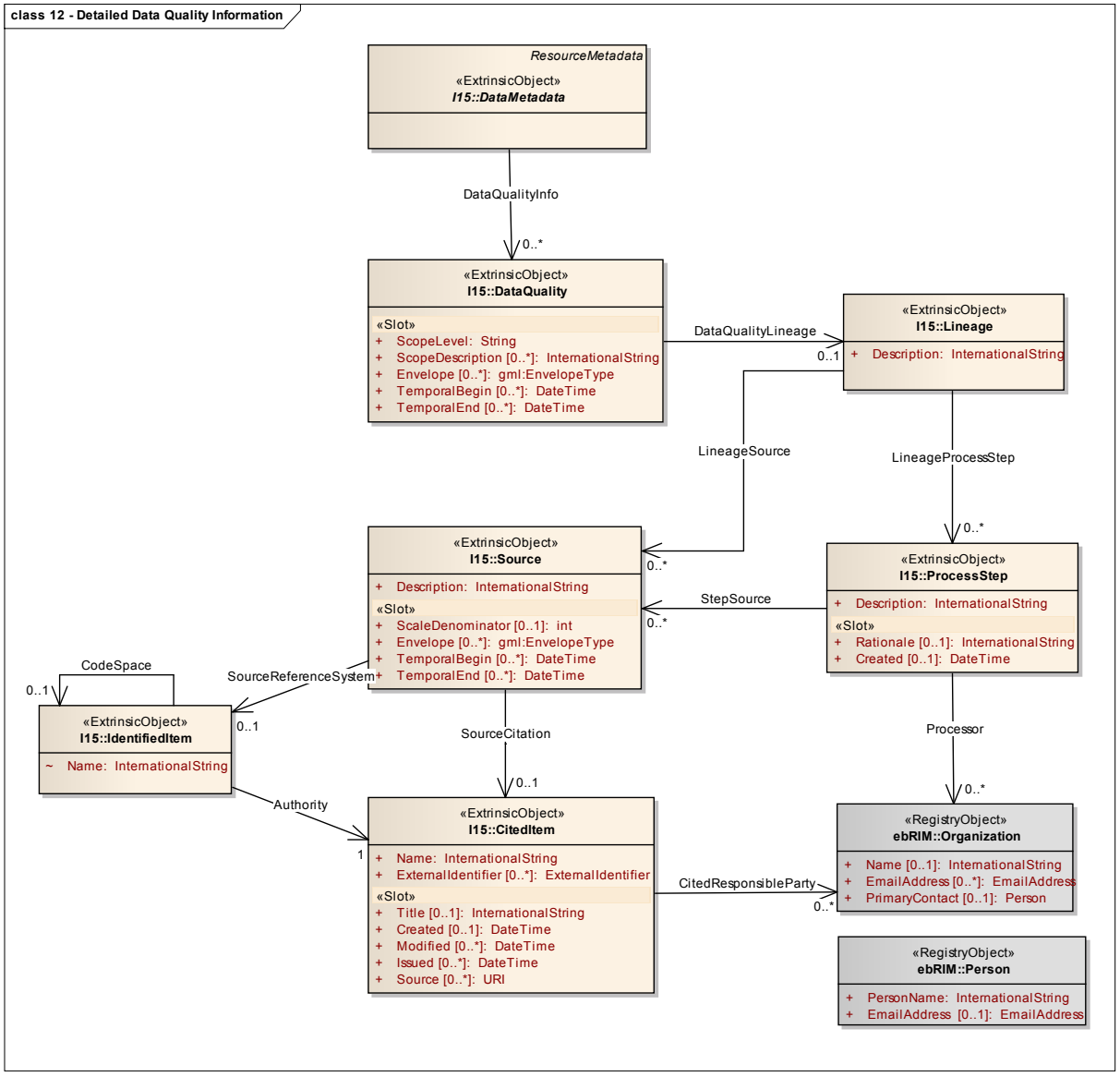
Figure 16 – Reference System Information

Req /req/extension/ReferenceSystemInformation

Every I15 metadata resource entry´s reference system SHALL be described by an ExtrinsicObject IdentifiedItem. So every I15 catalogue supporting the extension conformance class SHALL support the ExtrinsicObject IdentifiedItem, it´s slots and associations.

7.3.9 Quality information

The ExtrinsicObjects, Slots and Associations defined in this section relate to quality information (to support ISO DQ_DataQuality elements)[6].



[6] This was originally defined in OGC OWS9 (document OGC 12-144)

Figure 17 – Quality Information

Req /req/extension/QualityInformation

Every I15 metadata resource entry may have quality information assigned described by the ExtrinsicObjects DataQuality, Lineage, Source, ProcessStep, CitedItem, IdentifiedItem and Organization. So every I15 catalogue managing data metadata with quality information assigned SHALL support the slots, datatypes and associations related to those ExtrinsicObjects.

7.3.10 Acquisition information

The ExtrinsicObjects, Slots and Associations defined in this section relate to acquisition information (to support platform and instrument identifiers)[7].

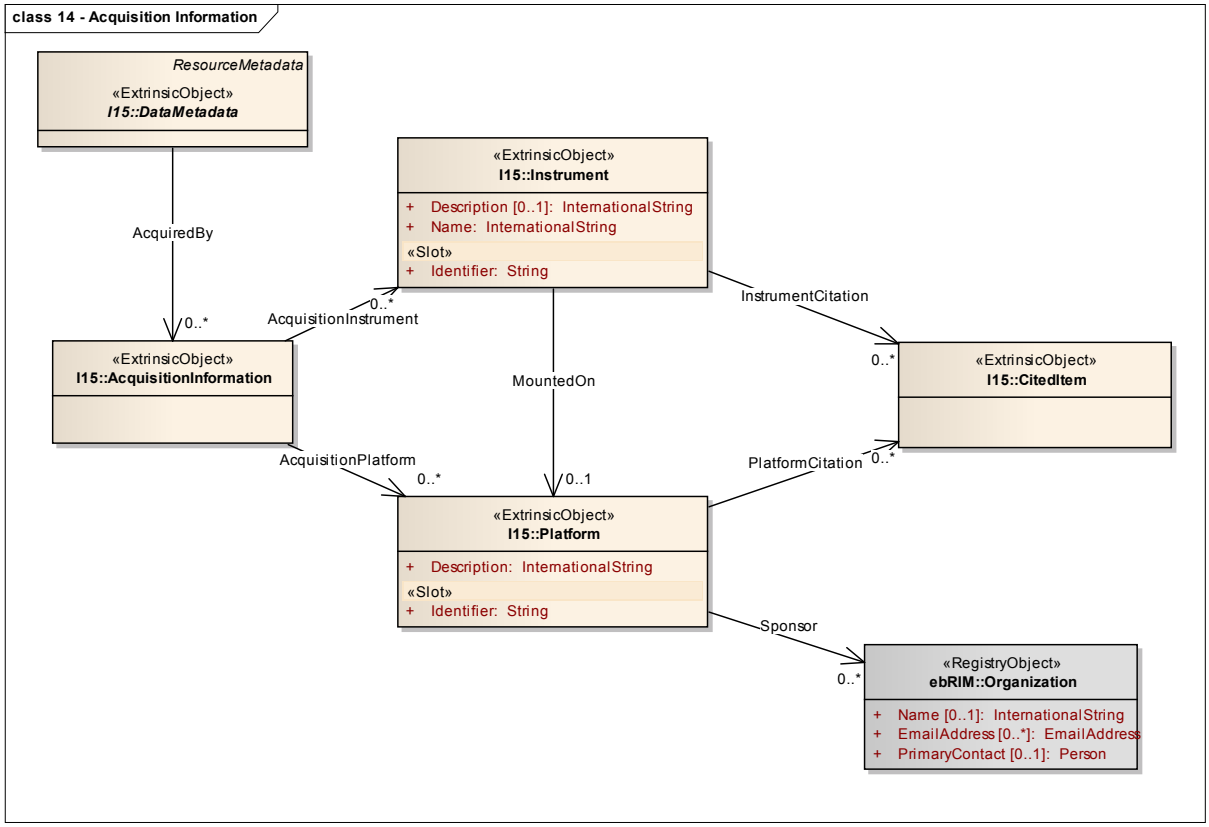


Figure 18 – Acquisition information

Req /req/extension/AcquisitionInformation

Every I15 metadata resource entry may have acquisition information assigned described by the ExtrinsicObjects AcquisitionInformation, Platform, Instrument. So every I15 catalogue managing data metadata with acquisition information assigned SHALL support the slots,

[7] defined in OGC 11-035 and ISO19115-2

datatypes and associations related to those ExtrinsicObjects.

7.3.11 Resource metadata context

This extension package focuses on four types of information resources, dataset, dataset collection, service and application. Those information resources are represented in I15 by the ExtrinsicObjects ElementaryDataset, DatasetCollection, ServiceMetadata and Application (all derived directly (or via the ExtrinsicObject DataMetadata) from the ExtrinsicObject ResourceMetadata. The information resources and their associations represent the context of the resource metadata. Additional to the OperatesOn association between ServiceMetadata and DataMetadata (see Service Metadata) other associations between the ExtrinsicObjects may be established.

The interrelations between the information resources are defined hereafter.

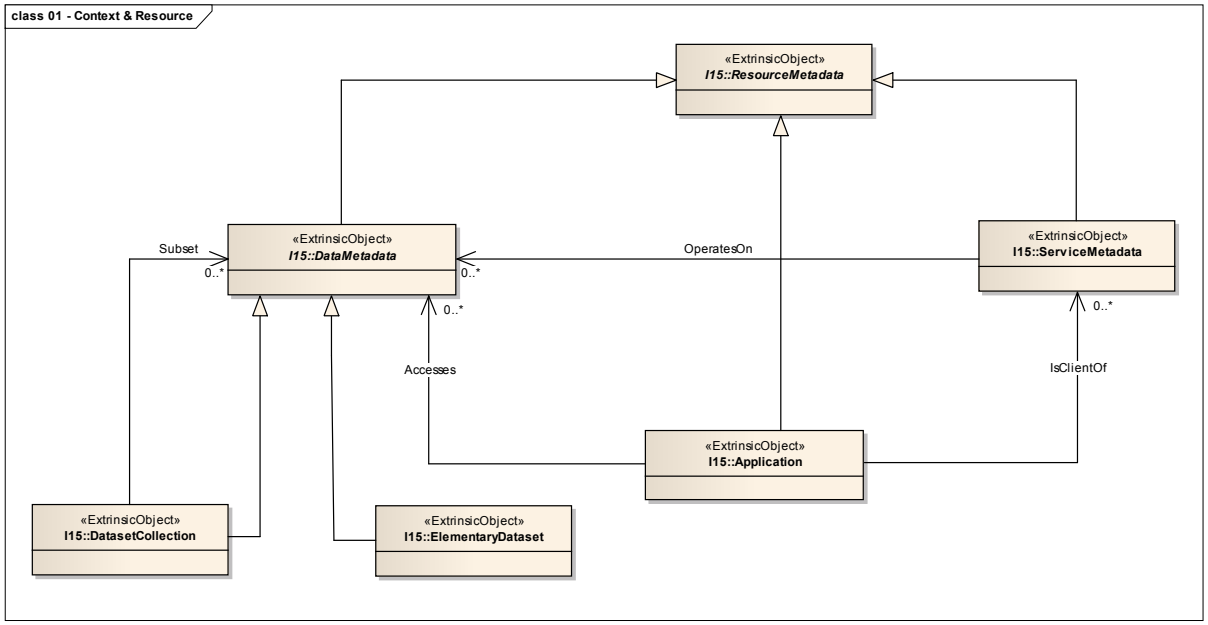


Figure 19 – Resource Metadata Context

Req /req/extension/ResourceMetadataContext

Every I15 information resource entry (represented by one of the ExtrinsicObjects ElementaryDataset, DatasetCollection, ServiceMetadata or Application) may be associated to other information resource entries as shown in Figure 19. Thus an I15 catalogue supporting the extension conformance class SHALL support such associations.

8 Classification schemes

The I15 extension package adds the classification schemes listed in Table 4 to Table 28. Each classification scheme is defined in its own file and is assigned an identifier based on the 'ogc' URN scheme. Within each ClassificationScheme, a set of ClassificationNodes define the values.

8.1 Topic categories

Table 4 – Classification scheme: Topic category

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::TopicCategory
Name	ISO 19115 Topic Categories
Description	Defines a classification of application domains to which spatial data are related
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	true

Table 5 – Classification Nodes: Topic category

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
inlandWaters	inland water features, drainage systems and their characteristics
location	positional information and services
pceans	features and characteristics of salt water bodies (excluding inland waters)

Code	Description
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

8.2 Cited Responsible Party

Table 6 – Classification scheme: Cited Responsible Party

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CitedResponsibleParty
Name	ISO 19115 Cited Responsible Party Types
Description	Name and position information for an individual or organization that is responsible for the resource.
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 7 – Classification Nodes: Cited Responsible Party

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

8.3 Spatial representations

Table 8 – Classification scheme: Spatial representations

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::SpatialRepresentation
Name	ISO 19115 Spatial Representation Types
Description	Method used to spatially represent geographic information
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 9 – Classification Nodes: Spatial representations

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

8.4 Character sets

Table 10 – Classification scheme: Character sets

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet
Name	Character Sets
Description	Defines a classification of Character Sets
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 11 – Classification Nodes: Character sets

Code	Description
ucs2	16-bit fixed size Universal Character Set, based on ISO/IEC 10646

Code	Description
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
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	Korean41e code set used for electronic transmission

Code	Description
shiftJIS	Korean42e code set used on MS-DOS based machines
eucJP	Korean42e code set used on UNIX based machines
usAscii	united states ASCII code set (ISO 646 US)
ebdcdic	ibm mainframe code set
eucKR	Korean code set
big5	traditional Chinese code set used in Taiwan, Hong Kong of China and other areas
GB2312	simplified Chinese code set

8.5 KeywordSchemeUntyped

Table 12 – Classification scheme: KeywordSchemeUntyped

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeUntyped
Name	KeywordSchemeUntyped
Description	Classification of keywords to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values (which are not assigned to a thesaurus, represented by a dynamically established ThesaurusKeywordScheme).

8.6 KeywordSchemeDiscipline

Table 13 – Classification scheme: KeywordSchemeDiscipline

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeDiscipline
Name	KeywordSchemeDiscipline
Description	Classification of keywords (of keywordtype “discipline”) to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values which have the keywordtype “discipline” associated.

8.7 KeywordSchemePlace

Table 14 – Classification scheme: KeywordSchemePlace

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace
Name	KeywordSchemePlace
Description	Classification of keywords (of keywordtype “place”) to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values which have the keywordtype “place” associated.

8.8 KeywordSchemeStratum

Table 15 – Classification scheme: KeywordSchemeStratum

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeStratum
Name	KeywordSchemeStratum
Description	Classification of keywords (of keywordtype “stratum”) to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values which have the keywordtype “stratum” associated.

8.9 KeywordSchemeTemporal

Table 16 – Classification scheme: KeywordSchemeTemporal

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeTemporal
Name	KeywordSchemeTemporal
Description	Classification of keywords (of keywordtype “temporal”) to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values which have the keywordtype “temporal” associated.

8.10 KeywordSchemeTheme

Table 17 – Classification scheme: KeywordSchemeTheme

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeTheme
Name	KeywordSchemeTheme
Description	Classification of keywords (of keywordtype “theme”) to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

This ClassificationScheme is dynamically filled with ClassificationNodes representing the keywords values which have the keywordtype “theme” associated.

8.11 Restriction codes

Table 18– Classification scheme: Restriction codes

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionCode
Name	ISO 19115 Restriction Codes
Description	Defines a classification of use and access constraints
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 19– Classification Nodes: Restriction codes

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

8.12 Restriction types

Table 20 – Classification scheme: Restriction types

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionType
Name	ISO 19115 Restriction Types
Description	Defines a classification for the type of restriction
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 21 – Classification Nodes: Restriction types

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

8.13 Classification codes

Table 22 – Classification scheme: Classification codes

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::ClassificationCode
Name	ISO 19115 Classification Codes
Description	Defines a classification of handling restrictions on the dataset
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 23 – Classification Nodes: Classification codes

Code	Description
unclassified	available for general disclosure
restricted	not for general disclosure
confidential	available for someone who can be entrusted with information

Code	Description
secret	kept or meant to be kept private, unknown, or hidden from all but a select group of people
topSecret	of the highest secrecy

8.14 DCPList

Table 24 – Classification scheme: DCPList

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::DCPList
Name	ISO 19115 DCP List
Description	Defines a classification of DCP (Distributed Computing Platforms)
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 25 – Classification Nodes: DCPList

Code	Description
XML[8]	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[9]	web service-based Distributed Computing Platform
REST[10]	REST based Distributed Computing Platform

[8] Should be used for HTTP/POST/XML based access.

[9] Should be used for HTTP/POST/XML/SOAP based access.

[10] This was added (compared to ISO19119), to be used when this specific information could be derived from the metadata.

8.15 Coupling types

Table 26 – Classification scheme: Coupling types

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CouplingType
Name	ISO 19115 Coupling Types
Description	Defines a classification for types of coupling between service and dataset
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

Table 27 – Classification Nodes: Coupling types

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

8.16 Metadata standard name and version

Table 28 – Classification scheme: Metadata standard name and version

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::MetadataStandardNameAndVersion
Name	Metadata Standard Name and Version
Description	Two-level classification of Metadata Standard Name and Version to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

8.17 Format name and version

Table 29 – Classification scheme: Format name and version

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::FormatNameAndVersion
Name	Format Name and Version
Description	Two-level classification of Format Name and Version to be expanded by a user community
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	True

8.18 Services taxonomy

A taxonomy of general geographical services is defined in Clause 8.3 of ISO 19119. The properties of the classification scheme are summarized in table 2 of OGC 07-144r4. OGC 07-144r4 further introduced the following OGC service types:

- urn:ogc:serviceType:WebFeatureService:1.1
- urn:ogc:serviceType:WebMapService:1.3.0
- urn:ogc:serviceType:WebCoverageService:1.1.2

Req /req/core/ServicesTaxonomy

For the I15 this taxonomy has to be expanded dynamically to include all the valid OGC serviceType/serviceTypeVersion combinations (using the pattern: *"urn:ogc:serviceType:"*<*ServiceType*>*":"*<*ServiceTypeVersion*>) which are needed at the time of implementation.

9 Classification nodes

9.1 Objects types

The object types slots defined in clause 8 of [07-144r4] are applicable (as far as a reasonable mapping is available).

The I15 extension package adds the extrinsic object types listed in Table 30. 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:ogc:def:ebRIM-ObjectType:OGC-I15::

Table 30 — New extrinsic object types included in the I15

Object type ID	Description
*:Application	Information resource that is accessible over the Internet and does not fit into the category of services. **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata
*:DatasetCollection	A collection of datasets sharing the same product specification. It may more generally be understood as a more general aggregation of datasets (See DS_Aggregate class of ISO 19115) **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata
*:ElementaryDataset	A dataset not having any subset. **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata
*:ResourceMetadata	Metadata about a repository resource **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:DataMetadata	Metadata about a repository resource focusing on the data content (typically a Dataset or DatasetCollection) **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata
*:ServiceMetadata	Metadata about a repository resource focusing on a Service or an Application Interface **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata
*: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:ogc:def:ebRIM-ObjectType:OGC:Rights
*:SecurityConstraints	Handling restrictions imposed on the resource or metadata for national security or similar security concerns **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC: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
*:ReferenceSpecification	Information about the conformance (true/false) to a specification which is defined by title and date. **Inherits from:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:DataQuality	Quality information for the data specified by a data quality scope.
*:Lineage	Information about the events or source data used in constructing the data specified by the scope or lack of knowledge about lineage
*:ProcessStep	Information about an event or transformation in the life of a dataset including the process used to maintain the dataset
*:Source	Information about the source data used in creating the data specified by the scope
*.AcquisitionInformation	details specific to the acquisition of imagery and gridded data.
*.Platform	designation of the platform used to acquire the dataset
*.Instrument	designations for the measuring instruments

9.2 Association types

The association types defined in clause 8 of [07-144r4] are applicable (as far as a reasonable mapping is available).

The I15 extension package adds the association types listed in Table 31. 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:ogc:def:ebRIM-AssociationType:OGC-I15::

Table 31 — New association types included in the I15

Association type ID	Description
*:IsClientOf	Associates a Application with a set of ServiceMetadata **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Application **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceMetadata
*:Accesses	Associates an Application with a set of DataMetadata. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Application **Target object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata*
*:Subset	Associates DatasetCollection with a set of ExtrinsicObjects derived from DataMetadata **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DatasetCollection **Target object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15:: DataMetadata*
*:ServiceDescription	Associates a description of Service Metadata with a Service **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceMetadata **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC::Service
*:DatasetDescription	Associates a description of Data Metadata with a Dataset **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::*DataMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC::Dataset
*:ResourceMetadataInformation	Associates a Resource Metadata with its Metadata Information **Source object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::MetadataInformation
*:ParentMetadataInformation	Associates Resource Metadata with the Metadata Information of an information resource which is a superset of the Resource Metadata **Source object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::MetadataInformation

Association type ID	Description
*:ResourceReferenceSystem	Associates Resource Metadata with a set of IdentifiedItem corresponding to the description of reference systems **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::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:ogc:def:ebRIM-ObjectType:OGC-I15::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:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceMetadata **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceOperation
*:ResourceConstraints	Provides information about constraints which apply to the resource(s) **Source object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC:Rights
*:CodeSpace	Provides the identifier of the code space to which an IdentifiedItem pertains **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::IdentifiedItem **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::IdentifiedItem
*:Authority	Provides the CitedItem corresponding to the Authority responsible for the IdentifiedItem **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::IdentifiedItem **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::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:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceMetadata **Target object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata*
*:Specification	Provides information about the specification conformance of the metadata **Source object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::ResourceMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ReferenceSpecification
*:MetadataPointOfContact	Provides information about the Name and email address for an organization that is responsible for the metadata resource. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::MetadataInformation **Target object type:** urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization

Association type ID	Description
*:Thesaurus	Provides information about the Citation of a ThesaursKeywordScheme. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ThesaurusKeywordScheme **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:DataQualityInfo	Provides information about the quality for the data specified by a data quality scope **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataQuality
*:LineageProcessStep	Provides information about an event or transformation in the life of a dataset including the process used to maintain the dataset **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Lineage **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ProcessStep
*:LineageSource	Provides information about the source data used in creating the data specified by the scope **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Lineage **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Source
*: DataQualityLineage	Provides information about the events or source data used in constructing the data specified by the scope or lack of knowledge about lineage **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataQualiy **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Lineage
*:StepSource	Provides information about the source data used in creating the data specified by the scope. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ProcessStep **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Source
*:SourceCitation	Provides information about the recommended reference to be used for the source data. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Source **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:Processor	Provides information about the identification of, and means of communication with, person(s) and organization(s) associated with the process step. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::ProcessStep **Target object type:** urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization
*:SourceReferenceSystem	Spatial reference system used by the source data. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Source **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::IdentifiedItem

Association type ID	Description
*: AcquiredBy	Provides information about the details specific to the acquisition of imagery and gridded data. **Source object type:** *urn:ogc:def:ebRIM-ObjectType:OGC-I15::DataMetadata* **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::AcquisitionInformation
*:AcquisitionPlatform	Provides information about the designation of the platform used to acquire the dataset. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15:: AcquisitionInformation **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Platform
*:AcquisitionInstrument	Provides information about the designations for the measuring instruments. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15:: AcquisitionInformation **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Instrument
*:PlatformCitation	Source where information about the platform is described. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Platform **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:InstrumentCitation	Provides information about the complete citation of the instrument. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Instrument **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem
*:MountedOn	Platform on which the instrument is mounted. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Instrument **Target object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Platform
*:Sponsor	Provides information about the organization responsible for building, launch, or operation of the platform. **Source object type:** urn:ogc:def:ebRIM-ObjectType:OGC-I15::Platform **Target object type:** urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization

10 Normative I15 Model

10.1 Overview

10.1.1 Introduction

This data dictionary describes the characteristics of the I15 UML model. 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.

10.1.2 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.

10.1.2.1 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: ResourceMetadata.title).

10.1.2.2 Definition

The class or attribute description.

10.1.2.3 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.

10.1.2.4 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).

10.1.2.5 Stereotype

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

10.1.2.6 Data type

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

10.2 I15 Slots

The slots defined in clause 9 of [07-144r4] are applicable (as far as a reasonable mapping is available).

The I15 extension package adds the following slots:

Table 32 — Slot: Resolution

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Resolution
Definition	Ground sample distance which provides a general understanding of the density of spatial data in the dataset
Source	
Slot type	urn:ogc:def:dataType:gml:MeasureType
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 33 — Slot: Scale Denominator

Name	urn:ogc:def:ebRIM-slot:OGC-I15::ScaleDenominator
Definition	Level of detail expressed as the scale of a comparable hardcopy map or chart
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:Integer
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 34 – Slot: Conformance

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Conformance
Definition	Result
Source	Indication of the conformance result (fail/pass)

Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:Boolean

Table 35 – Slot: Envelope

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Envelope[11]
Definition	Bounding Envelope of the resource
Source	
Slot type	urn:ogc:def:dataType:ISO-19107:2003:GM_Envelope
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 36 – Slot: Lineage

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Lineage
Definition	General explanation of the data producer's knowledge about the lineage of the resource
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 37 – Slot: SupplementalInformation

Name	urn:ogc:def:ebRIM-slot:OGC-I15::SupplementalInformation
Definition	Other descriptive information about the dataset.
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 38 – Slot: Explanation

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Explanation
Definition	Explanation of the meaning of conformance for this result
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

[11] Although a slot "spatial" is already defined in the Basic Package (BP) it is redefined here for clarity. Reasons are it´s weak definition in the BP (just of type "urn:oasis:names:tc:ebxml-regrep:DataType:ObjectRef") and the common usage of "Envelope".

Table 39 – Slot: ScopeLevel

Name	urn:ogc:def:ebRIM-slot:OGC-I15::ScopeLevel
Definition	The level to which the data quality information applies
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 40 – Slot: ScopeDescription

Name	urn:ogc:def:ebRIM-slot:OGC-I15::ScopeDescription
Definition	Description of the level (ScopeLevel) to which the data quality information applies
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 41 – Slot: Rationale

Name	urn:ogc:def:ebRIM-slot:OGC-I15::Rationale
Definition	Requirement or purpose for the process step
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 42 – Slot: TemporalBegin

Name	urn:ogc:def:ebRIM-slot:OGC-I15::TemporalBegin
Definition	DateTime of the begin of the temporal coverage of the object.
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:DateTime
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 43 – Slot: TemporalEnd[12]

Name	urn:ogc:def:ebRIM-slot:OGC-I15::TemporalEnd

[12] To perform a temporal filter on a temporal range, the PropertyIsGreaterThanOrEqualTo and PropertyIsLessThanOrEqualTo operator should be used. The query pattern to get all the requested objects overlapping a temporal range [t1, t2] is "TemporalBegin <= t2 and TemporalEnd >= t1". This pattern allows to get the objects inside the temporal range and overlapping the temporal range.

Definition	DateTime of the end of the temporal coverage of the object.
Source	
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:DateTime
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 44 – Slot: Type

Name	http://purl.org/dc/terms/type
Definition	name of the hierarchy levels for which the metadata is provided
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#type>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 45 – Slot: Identifier

Name	http://purl.org/dc/elements/1.1/identifier
Definition	An unambiguous reference to the resource within a given context.
Source	DCMI Metadata terms < http://dublincore.org/documents/dcmi-terms/#elements-identifier>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 46 – Slot: ConformsTo

Name	http://purl.org/dc/terms/conformsTo
Definition	An established standard to which the described resource conforms.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#terms-conformsTo >
Slot type	urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::MetadataStandardNameAndVersion
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 47 – Slot: Title

Name	http://purl.org/dc/terms/title
Definition	A name given to the resource
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#terms-title>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 48 – Slot: Created

Name	http://purl.org/dc/terms/created
Definition	Date of creation of the resource.
Source	DCMI Metadata terms < http://dublincore.org/documents/dcmi-terms/#terms-created>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:DateTime
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 49 – Slot: Issued

Name	http://purl.org/dc/terms/issued
Definition	Date of formal issuance (e.g., publication) of the resource.
Source	DCMI Metadata terms < http://dublincore.org/documents/dcmi-terms/#terms-issued>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:DateTime
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

10.3 Data dictionary

Note: If elements from ISO 19115 / ISO 19115-2 / ISO 19119 are ignored in the I15 information model those are not included in the data dictionary.

10.3.1 Resource Metadata

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object[13]	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	<<Description>> (core RIM object property, not Slot)	InternationalString	This is the **description** attribute of any RegistryObject.
	ThesaurusKeyword	provides thesaurus based keywords	O	N	<<classification>>	ThesaurusKeywordScheme	
	KeywordUntyped	provides untyped (no category)	O	N	<<classification>>	KeywordSchemeUntyped	
	KeywordDiscipline	provides Discipline keywords	O	N	<<classification>>	KeywordSchemeDiscipline	
	KeywordPlace	provides Place keywords	O	N	<<classification>>	KeywordSchemePlace	

	KeywordStratum	provides Stratum keywords	O	N	<<classification>>	KeywordSchemeStratum	
	KeywordTheme	provides Theme keywords	O	N	<<classification>>	KeywordSchemeTheme	
	KeywordTemporal	provides Temporal keywords	O	N	<<classification>>	KeywordSchemeTemporal	
	Lineage	general explanation of the data producer's knowledge about the lineage of a dataset	O	N	<<slot>>	InternationalString	
	Format	name and version of the data transfer format(s)	O	N	<<slot>>	FormatNameAndVersion	Use of the Format slot (http://purl.org/dc/elements/1.1/format) defined in the Basic Package
	Type	name of the hierarchy levels for which the metadata is provided	O	N	<<slot>>	InternationalString	
	Language	language(s) used within the dataset	O	N	<<slot>>	LanguageTag	Language slot defined in the Basic Package Language basic type defined in ebRIM
	Envelope	Bounding Envelope of the resource	O	N	<<slot>>	GM_Envelope for a bounding envelope	GM_Envelope data type defined in the Basic Package
	Coverage[14]	Geographic extent of the resource, defined by geographicIdentifiers	O	N	<<slot>>	InternationalString	Coverage slot defined in the Basic Package

[14] In ResourceMetadata defined because defined in MD_Data- and –ServiceIdentification (ISO19119).

	TemporalBegin	Temporal extent (begin) of the resource	O	N	<<slot>>	DateTime	
	TemporalEnd	Temporal extent (end) of the resource	O	N	<<slot>>	DateTime	
	TopicCategory	main theme(s) of the dataset	M	N	<<classification>>	TopicCategory	Corresponds to MD_TopicCategoryCode
	CharacterSet	full name of the character coding standard used for the data set	O	N	<<classification>>	CharacterSet	Corresponds to MD_CharacterSetCode
	Association type: ResourceReferenceSystem	description of the spatial reference systems applicable to the related resources	O	N		IdentifiedItem	See *: ResourceReferenceSystem in Table 31
	Association type: ResourceMetadataInformation	provides information on the metadata record	M	1		MetadataInformation	See *:ResourceMetadataInformation in Table 31
	Association type: ParentMetadataInformation	provides information on the metadata record to which this metadata record is a subset	O	1		MetadataInformation	See *:ParentMetadataInformation in Table 31
	Association type: ResourceConstraints	provides information about constraints which apply to the resource(s)	O	N		Rights	See *:ResourceConstraints in Table 31
	Association type: GraphicOverview	Graphic that illustrates the resource	O	N		Image	Use of the Image Object Type (urn:ogc:def:ebRIM-ObjectType:OGC:Image) and GraphicOverview association (urn:ogc:def:ebRIM-AssociationType:OGC:GraphicOverview) defined in the Basic Package
	Association type:	Provides information about the conformance of the metadata to a	O	N		ReferenceSpecification	

	Specification	specification					
	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	O	1	<<slot>>	DateTime	Date slot defined in the Basic Package If the date is not known, the date element is set to 0.
	Identifier	unique identifier for this metadata record	O	1	<<slot>>	String	http://purl.org/dc/elements/1.1/identifier (Dublin Core)
	Language	language used for documenting metadata	O	1	<<slot>>	LanguageTag	Language slot defined in the Basic Package Language basic type defined in ebRIM
	CharacterSet	full name of the character coding standard used for the metadata set	O	1	<<classification>>	CharacterSet	Corresponds to MD_CharacterSetCode
	ConformsTo	name and version (profile) of the metadata standard used	O	1	<<slot>>	MetadataStandardNameAndVersion	http://purl.org/dc/terms/conformsTo (Dublin Core)
	Association type: MetadataPointOfContact	Provides information about the point of contact of the metadata	O	N		Organization	

10.3.2 Data 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>>	SpatialRepresentationType	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>>	gml:MeasureType	Corresponds to spatialResolution.MD_Resolution.distance
	ScaleDenominator	level of detail expressed as the scale of a comparable hardcopy map or chart	O	N	<<slot>>	Integer	Corresponds to spatialResolution.MD_Resolution.equivalentScale
	SupplementalInformation	Other descriptive information about the dataset.	O	1	<<slot>>	InternationalString	
	Association type: AcquiredBy	designations for the measuring instruments, the platform carrying them, and the mission to which the data contributes	O	N	<<Association>>	AcquisitionInformation	
	Association type: DataQualityInfo	Provides information about the quality for the data specified by a data quality scope	O	N	<<Association>>	DataQuality	

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Association type: DatasetDescription	Associates a description of DataMetadata with a Dataset	M	1		Dataset	Association to a Dataset Object defined in the Basic Package
	ElementaryDataset	specific metadata about an elementary dataset	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of DataMetadata	
	DatasetCollection	specific metadata about a dataset collection	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of DataMetadata	
	Associationtype: Subset	DataMetadata of which the dataset collection is a superset	O	N		*DataMetadata*	

10.3.3 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	

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Services	a service type name and version from a registry of services.	M	N	<<classification>>	Services	Classification extended from urn:ogc:def:ebRIM-ClassificationScheme: OGC-CSW-ebRIM:ISO-19119:2005:Services defined in the Basic Package to handle service versions. See also 8 (8.1.8).
	CouplingType	type of coupling with the Dataset	M	1	<<classification>>	CouplingType	
	Association type: ContainsOperation	Provides information about the operations that the service comprises	M	N		ServiceOperation	
	Association type: ServiceDescription	Associates a description of ServiceMetadata with a Service	O	1		Service	Association to a Service Object defined in the Basic Package
	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	
	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	<<Name>> (core RIM object property, not Slot)	InternationalString	
	DCPList	Distributed Computing Platforms on which the operation has been implemented	M	N	<<classification>>	DCPList	Corresponds to DCPList

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Source	Handle for accessing the service interface	M	N	<<slot>>	URI	Source slot defined in the Basic Package

10.3.4 Application

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	Application	specific metadata about a repository application	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>		
	Services	a service (application) type name and version from a registry of services.	M	N	<<classification>>	Services	Classification extended from urn:ogc:def:ebRIM-ClassificationScheme: OGC-CSW-ebRIM:ISO-19119:2005:Services defined in the Basic Package to handle service versions. See also 8 (8.1.8).
	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	

10.3.5 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
	Description	limitation affecting the fitness for use of the resource or metadata.	O	1	<<Description>> (core RIM object property, not Slot)	InternationalString	
	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)	
	AccessConstraint	Access constraints	O	N	<<classification>>	RestrictionCode (the classification is classified with RestrictionType “access”)	
	UseConstraint	Use constraints	O	N	<<classification>>	RestrictionCode (the classification is classified with RestrictionType “use”)	
	Rights	other restrictions and legal prerequisites for accessing and using the resource or metadata	O	N	<<slot>>	InternationalString	Rights slot defined in the Basic Package
	SecurityConstraints	handling restrictions imposed on the resource or metadata for national security or similar security	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialized Object (Rights)	

		concerns					
	ClassificationCode	name of the handling restrictions on the resource or metadata	M	1	<<classification>>	ClassificationCode	Corresponds to MD_ClassificationCode

10.3.6 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	<<Name>> (core RIM object property, not Slot)	InternationalString	
	Association type: CodeSpace	Item identifier code space	O	1		IdentifiedItem	
	Association type: Authority	Authority in charge of the management of the identified item	M	1		CitedItem	

10.3.7 Citation information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment

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	<<ExtrinsicObject>>	Specialisation of ExtrinsicObject	
	Name	name by which the cited resource is known	M	1	<<Name>> (core RIM object property, not Slot)	InternationalString	Maximum 1024 characters for an InternationString in ebRIM.
	externalIdentifier	value uniquely identifying the resource within a namespace	O	N	<<ExternalIdentifier>> (core RIM object, not Slot)	ExternalIdentifier	ExternalIdentifier is a core RegistryObject in ebRIM
	Title	short name or other language name of the dataset	O	1	<<slot>>	InternationalString	http://purl.org/dc/terms/title (Dublin Core)
	Source	information about online sources from which the resource can be obtained	O	N	<<slot>>	URI	Use of the Source slot (http://purl.org/dc/terms/source) defined in 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.
	Modified	date of revision of the resource	O	N	<<slot>>	DateTime	Modified slot defined in the Basic Package (http://purl.org/dc/terms/modified) 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
	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	<<Association>>	Organization (Organization is a core RegistryObject in ebRIM)	The association type is classified with the CitedResponsibleParty classification scheme that specifies the role of the organization (corresponds to MD_RoleCode).

10.3.8 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	<<Name>> (core RIM object property, not Slot)	InternationalString	

10.3.9 Quality Information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment

	DataQuality	Quality information for the data specified by a data quality scope.	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	ScopeLevel	the level to which the data quality information applies	M	1	<<Slot>>	String	
	ScopeDescription	description of the scope	O	N	<<Slot>>	InternationalString	
	Extent	applicable spatial extent for the data quality information	O	N	<<Slot>> Envelope	gml:Envelope	
	TemporalBegin	Temporal range (begin) for the data quality information	O	N	<<slot>>	DateTime	
	TemporalEnd	Temporal range (end) for the data quality information	O	N	<<slot>>	DateTime	
	Association type: DataQualityLineage	non-quantitative quality information about the lineage of the data specified by the scope	C / report not provided ?	1	<<Association>>	Lineage	See Lineage object defintion below
	Lineage	Information about the events or source data used in constructing the data specified by the scope or lack of knowledge about lineage	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	Statement	general explanation of the data producer's knowledge of the lineage of a dataset	C / DataQuality. ScopeLevel = 'dataset' or 'series' ?	1	<<Description>> (core RIM object property, not Slot)	InternationalString	Maximum 1024 characters for an InternationString in ebRIM.
	Association type: LineageProcessStep	information about events in the life of a dataset specified by the scope	C / if Statement and Source not provided	N	<<Association>>	ProcessStep	See ProcessStep object definition below

	Association type: LineageSource	information about events used in creating the data specified by the scope	C / if Statement and ProcessStep not provided	N	<<Association>>	Source	See Source object definition below
	ProcessStep	Information about an event or transformation in the life of a dataset including the process used to maintain the dataset	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	Description	description of the event, including related parameters or tolerances	M	1	<<Description>> (core RIM object property, not Slot)	InternationalString	Maximum 1024 characters for an InternationString in ebRIM.
	Rationale	requirement or purpose for the process step	O	1	<<Slot>>	InternationalString	
	Created	Date and time on which the process step occurred	O	1	<<slot>>	DateTime	
	Association type: Processor	identification of, and means of communication with, person(s) and organization(s) associated with the process step	O	N	<<Association>>	Organization	Organization is a core RegistryObject in ebRIM
	Association type: StepSource	information about the source data used in creating the data specified by the scope	O	N	<<Association>>	Source	See Source object definition below
	Source	Information about the source data used in creating the data specified by the scope	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	Description	detailed description of the level of the source data	M	1	<<Description>> (core RIM object property, not Slot)	InternationalString	Maximum 1024 characters for an InternationString in ebRIM.
	ScaleDenominator	denominator of the representative fraction on a source map	O	1	<<Slot>> ScaleDenominator	Integer	

	Association type: SourceReferenceSystem	spatial reference system used by the source data	O	1	<<Association>>	IdentifiedItem	See *:ResourceReferenceSystem
	Association type: SourceCitation	recommended reference to be used for the source data	O	1	<<Association>>	CitedItem	See Citation information
	SourceExtent	information about the spatial extent of the source data	C / Description not provided ?	N	<<Slot>> Envelope	gml:Envelope	
	TemporalBegin	Temporal range (begin) for the source data	C / Description not provided ?	N	<<slot>>	DateTime	
	TemporalEnd	Temporal range (end) for the source data	C / Description not provided ?	N	<<slot>>	DateTime	

10.3.10QualityConformance Information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	ReferenceSpecification	Information about the conformity of the metadata to the cited specification	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialisation of CitedItem	
	Conformance	indication of the conformance result	M	1	<<Slot>>	boolean	
	Explanation	explanation of the meaning of conformance for this result	M	1	<<slot>>	InternationalString	

10.3.11Acquisition Information

Id	Name	Definition	Obligation / Condition	Maximum occurrence	Stereotype	Data type / Target object	Comment
	AcquisitionInformation	Designations for the measuring instruments, the platform carrying them, and the mission to which the data contributes	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	Association type: AcquisitionPlatform	General information about the platform from which the data were taken	O	N	<<Association>>	Platform	
	Association type: AcquisitionInstrument	Designations for the measuring instruments	O	N	<<Association>>	Instrument	
	Platform	General information about the platform from which the data were taken	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>		
	Association type: PlatformCitation	source where information about the platform is described	O	N	<<Association>>	CitedItem	
	Identifier	unique identifier for this platform	M	1	<<slot>>	String	
	Description	Narrative description of the platform supporting the instrument	M	1	<<Description>> (core RIM object property, not Slot)	InternationalString	

	Association type: Sponsor	Provides information about the point of contact of the platform: organization responsible for building, launch, or operation of the platform	O	N	<<Association>>	Organization	
	Instrument	Designations for the measuring instruments	Use obligation from referencing object	Use maximum occurrence from referencing object	<<ExtrinsicObject>>	Specialization of ExtrinsicObject	
	Association type: InstrumentCitation	complete citation of the instrument	O	N	<<Association>>	CitedItem	
	Association type: MountedOn	Platform on which the instrument is mounted	O	1	<<Association>>	Platform	
	Identifier	unique identifier for this instrument	M	1	<<slot>>	String	
	Description	textual description of the instrument	O	1	<<Description>> (core RIM object property, not Slot)	InternationalString	
	Name	name of the type of instrument Examples: framing, linescan, push-broom, panframe	M	1	<<Name>> (core RIM object property, not Slot)	InternationalString	Mapping from type.

11 ISO 19115/19115-2/19119 mapping

11.1 Introduction

This chapter describes the mapping between ISO 19115 / 19115-2 / 19119 metadata (encoded in ISO 19139) and the I15 information model. The principle is to define how to set up a consistent set of ebRIM registry objects from a given ISO 19139 metadata record. The mapping between I15 and ISO 19139 is presented through 3 column tables:

- the first column defines the ISO 19115/19115-2/19119 class properties;
- the second column defines the I15 implementation of each property
- the last column provides complementary explanations when needed.

Note: If elements from ISO 19115 / ISO 19115-2 / ISO 19119 are ignored in the I15 information model those are not included in the mapping tables.
Note: In some tables the mappings (XPaths) are defined with regard to just one information resource type (data/service - ISO19139/ISO19139-2) although the table can be applied to both groups. In this case the (easy) adaptation of the XPath for the other group is left to the implementer.

11.2 Registration of a metadata record

11.2.1 Preamble

A metadata record is an instance of the class MD_Metadata or one of its subclasses[15]. 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, as defined in clause 11.2.2 and Table 50;
- the creation of an Extrinsic Object instance derived from *ResourceMetadata* accordingly to clause 11.3. This Extrinsic Object shall handle among other things:
    - a link to the metadata record information stored in an instance of the MetadataInformation Extrinsic Object;
    - some of the properties of MD_Metadata as defined in clause 11.2.4 and Table 54
    - when the parentIdentifier attribute is instantiated, a second instance of MetadataInformation will be associated to the ResourceMetadata extrinsic object accordingly to clause 11.2.3 and Table 53, through a ParentMetadataInformation association.

[15] It is encoded in XML through a gmd:MD_Metadata element, a gmi:MI_Metadata element or any metadata element having an isoType attribute with the value MD_Metadata or MI_Metadata.

11.2.2 Instance of MetadataInformation for the resource

Table 50 depicts the mapping of MD_Metadata properties to the MetadataInformation extrinsic object related to the resource (i.e. in relationship with an instance of an ExtrinsicObject which is derived from ResourceMetadata, through a ResourceMetadataInformation association).

Table 50 - MetadataInformation extrinsic object related to the resource

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:fileIdentifier	<<slot>> Identifier	
/gmd:MD_Metadata/gmd:language	<<slot>> Language	
/gmd:MD_Metadata/gmd:characterSet	<<classification>> CharacterSet	
/gmd:MD_Metadata/gmd:contact	See clause 11.2.2.1	
/gmd:MD_Metadata/gmd:dateStamp	<<slot>> Date	
/gmd:MD_Metadata/gmd:metadataStandardName and /gmd:MD_Metadata/gmd:metadataStandardVersion	<<slot>> ConformsTo	Slot type is a two-level classification that handles both standard name and standard version. So the slot value includes the id of a classification node like "urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::MetadataStandardNameAndVersion:ISO19115:2003/Cor.1:2006"

If there exists already a MetadataInformation extrinsic object (see 11.2.3) having an Identifier slot instance matching the fileIdentifier property of MD_Metadata the other RegistryObjects shown in table 50 have to be updated.

11.2.2.1 Registration of Metadata Contact Information

An instance of Organization is created for each new instance of gmd:MD_Metadata/gmd:contact/* (where * is CI_ResponsibleParty or an element in its substitutionGroup) having a non empty gmd:organisationName property. The mapping between the CI_ResponsibleParty properties and the Organization properties is given in Table 51. An instance of the association MetadataPointOfContact shall be created between the resource instance of MetadataInformation and each Organization extrinsic object resulting from CI_ResponsibleParty (reachable via contact). If there is already a matching Organization registry object, a new one shall not be created: The association is only needed.

Table 51: - From CI_ResponsibleParty to Organization

ISO 19115/19115-2/19119	I15	Comments
/gmd:organisationName/ gco:CharacterString	Name	
/gmd:contactInfo/gmd:CI_Contact/gmd:address/ gmd:CI_Address/gmd:electronicMailAddress/gco:CharacterString	EmailAddress	

Further an instance of Person is created for the same instance of gmd:MD_Metadata/gmd:contact/* (where * is CI_ResponsibleParty or an element in its substitutionGroup – see before) have a none empty gmd:individualName. This Person instance is then assigned to the Organization by referencing the Person´s id-Attribute in the Organization´s "primaryContact" attribute. The mapping between the CI_ResponsibleParty property and the Person property is given in the table below. If there is already a matching Person registry object, a new one shall not be created: the reference can just be used as described before.

Table 52: - From CI_ResponsibleParty to Person

ISO 19115/19115-2/19119	I15	Comments
/gmd:individualName/gco:CharacterString	Attribute lastName of element PersonName	

11.2.3 Instance of MetadataInformation for the parent resource

Two cases have to be considered:

1. The parent resource has already been registered (i.e., there is already a MetadataInformation extrinsic object having an Identifier slot instance matching the parentIdentifier property of MD_Metadata). In that case, the ResourceMetadata extrinsic object of the current metadata record has to be associated to the existing parent MetadataInformation extrinsic object through a ParentMetadataInformation association.

2. The parent resource has not been registered yet. In that case, a MetadataInformation extrinsic object has to be created accordingly to Table 53 along with a ParentMetadataInformation association.

Table 53: MetadataInformation extrinsic object related to the parent resource

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:parentIdentifier	<<slot>> Identifier	Concerns the second instance of MetadataInformation, when parentIdentifier is instantiated in the metadata

11.2.4 Instance of ResourceMetadata

Some properties of MD_Metadata are mapped to the abstract Extrinsic Object ResourceMetadata and are used to populate the instance of the Extrinsic Objects derived from DataMetadata or the Extrinsic Object ServiceMetadata created for the first instance of MD_Metadata.identificationInfo. This mapping is defined in Table 54.

Table 54: Metadata properties handled by the ResourceMetadata ExtrinsicObject

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:hierarchyLevel	<<ExtrinsicObject>> *ResourceMetadata (see column Comments)*	Depending on the hierarchyLevel an instance of "ElementaryDataset",

ISO 19115/19115-2/19119	I15	Comments
		"DatasetCollection", "ServiceMetadata" or "Application" (all are subclasses of ResourceMetadata) has to be created. This is done by referencing one of corresponding node in the ObjectType classification schema. See also 11.3.1.
/gmd:MD_Metadata/gmd:hierarchyLevelName	<<slot>> Type	For each instance of the property.
/gmd:MD_Metadata/gmd:referenceSystemInfo	See Clause 11.6	For each instance of the property
/gmd:MD_Metadata/gmd:identificationInfo	See Clause 11.3	For the first instance of the property
/gmd:MD_Metadata/gmd:distributionInfo/gmd:MD_Distribution/gmd:distributor/gmd:MD_Distributor/gmd:distributorFormat/gmd:MD_Format or /gmd:MD_Metadata/gmd:distributionInfo/gmd:MD_Distribution/gmd:distributionFormat/gmd:MD_Format	<<slot>> Format	For each instance a slot value will be created. The slot type is a two-level classification that manages both the format name (/gmd:name) and the format version (/gmd:version).
/gmd:MD_Metadata/gmd:distributionInfo/gmd:MD_Distribution/gmd:transferOptions/gmd:MD_DigitalTransferOptions/gmd:onLine/gmd:CI_OnlineResource/gmd:linkage/gmd:URL or /gmd:MD_Metadata/gmd:distributionInfo/gmd:MD_Distribution/gmd:distributor/gmd:MD_Distributor/gmd:distributorTransferOptions/gmd:MD_DigitalTransferOptions/gmd:onLine/gmd:CI_OnlineResource/gmd:linkage/gmd:URL	<<slot>> Source	This mapping is not applicable to the ExtrinsicObject ServiceMetadata (see below). For an Application the onLine link will be found here.
/gmd:MD_Metadata/gmd:dataQualityInfo	See Clause 11.4	

11.3 Registration of the information resources

11.3.1 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 [OGC 07-045].

In the following it is described how to deduce an information resource from ISO 19139 metadata (including the possible associations):

- **ElementaryDataset**, if MD_Metadata.hierarchyLevel is set to 'dataset'. In this case, the metadata record must contain one property Metadata.identificationInfo of type MD_DataIdentification or one of its subtypes

- **DatasetCollection**, if one MD_Metadata.hierarchyLevel is set to 'series'. In this case, the metadata record must contain one property Metadata.identificationInfo of type MD_DataIdentification or one of its subtypes.
  One or several ElementaryDataset or DatasetCollection Extrinsic Objects may represent the datasets that are part of the collection, the *Subset* association shall be instantiated between the Dataset-Collection Extrinsic Object and each of the ElementaryDataset and/or DatasetCollection Extrinsic Objects. There exist different ways to deduce which datasets are part of the collection:
  - the instance of MD_DataIdentification may aggregate instances of MD_AggregateInformation
  - the instance of MD_Metadata may be associated with or aggregated to an instance of DS_Dataset, DS_Aggregate or one of their subclasses.
  - Datasets may be identified by it´s MD_Metadata.parentIdentifier adressing the current collection (series) as the one aggregating it.

- **ServiceMetadata**, if MD_Metadata.hierarchyLevel is set to 'service'. In this case, the metadata record must contain one property Metadata.identificationInfo of type SV_ServiceIdentification or one of its subtypes.
  One or several ElementaryDataset or DatasetCollection Extrinsic Objects may represent the datasets on which the service "operates on": for this corresponsing *OperatesOn* associations shall be instantiated between the ServiceMetadata Extrinsic Object and each of the ElementaryDataset and/or DatasetCollection Extrinsic Objects. These datasets are referenced within different instances of the element srv:SV_ServiceIdentification/srv:operatesOn.

- **Application**, if MD_Metadata.hierarchyLevel is set to 'application'. In this case, the metadata record must contain one property Metadata.identificationInfo of type MD_DataIdentification **or** SV_ServiceIdentification or one of their subtypes. If the metadata record contains one property Metadata.identificationInfo of type SV_ServiceIdentification it may further become possible to instantiate *IsClientOf*- and/or *Accesses*-associations between the Application ExtrinsicObject and ServiceMetadata and/or the Application ExtrinsicObject and ElementaryDataset and/or DatasetCollection ExtrinsicObjects. The datasets the application accesses and the services the application is a client of are referenced within different instances of the element srv:SV_ServiceIdentification/srv:operatesOn: if a service is referenced here a *IsClientOf*- association has to be created, if a dataset or series is referenced here an *Accesses*- association has to be created.

ElementaryDataset, DatasetCollection, Application and Service along with the associations that connect them are part of the Metadata Context (Extension) of the I15. **Instantiating the associations is optional.**

11.3.2 Registration of ElementaryDataset, DatasetCollection or Application

This section describes the registration of the Extrinsic Objects ElementaryDataset, DatasetCollection and Application as a mapping between an ISO 19139 instance of MD_Metadata.identificationInfo of type MD_DataIdentification and the corresponding

Extrinsic Objects ElementaryDataset / DatasetCollection (Tables 55-58) and Application (Tables 55 and 59).

To be aligned with the Basic Extension Package (BP) for every ElementaryDataset and DatasetCollection ExtrinsicObject a BP Dataset ExtrinsicObject (as defined in the Basic Extension Package) shall be created and minimally the mandatory slots, classifications and associations must be instantiated. Details are left to the implementation.

Table 55: From MD_DataIdentification to abstract class *ResourceMetadata*

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:citation	See Table 60	
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:abstract	<<Description>> (core RIM object property, not Slot)	
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:pointOfContact	Association CitedResponsibleParty targeting an instance of Organization. The association is classified with the value 'PointOfContact' from the CitedResponsibleParty classification.	
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:graphicOverview	AssociatioGraphicOverview targeting an instance of Image. See Clause 11.9	
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:descriptiveKeywords	See clause 11.10	
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:resourceConstraints	An associationResourceConstraints targeting an instance of Rights as defined in Clause 11.5	For each resourceConstraints
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:language	<<slot>> Language	For each language the slot 'Language' is of type Language, defined in the ebRIM specification.
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:characterSet	<<classification>> CharacterSet	For each characterSet
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:topicCategory	<<classification>> TopicCategory	For each topicCategory
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:extent	See Clause 11.7.	For each extent

Table 56: From MD_DataIdentification to abstract class *DataMetadata (derived from ResourceMetadata)*

ISO 19115/19115-2/19119	I15	Comments

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:spatialRepresentationType	<<classification>>SpatialRepresentationType	For each spatialRepresentationType
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:spatialResolution	<<slot>> Resolution or <<slot>> ScaleDenominator depending on the type of spatial resolution. Sample 1: <gmd:MD_Resolution> <gmd:distance> <gco:Distance uom="m">1000</gco:Distance> </gmd:distance> </gmd:MD_Resolution> will be mapped to: <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::Resolution" slotType="urn:oasis:names:tc:ebxml-regrep:DataType:Double"> <rim:ValueList> <rim:Value>1000</rim:Value> </rim:ValueList> </rim:Slot> Sample 2: <gmd:MD_Resolution> <equivalentScale> <MD_RepresentativeFraction> <denominator> <gco:Integer>50000</gco:Integer> </denominator> </MD_RepresentativeFraction> </equivalentScale> </gmd:MD_Resolution> will be mapped to: <rim:Slot name=" urn:ogc:def:ebRIM-slot:OGC-I15::ScaleDenominator" slotType="urn:oasis:names:tc:ebxml-regrep:DataType:Integer"> <rim:ValueList> <rim:Value>50000</rim:Value> </rim:ValueList> </rim:Slot>	For each spatialResolution
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:supplementalInformation	<<slot>> SupplementalInformation	

Table 57: From MD_DataIdentification to ElementaryDatset *(derived from DataMetadata)*

ISO 19115/19115-2/19119	I15	Comments

Table 58: From MD_DataIdentification to DatsetCollection *(derived from DataMetadata)*

ISO 19115/19115-2/19119	I15	Comments
	Association Subset	If one or several ElementaryDataset or DatasetCollection Extrinsic Objects have been created to represent the datasets that are part of the collection (see clause 11.3.1),

ISO 19115/19115-2/19119	I15	Comments
		the *Subset* association shall be instantiated to each of the ElementaryDataset or DatasetCollection Extrinsic Objects

Table 59: From MD_DataIdentification to Application *(derived from ResourceMetadata)*

ISO 19115/19115-2/19119	I15	Comments

The instance of MD_DataIdentification.citation is used to instantiate other attributes belonging to the abstract base class ResourceMetadata (as defined in Table 60).

Table 60: From CI_Citation to abstract class *CitedItem* (base class of *ResourceMetadata)*

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>/gmd:citation/gmd:CI_Citation/gmd:title	<<Name>> (core RIM object property, not Slot)	
/gmd:MD_Metadata/gmd:identificationInfo/<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>/gmd:citation/gmd:CI_Citation/gmd:alternateTitle	<<slot>>Title	
/gmd:MD_Metadata/gmd:identificationInfo/<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>/gmd:citation/gmd:CI_Citation/gmd:date	- <<slot>> Created for creation - <<slot>> Modified for revision - <<slot>> Issued for publication	
/gmd:MD_Metadata/gmd:identificationInfo/<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>/gmd:citation/gmd:CI_Citation/gmd:identifier.RS_Identifier.code	externalIdentifier	Identifiers with no codespace do not carry sufficient information and are not mapped to externalIdentifier, for which the codespace is required.
/gmd:MD_Metadata/gmd:identificationInfo/<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>/gmd:citation/gmd:CI_Citation/gmd:citedResponsibleParty	Association CitedResponsibleParty + an instance of Organization as defined in Clause 11.8.2	For each instance of citedResponsibleParty. The role of the responsible party classifies the association CitedResponsibleParty (CitedResponsibleParty classification)

11.3.3 Registration of Service or Application

This section describes the registration of the Extrinsic Objects ServiceMetadata and Application as a mapping between an ISO 19139 instance of MD_Metadata.identificationInfo of type SV_ServiceIdentification and the corresponding Extrinsic Objects ServiceMetadata (Tables 61-63) and Application (Tables 61 and 64).

To be aligned with the Basic Extension Package (BP) for every ServiceMetadata ExtrinsicObject a BP Service ExtrinsicObject (associated to ServiceMetadata by ServiceDescription) plus (if any) associated ServiceModel, ServiceGrounding and ServiceProfile ExtrinsicObjects shall be created and minimally the mandatory slots and classifications must be instantiated. Details are left to the implementation.

Table 61: From SV_ServiceIdentification to abstract class ResourceMetadata

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/ srv:SV_ServiceIdentification/gmd:citation	See Table 60	
/gmd:MD_Metadata/gmd:identificationInfo/ srv:SV_ServiceIdentification/gmd:abstract	<<Description>> (core RIM object property, not Slot)	
/gmd:MD_Metadata/gmd:identificationInfo/ srv:SV_ServiceIdentification/gmd:pointOfContact	Association CitedResponsibleParty targeting an instance of Organization. The association is classified with the value 'PointOfContact' from the CitedResponsibleParty classification.	
/gmd:MD_Metadata/gmd:identificationInfo /srv:SV_ServiceIdentification/gmd:graphicOverview	Association GraphicOverview targeting an instance of Image. See Clause 11.9	
/gmd:MD_Metadata/gmd:identificationInfo /srv:SV_ServiceIdentification/gmd:descriptiveKeywords	See clause 11.10	
/gmd:MD_Metadata/gmd:identificationInfo/ srv:SV_ServiceIdentification/gmd:resourceConstraints	An association ResourceConstraints targeting an instance of Rights as defined in Clause 11.5	For each resourceConstraints
/gmd:MD_Metadata/gmd:identificationInfo/ srv:SV_ServiceIdentification/srv:extent	See Clause 11.7	For each extent

Table 62: From SV_ServiceIdentification to ServiceMetadata (derived from *ResourceMetadata)*

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV _ServiceIdentification/srv:serviceType	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information (see 8.18).
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV _ServiceIdentification/srv:serviceTypeVersion	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information (see 8.18).
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV _ServiceIdentification/srv:couplingType	<<classification>> CouplingType	
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV _ServiceIdentification/srv:containsOperations	See Table 63	For each containsOperation

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:operatesOn@uuidref	OperatesOn association between ServiceMetadata and one of the derived classes of *DataMetadata (*ElementaryDataset, DatasetCollection*)*	For each operatesOn To be aligned with the Basic Extension Package (BP) for each operatesOn an OperatesOn association between the associated BP Service ExtrinsicObject and the corresponding BP Dataset ExtrinsicObject has to be created.

Each instance of SV_ServiceIdentification.containsOperation implies to create an instance of the association ContainsOperation between ServiceMetadata and ServiceOperation along with an instance of ServiceOperation as defined in Table 63.

Table 63: From SV_OperationMetadata to ServiceOperation

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:containsOperations/srv:SV_OperationMetadata/srv:operationName	<<Name>> (core RIM object property, not Slot)	
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:containsOperations/srv:SV_OperationMetadata/srv:DCP	<<classification>>DCPList	For each DCP
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:containsOperations/srv:SV_OperationMetadata/srv:connectPoint/gmd:CI_OnlineResource/gmd:linkage	<<slot>> Source	For each instance of the property

Table 64: From SV_ServiceIdentification to Application (derived from *ResourceMetadata)*

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:serviceType	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information (see 8.18).
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:serviceTypeVersion	<<classification>> Services	Extends the classification defined in the Basic Extension Package with version information (see 8.18).
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:operatesOn@uuidref	*Accesses* association between Application and one of the derived classes of *DataMetadata (*ElementaryDataset, DatasetCollection*)(*If the metadata entry referenced by the operatesOn element is a DataMetadata entry*)* Or *IsClientOf* association between Application and ServiceMetadata (If the	For each operatesOn

ISO 19115/19115-2/19119	I15	Comments
	metadata entry referenced by the operatesOn element is a ServiceMetadata entry)	

11.4 Registration of data quality information

11.4.1 Preamble

Quality information is registered in two different ways:

- Quality Information is registered accordingly to clause 11.4.2. Here one or more associations (DataQualityInfo) from *DataMetadata* to DataQuality have to be created.

- Data quality conformance results are registered accordingly to clause 11.4.3.

11.4.2 Registration of Quality Information

Table 65: - From ISO DQ_DataQuality to I15 DataQuality

ISO 19115/19115-2/19119	I15	Comments
/gmd:DQ_DataQuality/gmd:scope/gmd:DQ_Scope /gmd:**level**/gmd:MD_ScopeCode	<<Slot>> ScopeLevel	
/gmd:DQ_DataQuality/gmd:scope/gmd:DQ_Scope /gmd:**levelDescription**/gmd:MD_ScopeDescription /gmd:dataset/gco:CharacterString	<<Slot>> ScopeDescription	
/gmd:DQ_DataQuality/gmd:scope /gmd:DQ_Scope/gmd:extent /gmd:EX_Extent/gmd:geographicElement /gmd:EX_GeographicBoundingBox /gmd:**westBoundLongitude**	<<Slot>> Envelope (of type gml:Envelope)	For each gmd:**EX_GeographicBoundingBox** element an Envelope Slot value (gml:Envelope) is generated. The **WestBoundLongitude** corresponds to the longitude of "lowerCorner" in gml:Envelope.
/gmd:DQ_DataQuality/gmd:scope /gmd:DQ_Scope/gmd:extent /gmd:EX_Extent/gmd:geographicElement /gmd:EX_GeographicBoundingBox /gmd:**eastBoundLongitude**	<<Slot>> Envelope (of type gml:Envelope)	The **EastBoundLongitude** corresponds to the longitude of "upperCorner" in gml:Envelope
/gmd:DQ_DataQuality/gmd:scope /gmd:DQ_Scope/gmd:extent /gmd:EX_Extent/gmd:geographicElement /gmd:EX_GeographicBoundingBox /gmd:**southBoundLatitude**	<<Slot>> Envelope (of type gml:Envelope)	The **SouthBoundLatitude** corresponds to the latitude of "lowerCorner" in gml:Envelope.
/gmd:DQ_DataQuality/gmd:scope /gmd:DQ_Scope/gmd:extent /gmd:EX_Extent/gmd:geographicElement /gmd:EX_GeographicBoundingBox /gmd:**northBoundLatitude**	<<Slot>> Envelope (of type gml:Envelope)	The **NorthBoundLongitude** corresponds to the latitude of "upperCorner" in gml:Envelope
/gmd:DQ_DataQuality/gmd:scope/gmd:DQ_Scope /gmd:extent/gmd:EX_Extent/gmd:temporalElement /gmd:EX_TemporalExtent/gmd:extent	<<Slot>> TemporalBegin (start date-time portion)	For each gml32:**TimePeriod** (begin) element a TemporalBegin slot value is generated.

ISO 19115/19115-2/19119	I15	Comments
/gml32:TimePeriod/gml32:**begin** /gml32:TimeInstant/gml32:timePosition		
/gmd:DQ_DataQuality/gmd:scope/gmd:DQ_Scope /gmd:extent/gmd:EX_Extent/gmd:temporalElement /gmd:EX_TemporalExtent/gmd:extent /gml32:TimePeriod/gml32:**end** /gml32:TimeInstant/gml32:timePosition	<<Slot>> TemporalEnd (end date-time portion)	For each gml32:**TimePeriod** (end) element a TemporalEnd slot value is generated.
/gmd:DQ_DataQuality/gmd:**lineage**	<<Association>> DataQualityLineage	LIneage is mandatory if no Report is provided; for OWS-9 Aviation, Report is out of scope. Association type "**DataQualityLineage**" is generated with these properties: *Source object:* **DataQuality** *Target object:* **Lineage**

Table 66: - From ISO LI_Lineage to I15 Lineage

ISO 19115/19115-2/19119	I15	Comments
/gmd:DQ_DataQuality/gmd:lineage/gmd:LI_Lineage /gmd:**statement**/gco:CharacterString	<<Description>> (core RIM object property, not Slot)	
/gmd:DQ_DataQuality/gmd:lineage/gmd:LI_Lineage /gmd:**processStep/**gmd:LI_ProcessStep OR: /gmd:**processStep**/@xlink:href	<<Association>> LineageProcessStep plus optional object: <<ExtrinsicObject>> ProcessStep	For each gmd:**processStep** element. If **LI_ProcessStep** is specified, a corresponding **ProcessStep** instance must also be included. If instead, an @xlink:href is specified, then the **ProcessStep** object is assumed to have been published previously. In either case, an Association of type "**LineageProcessStep**" is required with these properties: *Source object:* **Lineage** *Target object:* **ProcessStep**
/gmd:DQ_DataQuality/gmd:lineage/gmd:LI_Lineage /gmd:**source**/gmd:LI_Source OR: /gmd:**source**/@xlink:href	<<Association>> LineageSource plus optional object: <<ExtrinsicObject>> Source	For each gmd:**source** element. If **LI_Source** is specified, a corresponding **Source** instance must also be included. If instead, an @xlink:href is specified, then the **Source** object is assumed to have been published previously. In either case, an Association of type "**LineageSource**" is required with these properties: *Source object:* **Lineage** *Target object:* **Source**

Although the advanced quality information extension part of this package allows to describe quality information in more detail, every I15 metadata entry shall provide basic lineage information. The mapping between this instance and the ResourceMetadata slot Lineage (inherited by all resource metadata entries) is described in Table 67.

Table 67: - From LI_Lineage to ResourceMetadata

ISO 19115/19115-2/19119	I15	Comments
/gmd:DQ_DataQuality/gmd:lineage/gmd:LI_Lineage /gmd:**statement**/gco:CharacterString	<<slot>> Lineage	/gmd:MD_Metadata/gmd:dataQualityInfo/* [gmd:scope/*/gmd:level/*/@codeListValue='dataset'] /gmd:lineage/* for an instance of DataMetadata; /gmd:MD_Metadata/gmd:dataQualityInfo/* [gmd:scope/*/gmd:level/*/@codeListValue='service'] /gmd:lineage/* for an instance of ServiceMetadata.

Table 68: - From ISO LI_ProcessStep to I15 ProcessStep

ISO 19115/19115-2/19119	I15	Comments
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:processStep /gmd:LI_ProcessStep/gmd:**description** /gco:CharacterString	<<Description>> Description	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:processStep /gmd:LI_ProcessStep/gmd:**rationale** /gco:CharacterString	<<Slot>> Rationale	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:processStep /gmd:LI_ProcessStep/gmd:**dateTime** /gco:DateTime	<<Slot>> Created	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:processStep /gmd:LI_ProcessStep/gmd:**processor** /gmd:CI_ResponsibleParty OR: /@xlink:href	<<Association>> Processor plus optional object: <<RegistryObject>> Organization	For each gmd:**processor** element. If **CI_ResponsibleParty** is specified, a corresponding **Organization** instance must also be included. If instead, an @xlink:href is specified, then the **Organization** object is assumed to have been published previously. In either case, an Association of type "**Processor**" is required with these properties: *Source object:* **ProcessStep** *Target object:* **Organization** (RegistryObject)
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:processStep /gmd:LI_ProcessStep/gmd:**source** /gmd:LI_Source OR: /@xlink:href	<<Association>> StepSource plus optional object: <<ExtrinsicObject>> Source	For each gmd:s**ource** element. If **LI_Source** is specified, a corresponding **Source** instance must also be included. If instead, an @xlink:href is specified, then the **Source** object is assumed to have been published previously. In either case, an Association of type "**StepSource**" is required with these properties: *Source object:* **ProcessStep** *Target object:* **Source**

Table 69: - From ISO LI_Source to I15 Source

ISO 19115/19115-2/19119	I15	Comments
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**description** /gco:CharacterString	<<Description>> Description	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**scaleDenominator** /gmd:MD_RepresentativeFraction /gmd:denominator/gco:Integer	<<Slot>> ScaleDenominator	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**sourceReferenceSystem** /gmd:MD_ReferenceSystem /gmd:referenceSystemIdentifier/gmd:RS_Identifier /gmd:code/gco:CharacterString	<<Association>> SourceReferenceSystem See Clause 11.6 (equivalent mapping)	
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**sourceCitation** /gmd:CI_Citation OR: /@xlink:href	<<Association>> SourceCitation plus optional object: <<ExtrinsicObject>> CitedItem	For each gmd:s**ourceCitation** element. If **CI_CitedItem** is specified, a corresponding **Source** instance must also be included. If instead, an @xlink:href is specified, then the **CitedItem** object is assumed to have been published previously. In either case, an Association of type "**SourceCitation**" is required with these properties: *Source object:* **Source** *Target object:* **CitedItem**
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**sourceExtent** /gmd:EX_Extent/gmd:geographicElement /gmd:**EX_GeographicBoundingBox**	<<Slot>> Envelope (of type gml:Envelope)	For each gmd:**EX_GeographicBoundingBox** element an Extent Slot value (gml:Envelope) is generated. See mapping defined for DQ_DataQuality ... DQ_Scope ... EX_GeographicBoundingBox
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**sourceExtent** /gmd:EX_Extent/gmd:temporalElement /gmd:EX_TemporalExtent/gmd:extent /gml32:TimePeriod/gml32:**begin** /gml32:TimeInstant/gml32:timePosition	<<Slot>> TemporalBegin (start date-time portion)	For each gml32:**TimePeriod** (begin) element a TemporalBegin slot value is generated.
/gmd:DQ_DataQuality/gmd:lineage /gmd:LI_Lineage/gmd:source /gmd:LI_Source/gmd:**sourceExtent** /gmd:EX_Extent/gmd:temporalElement /gmd:EX_TemporalExtent/gmd:extent /gml32:TimePeriod/gml32:**end** /gml32:TimeInstant/gml32:timePosition	<<Slot>> TemporalEnd (end date-time portion)	For each gml32:**TimePeriod** (end) element a TemporalEnd slot value is generated.

11.4.3 Registration of QualityConformanceResults

Each instance of MD_Metadata.dataQualityInfo.DQ_DataQuality.report. result.DQ_-ConformanceResult implies to create an instance of ReferenceSpecification as defined in Table 70 and an instance of the association Specification between an instance of an ExtrinsicObject which is derived from *ResourceMetadata* and ReferenceSpecification .

Table 70: - From DQ_ConformanceResult to ReferenceSpecification

ISO 19115/19115-2/19119	I15	Comments
specification.Title	<<Name>> (core RIM object property, not Slot)	
specification.Date (dateType: creation)	<<slot>> Created	
specification.Date (dateType: revision)	<<slot>> Modified	
specification.Date (dateType: publication)	<<slot>> Issued	
pass	<<slot>> Conformance	
explanation	<<slot>> Explanation	

11.4.4 Registration of Acquisition information

Each instance of MI_Metadata.acquisitionInformation implies to create an instance of AcquisitionInformation as defined in Table 71 and an instance of the association AcquiredBy between an instance of an ExtrinsicObject which is derived from *DataMetadata* and AcquisitionInformation .

Table 71: - From ISO MI_AcquisitionInformtion to I15 AcquisitionInformtion

ISO 19115/19115-2/19119	I15	Comments
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/ gmi:MI_Instrument/gmi:mountedOn/gmi:MI_Platform	<<Association>> AcquisitionPlatform	For each gmi:**platform** element. An association of type "**AcquisitionPlatform**" is required with these properties: *Source object:* **AcquisitionInformation** *Target object:* **Platform**
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:instrument OR /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument	<<Association>> AcquisitionInstrument	For each gmi:**instrument** element. An association of type "**AcquisitionInstrument**" is required with these properties: *Source object:* **AcquisitionInformation** *Target object:* **Instrument**

Table 72: - From ISO MI_Platform to I15 Platform

ISO 19115/19115-2/19119	I15	Comments
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:citation/CI_Citation OR: /@xlink:href OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:mountedOn/gmi:MI_Platform/ gmi:citation/CI_Citation OR: /@xlink:href	<<Association>> PlatformCitation plus optional object: <<ExtrinsicObject>> CitedItem	For each gmi:**citation** element. If **CI_CitedItem** is specified, a corresponding **Platform** instance must also be included. If instead, an @xlink:href is specified, then the **CitedItem** object is assumed to have been published previously. In either case, an Association of type "**PlatformCitation**" is required with these properties: *Source object:* **Platform** *Target object:* **CitedItem**
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation /gmi:platform/gmi:MI_Platform/ gmi:description/gco:CharacterString OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:mountedOn/gmi:MI_Platform/ gmi:description/gco:CharacterString	<<Description>> Description	
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:identifier/gmd:MD_Identifier/ gmd:code/gco:CharacterString OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:mountedOn/gmi:MI_Platform/gmi:identifier/ MD_Identifier/code/gco:CharacterString	<<Slot>> Identifier	
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:sponsor/CI_ResponsibleParty OR: /@xlink:href OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:mountedOn/gmi:MI_Platform/ gmi:sponsor/CI_ResponsibleParty OR: /@xlink:href	<<Association>> Sponsor plus optional object: <<RegistryObject>> Organization	For each gmi:**sponsor** element. If **CI_ResponsibleParty** is specified, a corresponding **Organization** instance must also be included. If instead, an @xlink:href is specified, then the **Organization** object is assumed to have been published previously. In either case, an Association of type "**Sponsor**" is required with these properties: *Source object:* **Platform** *Target object:* **Organization** (RegistryObject)

Table 73: - From ISO MI_Instrument to I15 Instrument

ISO 19115/19115-2/19119	I15	Comments
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/ gmi:instrument/gmi:MI_Instrument/ gmi:citation/gmd:CI_Citation OR: /@xlink:href	<<Association>> InstrumentCitation plus optional object: <<ExtrinsicObject>>	For each gmi:**citation** element. If **CI_CitedItem** is specified, a corresponding **Instrument** instance must also be included. If instead, an @xlink:href is specified, then the **CitedItem** object is assumed to have been published previously. In either case,

ISO 19115/19115-2/19119	I15	Comments
OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:citation/gmd:CI_Citation OR: /@xlink:href	CitedItem	an Association of type "**InstrumentCitation**" is required with these properties: *Source object:* **Instrument** *Target object:* **CitedItem**
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/ /gmi:instrument/gmi:MI_Instrument/ gmi:description/gco:CharacterString OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:description/gco:CharacterString	<<Description>> (core RIM object property, not Slot)	
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:instrument/ gmi:MI_Instrument/ gmi:type/gmi:MI_SensorTypeCode/@id OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:type/gmi:MI_SensorTypeCode/@id	<<Name>> (core RIM object property, not Slot)	
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/ /gmi:instrument/gmi:MI_Instrument/ gmi:citation/gmd:CI_Citation/gmd:identifier /gmd:MD_Identifier/gmd:code/gco:CharacterString OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/gmi:MI_Instrument/ gmi:citation/gmd:CI_Citation/gmd:identifier /gmd:MD_Identifier/gmd:code/gco:CharacterString	<<Slot>> Identifier	
/gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/ gmi:MI_Instrument/gmi:mountedOn/ gmi:MI_Platform OR /@xlink:href OR: /gmi:MI_Metadata/gmi:acquisitionInformation/ gmi:MI_AcquisitionInformation/gmi:platform/ gmi:MI_Platform/gmi:instrument/../../gmi:MI_Platform	<<Association>> MountedOn plus optional object: <<ExtrinsicObject>> Platform	If **MI_Platform** is specified, a corresponding **Platform** instance must also be included. If instead, an @xlink:href is specified or if the instrument is embedded in a Platform, then the **Platform** object is assumed to have been published previously. In either case, an Association of type "**MountedOn**" is required with these properties: *Source object:* **Instrument** *Target object:* **Platform**

11.5 Registration of Constraint Information

Servers shall support queries on the Rights, LegalConstraints and SecurityConstraints ExtrinsicObjects, their slots, classifications and associations. The ebRIM registry shall be instantiated as follows:

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 an ExtrinsicObject which is derived from *ResourceMetadata* to Rights or one of its subclasses must be created for each instance of the association between MD_Identification and MD_Constraints.

Table 74: From MD_Constraints to Rights

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/…/gmd:MD_Constraints/gmd:useLimitation	<<Description>> (core RIM object property, not Slot)	

Each instance of MD_Identification.resourceConstraints of type MD_LegalConstraints implies to create an instance of LegalConstraints as defined in Table 75.

Table 75: From MD_LegalConstraints to LegalConstraints

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/…/gmd:resourceConstraints/gmd:MD_LegalConstraints/gmd:accessConstraints	<<classification>> RestrictionCode (the classification is classified with RestrictionType “access”)	Access constraints are managed through the classification (which is itself classified by the RestrictionType “access”) with a RestrictionCode. The RestrictionCode identifies the precise access restriction (e.g copyright, patent…).
/gmd:MD_Metadata/gmd:identificationInfo/…/gmd:resourceConstraints/gmd:MD_LegalConstraints/gmd:useConstraints	<<classification>> RestrictionCode (the classification is classified with RestrictionType “use”)	Use constraints are managed through the classification (which is itself classified by the RestrictionType “use”) with a RestrictionCode. The RestrictionCode identifies the precise access restriction (e.g copyright, patent…).
/gmd:MD_Metadata/gmd:identificationInfo/…/gmd:resourceConstraints/gmd:MD_LegalConstraints/gmd:otherConstraints	<<slot>> Rights	

Each instance of MD_Identification.resourceConstraints of type MD_SecurityConstraints implies to create an instance of SecurityConstraints as defined in Table 76.

Table 76: From MD_SecurityConstraints to SecurityConstraints

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:resourceConstraints/gmd:MD_SecurityConstraints/gmd:classification	<<classification>> ClassificationCode	

11.6 Registration of Reference System Information

Servers shall support queries on the IdentifiedItem object and its associations. The ebRIM registry shall be instantiated as follows:

Each instance of MD_Metadata.referenceSystemInfo implies to create an instance of IdentifiedItem as defined in Table 77 along with an instance of the association ResourceReferenceSystem between an instance of an ExtrinsicObject which is derived from 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 77: From RS_Identifier to IdentifiedItem

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:referenceSystemInfo/ gmd:MD_ReferenceSystem/gmd:referenceSystemIdentifier/ gmd:RS_Identifier/gmd:authority OR: /@xlink:href	<<Association>> Authority between IdentifiedItem and CitedItem. plus object (if not already existing): <<ExtrinsicObject>> CitedItem See Clause 11.8.1 for a description of CitedItem.	If **CI_CitedItem** is specified, a corresponding **IdentifiedItem** instance must also be included. If instead, an @xlink:href is specified, then the **CitedItem** object is assumed to have been published previously. In either case, an Association of type "**Authority**" is required with these properties: *Source object:* **IdentifiedItem** *Target object:* **CitedItem**
/gmd:MD_Metadata/gmd:referenceSystemInfo/ gmd:MD_ReferenceSystem/gmd:referenceSystemIdentifier/ gmd:RS_Identifier/gmd:code	<<Name>> (core RIM object property, not Slot)	
/gmd:MD_Metadata/gmd:referenceSystemInfo/ gmd:MD_ReferenceSystem/gmd:referenceSystemIdentifier/ gmd:RS_Identifier/gmd:codeSpace	CodeSpace <<Association>> to another instance of IdentifiedItem	

11.7 Registration of Geographic and Temporal Extent Information

Servers shall support queries on the Envelope, Coverage and Temporal slots of an instance of an ExtrinsicObject which is derived from *ResourceMetadata*. The ebRIM registry shall be instantiated as follows:

Each instance of *MD_Identification*.extent implies to create instance(s) of the slots temporalBegin/temporalEnd and/or envelope and/or coverage for an instance of an ExtrinsicObject which is derived from *ResourceMetadata*.

Each instance EX_Extent.geographicElement of type EX_GeographicBoundingBox implies to create an instance of the slot Envelope in an instance of an ExtrinsicObject which is derived from ResourceMetadata, as defined in Table 78.

Table 78: From EX_GeographicBoundingBox to <<slot>> Envelope

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:EX_Extent/gmd:geographicElement/gmd:EX_GeographicBoundingBox/gmd:westBoundLongitude	<<slot>> Envelope (type gml:Envelope)	The WestBoundLongitude corresponds to the longitude of "lowerCorner" in gml:Envelope.
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:EX_Extent/gmd:geographicElement/gmd:EX_GeographicBoundingBox/gmd:eastBoundLongitude	<<slot>> Envelope (type gml:Envelope)	The EastBoundLongitude corresponds to the longitude of "upperCorner" in gml:Envelope
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:EX_Extent/gmd:geographicElement/gmd:EX_GeographicBoundingBox/gmd:southBoundLatitude	<<slot>> Envelope (type gml:Envelope)	The SouthBoundLatitude corresponds to the latitude of "lowerCorner" in gml:Envelope.
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:EX_Extent/gmd:geographicElement/gmd:EX_GeographicBoundingBox/gmd:northBoundLatitude	<<slot>> Envelope (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 an instance of an ExtrinsicObject which is derived from *ResourceMetadata*, as defined in Table 79.

Table 79: From EX_GeographicDescription to <<slot>> Coverage

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:EX_Extent/gmd:geographicElement/gmd:EX_GeographicDescription/gmd:geographicIdentifier	<<slot>> Coverage	

Each instance EX_Extent.temporalElement of type EX_TemporalExtent implies to create values for the slots TemporalBegin and TemporalEnd in an instance of an ExtrinsicObject which is derived from *ResourceMetadata*, as defined inTable 80.

Table 80: From EX_TemporalExtent to <<slot>> Temporal

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/extent/EX_Extent/temporalElement/EX_TemporalExtent/extent/gml:TimePeriod/gml:beginPosition	<<slot>> TemporalBegin	-
/gmd:MD_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/extent/EX_Extent/temporalElement/EX_TemporalExtent/extent/gml:TimePeriod/gml:endPosition	<<slot>> TemporalEnd	-

11.8 Registration of Citation and Responsible party information

11.8.1 Registration of Citation information

Servers shall support queries on the CitedItem object, its slots and association. The ebRIM registry shall be instantiated as follows: The type CI_Citation is mapped to the Extrinsic Object CitedItem in the I15 as defined in Table 60.

11.8.2 Registration of Responsible Party information

Servers shall support queries on the Organization object, its slots, classifications and associations. The ebRIM registry shall be instantiated as follows:

The type CI_ResponsibleParty is mapped to the Registry Object Organization and to a Person as defined in the tables below. The attribute CI_ResponsibleParty.role is implemented as a classification on the association CitedResponsibleParty.

Table 81: From CI_ResponsibleParty to Organization

ISO 19115/19115-2/19119	I15	Comments
/gmd:CI_ResponsibleParty/gmd:organizationName	<<Name>> (core RIM object property, not Slot)	
/gmd:CI_ResponsibleParty/gmd:role	Handled through the CitedResponsibleParty classification on the CitedResponsibleParty association.	

The Person is assigned to the Organization (see before) by referencing the Person´s id-Attribute in the Organization´s "primaryContact" attribute. The mapping between the CI_ResponsibleParty property and the Person property is given in the table below. If there is already a matching Person registry object, a new one shall not be created: the reference can just be used as described before.

Table 82: From CI_ResponsibleParty to Person

ISO 19115/19115-2/19119	I15	Comments
/gmd:CI_ResponsibleParty/gmd:individualName	Attribute lastName of element PersonName	

11.9 Registration of Graphic Overview information

Servers shall support queries on the Image object and its association. The ebRIM registry shall be instantiated as follows:

Each instance of MD_Identification.graphicOverview.MD_BrowseGraphic implies to create an instance of Image as defined in Table 83 and an instance of the association GraphicOverview between ResourceMetadata and Image.

Table 83: From MD_BrowseGraphic to Image

ISO 19115/19115-2/19119	I15	Comments
/gmd:MD_BrowseGraphic/gmd:fileName	<<Name>> (core RIM object property, not Slot)	

11.10 Registration of Descriptive Keywords information

If MD_Keywords does not specify a thesaurus, the keyword must be defined in the default Keyword Classification scheme *KeywordSchemeUntyped.* The Keyword Classification scheme *KeywordSchemeUntyped* contains all the keywords not defined in a specific thesaurus. If the keyword is already defined in the Classification Scheme *KeywordSchemeUntyped* a classification is created to this keyword. If the keyword is not in the Keyword Classification Scheme *KeywordSchemeUntyped*, it must be added and a classification to this keyword is created as well.

Additionally the following takes affect for every keyword that defines a keywordType: if the keyword is already defined in the Classification Scheme *KeywordScheme<KeywordType>* (e.g. *KeywordSchemeDiscipline*) a classification is created to this keyword. If the keyword is not in the Classification Scheme *KeywordScheme<KeywordType>*, it must be added to this scheme and a classification to this keyword is created as well. The Keyword Classification Scheme *KeywordScheme<KeywordType>* contains all the keywords which belong to a specific keywordType.

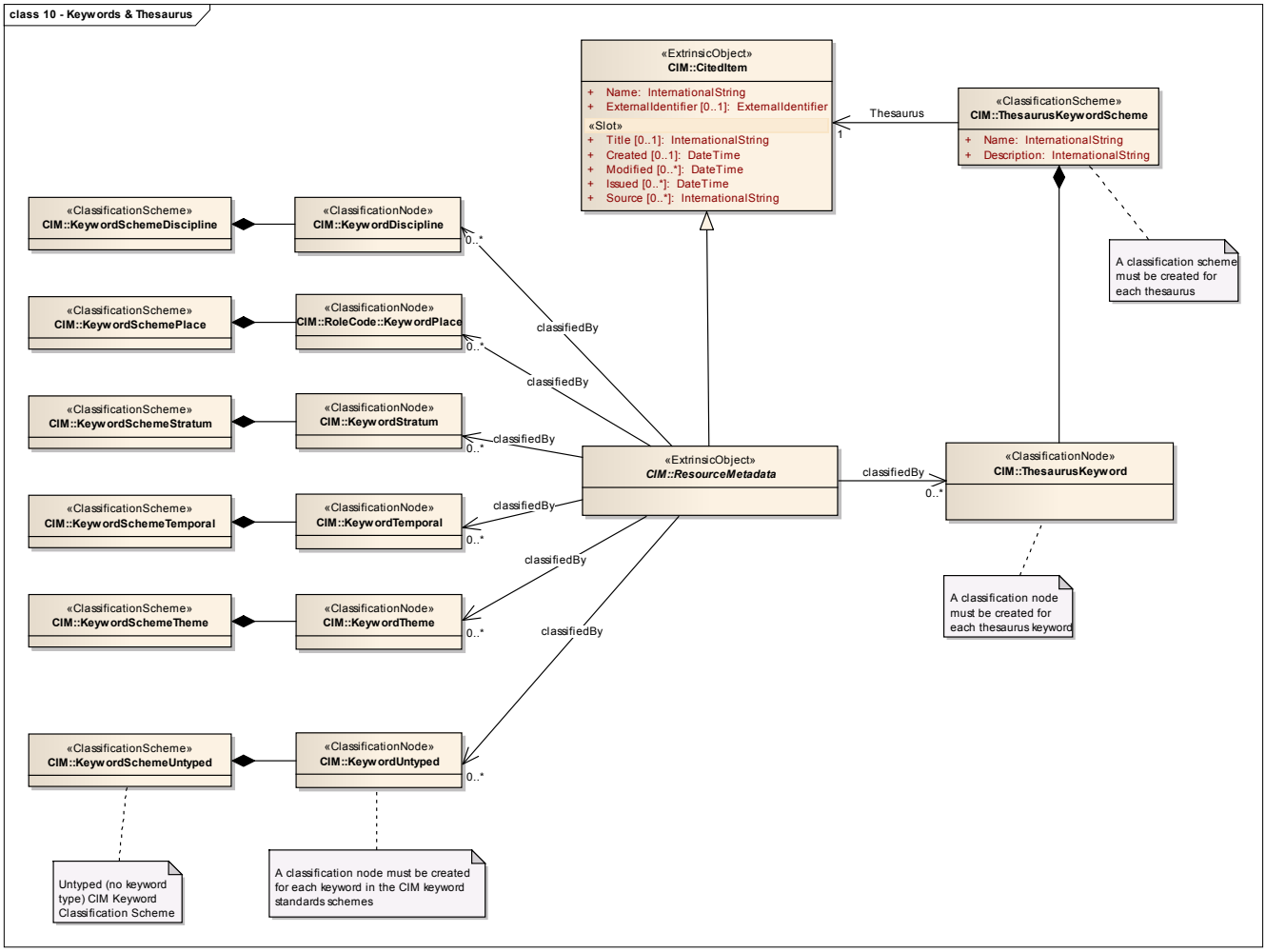


Figure 20: ResourceMetada classified by keywords in different keyword classification schemes

If MD_Keywords contains a ThesaurusName section, the CI_Citation included must be mapped to a CitedItem as described in section 11.8.1. A Classification Scheme must also be created with the different keywords. An instance of the association "Thesaurus" must be created between the Classification Scheme and the CitedItem.

The figure above shows how a ResourceMetadata ExtrinsicObject can be classified by a Classification Scheme associated to a thesaurus.

If the thesaurus´ CI_Citation title element contains an anchor element with a "href" (URI, representing an entry of an ontology), this URI must be stored in a "Source" slot of the CitedItem ExtrinsicObject. Table 84 defines the CitedItem extension for storing thesaurus URI. If the CI_Citation contains an identifier, it must be stored as an ExternalIdentifier .

Table 84: CitedItem extensions for storing thesaurus URI

ISO 19115/19115-2/19119	I15	Comments
gmd:descriptiveKeywords/gmd:MD_Keywords/ gmd:thesaurusName/gmd:CI_Citation/ gmd:title/gmx:Anchor/@xlink:href	<<Slot>> Source	

For each thesaurus CitedItem, a Classification Scheme must be created and associated to the CitedItem. Table 85 defines the ThesaurusKeywordScheme Classification Scheme.

Table 85: ThesaurusKeywordScheme ClassificationScheme

ISO 19115/19115-2/19119	I15	Comments
/gmd:CI_Citation/gmd:title	<<Name>> (core RIM object property, not Slot)	
/gmd:CI_Citation/gmd:alternateTitle	<<Description>> (core RIM object property, not Slot)	
/gmd:citation/gmd:CI_Citation/gmd:date	- <<slot>> Created for creation - <<slot>> Modified for revision - <<slot>> Issued for publication	

If the keyword contains an anchor element with a "href" (URI, representing an entry of an ontology), this URI must be stored in a "Source" slot (defined in the Basic Extension Package) assigned to the Keyword Classification Node. Table 86 defines the "ThesaurusKeyword" ClassificationNode.

Table 86: ThesaurusKeyword ClassificationNode definition

ISO 19115/19115-2/19119	I15	Comments
/gmd:descriptiveKeywords/gmd:keyword/gmx:anchor	<<Name>> (core RIM object property, not Slot)	
gmd:descriptiveKeywords/gmd:keyword/gmx:anchor/@xlink:href	<<Slot>> Source	

12 Alignment with OGC CSW-ebRIM Registry Service

This document defines an (ISO19115(-2)/19119/19139) extension package aligned with the ebRIM application profile of CS-W (OGC 07-110r4 and OGC 07-144r4). So all mandatory things defined there are also mandatory for a Catalogue Service supporting this extension package.

This chapter provides some clarifications and constraints especially in case that in OGC 07-110r4 and OGC 07-144r4 things are defined unclear or options / alternatives are given.

12.1 HTTP Binding

This specification is aligned with the HTTP method binding conditions defined in clause 7.1 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110].

This specification also adopts the requirements defined in clause 7.2 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110] relatively to the use of common HTTP message header fields.

12.1.1 SOAP Support

Support of SOAP 1.2 is defined as an optional capability in [OGC 07-110r4]. This specification mandates it. The details are described in [OGC 07-110r4], clause 7.9 and test cases ATC 26 to 28 in [OGC 08-103r2].

Req /req/core/SOAP1.2

The **I15** extension package SHALL support SOAP 1.2 binding.

12.2 ebXML Information Model

This specification adopts the general description of the ebXML registry information model (ebRIM) provided in clause 6.2 of the OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110r4]. The concept of repository item and extension package respectively described in clauses 7.3 and 17 of OGC 07-110r4 are also fully relevant.

12.2.1 Management of spatial references

The statements expressed in clause 7.8 of the OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110r4] relatively to the management of spatial references in ebRIM are applicable.

12.2.2 Multiplicity of slots

The UML Model of the ebRIM I15 expresses the need to repeat the ebRIM slots. This is not possible accordingly to version 3.0 of ebRIM. Consequently, the slots will not be repeated, but they will have instead multiple values.

12.2.3 Application schemas

The application schema described in Annex A of the OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110] is applicable.

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

12.2.4 Semantic issues

None.

12.3 Operations

This specification adopts the operations defined in clauses 8 to 15 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110], and particularly:

- The GetCapabilities operation defined in its clause 8;
- The DescribeRecord operation defined in its clause 9;
- The GetRecords operation defined in its clause 10;
- The GetRecordById operation defined in its clause 11;
- The GetRepositoryItem operation defined in its clause 12;
- The GetDomain operation defined in its clause 13;
- The Harvest operation defined in its clause 14;
- The Transaction operation defined in its clause 15.

12.3.1 Specificities of the GetRecords operation

In the following you´ll find hints how the implementation of a classification with a node of a classificationScheme has to be provided:

In such a classification the rim:Classification object SHALL only appear with two attributes: the "@classifiedObject" (id of the object being classified) and "@classificationNode" (a node from a classificationScheme). "@classificationScheme" SHALL NOT be used explicitly as it is inherent in the value of "@classificationNode" included.

Formally the value of such a "@classificationNode" looks like this: CLASSIFICATION_SCHEMA ":" CLASSIFICATION_NODE

A separate variable for a ClassificationNode (like: "ClassificationNode_cn1") SHALL NOT be used.

Example (where the object $e1 is classified with the classificationNode "climatologyMeteorologyAtmosphere" from the classificationScheme "urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::TopicCategory"):

```
<ogc:PropertyIsEqualTo>
            <ogc:PropertyName>$e1/@id</ogc:PropertyName>
            <ogc:PropertyName>$c2/@classifiedObject</ogc:PropertyName>
      </ogc:PropertyIsEqualTo>
      <ogc:PropertyIsEqualTo>
            <ogc:PropertyName>$c2/@classificationNode</ogc:PropertyName>
            <ogc:Literal>urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::TopicCategory:climatologyMeteorologyAtmosphere</ogc:Literal>
 </ogc:PropertyIsEqualTo>
```


Req /req/core/GetRecords

A catalogue server implementing the **I15** extension package SHALL assure that GetRecords filter statements using the I15 Core RegistryObjects (and - if including classifications with a ClassificationSchema Node - follow the hint defined above) are correctly understood.

Req /req/extension/GetRecords

A catalogue server implementing the extended version of the **I15** extension package SHALL assure that GetRecords filter statements using the I15 Extension RegistryObjects are understood.

12.3.2 Specificities of the GetRecords/GetRecordsById full response

In the I15 Model the ISO19115 fileIdentifier (XPath: /gmd:MD_Metadata/gmd:fileIdentifier/gco:CharacterString) is mapped to the ExtrinsicObject MetadataInformation (slot: Identifier) and the ISO19115 resourceIdentifier (XPath: /gmd:MD_Metadata/gmd:identificationInfo/(<gmd:MD_DataIdentification |srv:SV_ServiceIdentification>)/gmd:citation/gmd:CI_Citation/gmd:identifier.RS_Identifier.code) is mapped to an ExternalIdentifier of an ExtrinsicObject which is derived from the ExtrinsicObject ResourceMetadata. For convenience reasons the fileIdentifier SHALL (within a GetRecords response) be added as additional ExternalIdentifier to the ExtrinsicObject which is derived from the ExtrinsicObject ResourceMetadata.

To be able to differentiate the two ExternalIdentifier (fileIdentifier and resourceIdentifier) the value of the ExternalIdentifier´s “identificationScheme” attribute shall be one of

urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::IdentifierScheme:fileIdentifier

urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::IdentifierScheme:resourceIdentifier

Example:

```
<rim:ExternalIdentifier
    registryObject="<RegistrObjectID>"
    id="<ExternalIdentifierIDForFileIdentifier>"
    value="<fileIdentifier>"
    identificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::IdentifierScheme:fileIdentifier"
    objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExternalIdentifier"/>
```

Req /req/core/ContentFullResponse

A catalogue server implementing the **I15** extension package SHALL assure that the response of a GetRecords- or GetRecordById-full request provides the Core RegistryObjects.

Req /req/extension/ContentFullResponse

A catalogue server implementing the extended version of the **I15** extension package SHALL assure that a GetRecords- or GetRecordById-full request provide the Extension RegistryObjects.

Req /req/core/OrderOfFullResponse

The full response SHALL include the slots and classifications as childs of the main extrinsic object (which is mostly the one derived from ResourceMetadata).

All other associated ExtrinsicObjects (like "Rights") are arranged at the same level as the main extrinsic object.

12.3.3 Specificities of the GetCapabilities operation

This extension package adopts the service information model of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110].

12.3.4 Specificities of the GetRepositoryItem operation

Req / req/core/GetRepositoryItem

The object types defined in the I15 Extension Package that are expected to be linked to ISO19139 XML repository items are the following ExtrinsicObjects: DatasetCollection, ElementaryDataset, ServiceMetadata and Application.

Clause 7.3 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110] applies.

12.3.5 Specificities of the Harvest operation

The publication of an ISO 19115/19115-2/19119 metadata record needs to create a set of registry objects. The mapping between ISO 19115/19115-2/19119 and the I15 Information Model provided in section 11 defines how to ensure the publication of the metadata records consistently.

Req /req/extension/Harvest

If the optional harvest operation is supported the definition in the Capabilities document SHALL advertise support for ISO 19139 metadata resourceType using the following value: MetadataSet.ISO19139.

12.3.6 Error handling

The statements expressed in clause 7.4 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110] relatively to exception reports are applicable.

12.4 CSW record binding

The statements expressed in clause 7.5 of the OGC *CSW-ebRIM Registry Service* - Part 1: ebRIM profile of CSW [OGC 07-110] concerning the registry object views, and their relationship with the ebRIM information items are applicable.

This specification remains compliant with the mapping of registry objects to CSW records defined in clause 7.6 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110].

12.5 Security considerations

None.

12.6 Native language support

The statements expressed in clause 7.7 of the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110] relatively to the support of multilingual property values are applicable.

12.7 Distributed Search

Like the OGC CSW-ebRIM Registry Service - Part 1: ebRIM profile of CSW [OGC 07-110], this extension package 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.

Annex A: Abstract Test Suite (normative)

A.1. Conformance Test Class Core (/conf/core)

A.1.1. Test: conf/core/SOAP1.2

Requirements	/req/core/SOAP1.2
Test purpose	Verify that the service supports the SOAP 1.2 binding.
Test method	Verify that the service under test responds to the request encoded in the body of a SOAP 1.2 envelope by generating a SOAP 1.2 message where the expected content is the content of the <soap:Body> element. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.1.2. Test: /conf/core/packageMembership

Requirements	/req/core/packageMembership
Test purpose	The I15 package is available as a supported extension package and the RegistryObjects related to the Core are all available.
Test method	Verify that a rim:RegistryPackage element with @id = “urn:ogc:def:ebRIM-RegistryPackage:OGC-I15” and Name property set to ‘I15 (former CIM) extension package for Web Registry Service’ is a member of the ‘root’ package, which contains all packages supported by the service, and contains the additional extrinsic objects, association types, classification schemes and nodes and slots defined by the specification for the core. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.1.3. Test: /conf/core/GetRecords

Requirements	/req/core/GetRecords, /req/core/ServicesTaxonomy
Test purpose	Verify that filters in GetRecords requests using typical I15 Core RegistryObjects are correctly understood
Test method	Verify that the service under test understands a GetRecords request including a filter statement using encoded I15 Core RegistryObjects Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.1.4. Test: /conf/core/FullResponse

Requirements	/req/core/ContentFullResponse, /req/core/OrderOfFullResponse, /req/core/ServicesTaxonomy
Test purpose	Verify that the service´s GetRecords / GetRecordById-full responses correctly include I15 Core RegistryObjects (including their correct ordering).
Test method	Verify that the service under test assures that a GetRecords- or GetRecordById-full request provides a response which encodes I15 Core RegistryObjects (minimally the mandatory ones) and that the cardinalities are correct. Further verify that the response includes the slots, classifications and associations in a correct order. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.1.5. Test: /conf/core/ISO2I15Mappings

Requirements	/req/core/ResourceMetadata, /req/core/KeywordAndThesaurusInformation, /req/core/DataMetadata, /req/core/ServiceMetadata, /req/core/Application, /req/core/ConstraintInformation, /req/core/BrowseGraphicInformation, /req/core/Citation, /req/core/MetadataPointOfContact, /req/core/QualityConformanceInformation, /req/core/ServicesTaxonomy, /req/core/BPDataset, /req/core/BPService, /req/core/BPServiceOperatesOn
Test purpose	The metadata of an ISO 19139 document describing a dataset or dataset collection, an application or a service are correctly mapped to the appropriate core extrinsic objects, attributes, slots, associations and classifications.
Test method	Verify that the mappings between the ISO 19139 document and the extrinsic objects, attributes, slots, associations and classifications correspond to those specified in the I15 core model. Pass if the mappings are correctly applied; fail otherwise.
Test type	Capability

A.1.6. Test: /conf/core/GetRepositoryItem

Requirements	/req/core/GetRepositoryItem
Test purpose	Repository items are accessed through to extrinsic objects of type ElementaryDataset, DatasetCollection, ServiceMetadata and Application.
Test method	Verify that a GetRepositoryItem request with an id matching an ElementaryDataset, DatasetCollection, ServiceMetadata or Application ExtrinsicObject returns the ISO 19139 file attached to this object with status code 200 or an HTTP 404 error if no repository item is available. Further test that the ISO 19139

	repository item contains only one instance of the MD_Metadata.identificationInfo property. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.2. Conformance Test Class Extension (/conf/extension)

A.2.1. Test: /conf/ extension/packageMembership

Requirements	/req/extension/packageMembership
Test purpose	The I15 package is available as a supported extension package and the RegistryObjects related to the Extension are all available (additional to those of the Core).
Test method	Verify that all RegistryObjects related to the Extension are all available. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.2.2. Test: /conf/extension/GetRecords

Requirements	/req/extension/GetRecords
Test purpose	Verify that filters in GetRecords requests including I15 Extension RegistryObjects are correctly understood.
Test method	Verify that the service under test understands a GetRecords request including a filter statement using encoded I15 Extension RegistryObjects Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.2.3. Test: /conf/extension/FullResponse

Requirements	/req/extension/ContentFullResponse
Test purpose	Verify that the service´s GetRecords / GetRecordById-full responses correctly include I15 Extension RegistryObjects (including their correct ordering).
Test method	Verify that the service under test assures that a GetRecords- or GetRecordById-full request provides a response which encodes I15 Extension RegistryObjects (minimally the mandatory ones) and that the cardinalities are correct. Pass if the assertion is satisfied; fail otherwise.
Test type	Capability

A.2.4. Test: /conf/extension/ISO2I15Mappings

Requirements	/req/extension/ReferenceSystemInformation, /req/extension/QualityInformation, /req/extension/AcquisitionInformation, /req/extension/ResourceMetadataContext
Test purpose	The metadata of an ISO 19139 document describing a dataset or dataset collection, an application or a service are correctly mapped to the appropriate extension extrinsic objects, attributes, slots, associations and classifications.
Test method	Verify that the mappings between the ISO 19139 document and the extrinsic objects, attributes, slots, associations and classifications correspond to those specified in the I15 extension model. Pass if the mappings are correctly applied; fail otherwise.
Test type	Capability

A.2.5. Test: /conf/extension/Harvest

Requirements	/req/extension/Harvest
Test purpose	The harvest operation definition advertises the support for ISO 19139 metadata.
Test method	Verify that the description of the harvest operation in the IUT Capabilities document includes the resourceType MetadataSet.ISO19139. Pass if the assertion is satisfied; fail otherwise
Test type	Capability

Annex B: Examples

B.1 Data Example

This example shows an ISO19139 file representing a dataset series which is mapped to a I15 core representation[16] of a DatasetCollection (including all slots, classification and associated ExtrinsicObjects.

B.1.1 ISO19139 encoding

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Info : This ISO19139 series instance is a (reduced) Instance from the EUMETSAT Product Navigator
(navigator.eumetsat.int) -->
<!-- Author : Uwe Voges -->
<!-- Date: 27.05.2013 -->
<gmd:MD_Metadata xmlns:str="http://exslt.org/strings" xmlns:date="http://exslt.org/dates-and-times"
xmlns:fn="http://www.w3.org/TR/xpath-functions" xmlns:xlink=http://www.w3.org/1999/xlink
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gmd=http://www.isotc211.org/2005/gmd
 xmlns:gml="http://www.opengis.net/gml" xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:xdt="http://www.w3.org/2005/02/xpath-datatypes" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://www.isotc211.org/2005/gmd" xsi:schemaLocation="http://www.isotc211.org/2005/gmd
http://schemas.opengis.net/csw/2.0.2/profiles/apiso/1.0.0/apiso.xsd">
    <gmd:fileIdentifier>
        <gco:CharacterString>EO_EUM_DAT_METOP_IASIL2TWT</gco:CharacterString>
    </gmd:fileIdentifier>
    <gmd:language>
        <gmd:LanguageCode codeList="http://www.w3.org/WAI/ER/IG/ert/iso639.htm" codeListValue="en"/>
    </gmd:language>
    <gmd:characterSet>
        <gmd:MD_CharacterSetCode codeList="" codeListValue="utf8"/>
    </gmd:characterSet>
    <gmd:hierarchyLevel>
        <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/
resources/Codelist /gmxCodelists.xml#MD_ScopeCode" codeListValue="series"/>
    </gmd:hierarchyLevel>
    <gmd:hierarchyLevelName>
        <gco:CharacterString>theme.par.Atmosphere</gco:CharacterString>
    </gmd:hierarchyLevelName>
    <gmd:contact/>
    <gmd:dateStamp>
        <gco:Date>2012-06-11</gco:Date>
    </gmd:dateStamp>
    <gmd:metadataStandardName>
        <gco:CharacterString>ISO19115</gco:CharacterString>
    </gmd:metadataStandardName>
    <gmd:metadataStandardVersion>
        <gco:CharacterString>2003/Cor.1:2006</gco:CharacterString>
    </gmd:metadataStandardVersion>
    <gmd:identificationInfo>
        <gmd:MD_DataIdentification uuid="EO_EUM_DAT_METOP_IASIL2TWT"
id="EO_EUM_DAT_METOP_IASIL2TWT">
            <gmd:citation>
                <gmd:CI_Citation>
                    <gmd:title>
                        <gco:CharacterString>IASI Atmospheric Temperature Water Vapour and Surface
Skin Temperature - Metop</gco:CharacterString>
                    </gmd:title>
                    <gmd:alternateTitle>
                        <gco:CharacterString>IASIL2TWT</gco:CharacterString>
                    </gmd:alternateTitle>
                    <gmd:date>
```

[16] The Dataset ExtrinsicObject (for Basic Package alignment) is not considered here).


```
                                    <gmd:CI_Date>
                                        <gmd:date>
                                            <gco:Date>2009-03-23</gco:Date>
                                        </gmd:date>
                                        <gmd:dateType>
                                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#CI_DateTypeCode" codeListValue="creation"/>
                                        </gmd:dateType>
                                    </gmd:CI_Date>
                                </gmd:date>
                                <gmd:date>
                                    <gmd:CI_Date>
                                        <gmd:date>
                                            <gco:Date>2010-09-29</gco:Date>
                                        </gmd:date>
                                        <gmd:dateType>
                                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#CI_DateTypeCode" codeListValue="revision"/>
                                        </gmd:dateType>
                                    </gmd:CI_Date>
                                </gmd:date>
                                <gmd:date>
                                    <gmd:CI_Date>
                                        <gmd:date>
                                            <gco:Date>2009-04-23</gco:Date>
                                        </gmd:date>
                                        <gmd:dateType>
                                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#CI_DateTypeCode" codeListValue="publication"/>
                                        </gmd:dateType>
                                    </gmd:CI_Date>
                                </gmd:date>
                                <gmd:identifier>
                                    <gmd:MD_Identifier>
                                        <gmd:code>

      <gco:CharacterString>EO_EUM_DAT_METOP_IASIL2TWT</gco:CharacterString>
                                        </gmd:code>
                                    </gmd:MD_Identifier>
                                </gmd:identifier>
                            </gmd:CI_Citation>
                        </gmd:citation>
                        <gmd:abstract>
                            <gco:CharacterString>The main objective of the Infrared Atmospheric Sounding Interferometer
(IASI) is to provide  high resolution atmospheric emission spectra to derive temperature and humidity profiles with high
spectral and vertical resolution and accuracy. Additionally it is used for the determination of trace gases, as well as
land and sea surface temperature, emissivity and cloud properties. The Atmospheric Water Vapour and Surface Skin
Temperature ( TWT) product contains the vertical profiles of atmospheric  temperature and humidity, with a vertical
sampling at 90 pressure levels, and surface skin temperature. The vertical profiles are retrieved from the IASI sounder
measurements (of IASI L1C product), which has a spatial sampling of about 25 km at nadir. The quality of the  vertical
profiles is strongly related to the cloud properties available in the IASI CLP product. This product is available via the
Data Centre as the IASI Combined Sounding Products: EO:EUM:DAT:METOP:IASSND02</gco:CharacterString>
                        </gmd:abstract>
                        <gmd:pointOfContact>
                            <gmd:CI_ResponsibleParty>
                                <gmd:individualName>
                                    <gco:CharacterString>European Organisation for the Exploitation of Meteorological
Satellites
</gco:CharacterString>
                                </gmd:individualName>
                                <gmd:organisationName>
                                    <gco:CharacterString>EUMETSAT</gco:CharacterString>
                                </gmd:organisationName>
                                <gmd:contactInfo>
                                    <gmd:CI_Contact>
                                        <gmd:phone>
                                            <gmd:CI_Telephone>
                                                <gmd:voice>
                                                    <gco:CharacterString>+49(0)6151-807
366/377</gco:CharacterString>
                                                </gmd:voice>
                                                <gmd:facsimile>
```



```
                                                <gco:CharacterString>+49(0)6151-807
379</gco:CharacterString>
                                            </gmd:facsimile>
                                        </gmd:CI_Telephone>
                                    </gmd:phone>
                                    <gmd:address>
                                        <gmd:CI_Address>
                                            <gmd:deliveryPoint>
                                                <gco:CharacterString>EUMETSAT Allee
1</gco:CharacterString>
                                            </gmd:deliveryPoint>
                                            <gmd:city>
                                                <gco:CharacterString>Darmstadt</gco:CharacterString>
                                            </gmd:city>
                                            <gmd:administrativeArea>
                                                <gco:CharacterString>Hessen</gco:CharacterString>
                                            </gmd:administrativeArea>
                                            <gmd:postalCode>
                                                <gco:CharacterString>64295</gco:CharacterString>
                                            </gmd:postalCode>
                                            <gmd:country>
                                                <gco:CharacterString>Germany</gco:CharacterString>
                                            </gmd:country>
                                            <gmd:electronicMailAddress>

        <gco:CharacterString>ops@eumetsat.int</gco:CharacterString>
                                            </gmd:electronicMailAddress>
                                        </gmd:CI_Address>
                                    </gmd:address>
                                    <gmd:onlineResource>
                                        <gmd:CI_OnlineResource>
                                            <gmd:linkage>
                                                <gmd:URL>http://www.eumetsat.int</gmd:URL>
                                            </gmd:linkage>
                                        </gmd:CI_OnlineResource>
                                    </gmd:onlineResource>
                                </gmd:CI_Contact>
                            </gmd:contactInfo>
                            <gmd:role>
                                <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/
ISO_19139_Schemas/resources/Codelist/
ML_gmxCodelists.xml#MD_ScopeCode" codeListValue="originator">originator</gmd:CI_RoleCode>
                            </gmd:role>
                        </gmd:CI_ResponsibleParty>
                    </gmd:pointOfContact>
                    <gmd:graphicOverview>
                        <gmd:MD_BrowseGraphic>
                            <gmd:fileName>

        <gco:CharacterString>http://navigator.eumetsat.int:80/smartEditor/preview/IASI_SST.jpg
</gco:CharacterString>
                            </gmd:fileName>
                        </gmd:MD_BrowseGraphic>
                    </gmd:graphicOverview>
                    <gmd:descriptiveKeywords>
                        <gmd:MD_Keywords>
                            <gmd:keyword>
                                <gco:CharacterString>Atmospheric conditions</gco:CharacterString>
                            </gmd:keyword>
                            <gmd:type>
                                <gmd:MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_KeywordTypeCode" codeListValue="theme"/>
                            </gmd:type>
                            <gmd:thesaurusName>
                                <gmd:CI_Citation>
                                    <gmd:title>
                                        <gco:CharacterString>GEMET - INSPIRE themes, version
1.0</gco:CharacterString>
                                    </gmd:title>
                                    <gmd:date>
                                        <gmd:CI_Date>
                                            <gmd:date>
                                                <gco:Date>2008-06-01</gco:Date>
```

```
                                        </gmd:date>
                                        <gmd:dateType>
                                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#CI_DateTypeCode" codeListValue="publication">publication</gmd:CI_DateTypeCode>
                                        </gmd:dateType>
                                    </gmd:CI_Date>
                                </gmd:date>
                            </gmd:CI_Citation>
                        </gmd:thesaurusName>
                    </gmd:MD_Keywords>
                </gmd:descriptiveKeywords>
                <gmd:descriptiveKeywords>
                    <gmd:MD_Keywords>
                        <gmd:keyword>
                            <gco:CharacterString>Atmosphere</gco:CharacterString>
                        </gmd:keyword>
                        <gmd:type>
                            <gmd:MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_KeywordTypeCode" codeListValue="discipline"/>
                        </gmd:type>
                    </gmd:MD_Keywords>
                </gmd:descriptiveKeywords>
                <gmd:descriptiveKeywords>
                    <gmd:MD_Keywords>
                        <gmd:keyword>
                            <gco:CharacterString>EUMETCast-Europe</gco:CharacterString>
                        </gmd:keyword>
                        <gmd:keyword>
                            <gco:CharacterString>EUMETSAT Data Centre</gco:CharacterString>
                        </gmd:keyword>
                        <gmd:type>
                            <gmd:MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_KeywordTypeCode" codeListValue="place"/>
                        </gmd:type>
                    </gmd:MD_Keywords>
                </gmd:descriptiveKeywords>
                <gmd:resourceConstraints>
                    <gmd:MD_LegalConstraints>
                        <gmd:useLimitation>
                            <gco:CharacterString>-</gco:CharacterString>
                        </gmd:useLimitation>
                        <gmd:accessConstraints>
                            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_RestrictionCode" codeListValue="copyright"/>
                        </gmd:accessConstraints>
                        <gmd:useConstraints>
                            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_RestrictionCode" codeListValue="copyright"/>
                        </gmd:useConstraints>
                    </gmd:MD_LegalConstraints>
                </gmd:resourceConstraints>
                <gmd:spatialRepresentationType>
                    <gmd:MD_SpatialRepresentationTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_SpatialRepresentationTypeCode" codeListValue="grid"/>
                </gmd:spatialRepresentationType>
                <gmd:language>
                    <gmd:LanguageCode codeList="http://www.w3.org/WAI/ER/IG/ert/iso639.htm"
codeListValue="en"/>
                </gmd:language>
                <gmd:characterSet>
                    <gmd:MD_CharacterSetCode codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#CI_CharacterSetCode" codeListValue="utf8"/>
                </gmd:characterSet>
                <gmd:topicCategory>

        <gmd:MD_TopicCategoryCode>climatologyMeteorologyAtmosphere</gmd:MD_TopicCategoryCode>
                </gmd:topicCategory>
                <gmd:extent>
```

```
                    <gmd:EX_Extent>
                        <gmd:geographicElement>
                            <gmd:EX_GeographicBoundingBox>
                                <gmd:extentTypeCode>
                                    <gco:Boolean>true</gco:Boolean>
                                </gmd:extentTypeCode>
                                <gmd:westBoundLongitude>
                                    <gco:Decimal>-180.0</gco:Decimal>
                                </gmd:westBoundLongitude>
                                <gmd:eastBoundLongitude>
                                    <gco:Decimal>180.0</gco:Decimal>
                                </gmd:eastBoundLongitude>
                                <gmd:southBoundLatitude>
                                    <gco:Decimal>-90.0</gco:Decimal>
                                </gmd:southBoundLatitude>
                                <gmd:northBoundLatitude>
                                    <gco:Decimal>90.0</gco:Decimal>
                                </gmd:northBoundLatitude>
                            </gmd:EX_GeographicBoundingBox>
                        </gmd:geographicElement>
                    </gmd:EX_Extent>
                </gmd:extent>
                <gmd:extent>
                    <gmd:EX_Extent>
                        <gmd:geographicElement>
                            <gmd:EX_GeographicDescription>
                                <gmd:geographicIdentifier>
                                    <gmd:MD_Identifier>
                                        <gmd:code>
                                            <gco:CharacterString>Full Global</gco:CharacterString>
                                        </gmd:code>
                                    </gmd:MD_Identifier>
                                </gmd:geographicIdentifier>
                            </gmd:EX_GeographicDescription>
                        </gmd:geographicElement>
                    </gmd:EX_Extent>
                </gmd:extent>
                <extent>
                    <EX_Extent>
                        <temporalElement>
                            <EX_TemporalExtent>
                                <extent>
                                    <gml:TimePeriod gml:id="w13297aaa">
                                        <gml:beginPosition>2009-03-23</gml:beginPosition>
                                        <gml:endPosition>2010-09-29</gml:endPosition>
                                    </gml:TimePeriod>
                                </extent>
                            </EX_TemporalExtent>
                        </temporalElement>
                    </EX_Extent>
                </extent>
            </gmd:MD_DataIdentification>
        </gmd:identificationInfo>
        <gmd:distributionInfo>
            <gmd:MD_Distribution>
                <gmd:distributor>
                    <gmd:MD_Distributor>
                        <gmd:distributorContact>
                            <gmd:CI_ResponsibleParty>
                                <gmd:organisationName>
                                    <gco:CharacterString>EUMETSAT</gco:CharacterString>
                                </gmd:organisationName>
                                <gmd:contactInfo>
                                    <gmd:CI_Contact>
                                        <gmd:address>
                                            <gmd:CI_Address>
                                                <gmd:deliveryPoint>
                                                    <gco:CharacterString>EUMETSAT Allee
1</gco:CharacterString>
                                                </gmd:deliveryPoint>
                                                <gmd:city>

        <gco:CharacterString>Darmstadt</gco:CharacterString>
                                                </gmd:city>
                                                <gmd:administrativeArea>
```

```
        <gco:CharacterString>Hessen</gco:CharacterString>
                                                    </gmd:administrativeArea>
                                                    <gmd:postalCode>

        <gco:CharacterString>64295</gco:CharacterString>
                                                    </gmd:postalCode>
                                                    <gmd:country>

        <gco:CharacterString>Germany</gco:CharacterString>
                                                    </gmd:country>
                                                    <gmd:electronicMailAddress>

        <gco:CharacterString>ops@eumetsat.int</gco:CharacterString>
                                                    </gmd:electronicMailAddress>
                                                </gmd:CI_Address>
                                            </gmd:address>
                                            <gmd:onlineResource>
                                                <gmd:CI_OnlineResource>
                                                    <gmd:linkage>
                                                        <gmd:URL>http://www.eumetsat.int</gmd:URL>
                                                    </gmd:linkage>
                                                </gmd:CI_OnlineResource>
                                            </gmd:onlineResource>
                                        </gmd:CI_Contact>
                                    </gmd:contactInfo>
                                    <gmd:role>
                                        <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
ML_gmxCodelists.xml#MD_ScopeCode" codeListValue="owner">owner</gmd:CI_RoleCode>
                                    </gmd:role>
                                </gmd:CI_ResponsibleParty>
                            </gmd:distributorContact>
                            <gmd:distributorFormat>
                                <gmd:MD_Format>
                                    <gmd:name>
                                        <gco:CharacterString>Native</gco:CharacterString>
                                    </gmd:name>
                                    <gmd:version>
                                        <gco:CharacterString>-</gco:CharacterString>
                                    </gmd:version>
                                    <gmd:specification>
                                        <gco:CharacterString>frequency: 15 (per day)</gco:CharacterString>
                                    </gmd:specification>
                                </gmd:MD_Format>
                            </gmd:distributorFormat>
                            <gmd:distributorFormat>
                                <gmd:MD_Format>
                                    <gmd:name>
                                        <gco:CharacterString>HDF5EPS</gco:CharacterString>
                                    </gmd:name>
                                    <gmd:version>
                                        <gco:CharacterString>-</gco:CharacterString>
                                    </gmd:version>
                                    <gmd:specification>
                                        <gco:CharacterString>frequency: 15 (per day)</gco:CharacterString>
                                    </gmd:specification>
                                </gmd:MD_Format>
                            </gmd:distributorFormat>
                            <gmd:distributorFormat>
                                <gmd:MD_Format>
                                    <gmd:name>
                                        <gco:CharacterString>BUFR</gco:CharacterString>
                                    </gmd:name>
                                    <gmd:version>
                                        <gco:CharacterString>-</gco:CharacterString>
                                    </gmd:version>
                                    <gmd:specification>
                                        <gco:CharacterString>frequency: 15 (per day)</gco:CharacterString>
                                    </gmd:specification>
                                </gmd:MD_Format>
                            </gmd:distributorFormat>
                            <gmd:distributorTransferOptions>
                                <gmd:MD_DigitalTransferOptions>
                                    <gmd:onLine>
```



```
                                        <gmd:CI_OnlineResource>
                                            <gmd:linkage>

        <gmd:URL>http://eoportal.eumetsat.int/userMgmt/protected/dataCentre.faces?acronym=IASSND02</gmd:URL>
                                            </gmd:linkage>
                                            <gmd:protocol>
                                                <gco:CharacterString>http</gco:CharacterString>
                                            </gmd:protocol>
                                            <gmd:name>
                                                <gco:CharacterString>EUMETSAT Data Centre: EUMETSAT
Data Centre
</gco:CharacterString>
                                            </gmd:name>
                                            <gmd:function>
                                                <gmd:CI_OnLineFunctionCode
codeList="CI_OnLineFunctionCode"
codeListValue="order"/>
                                            </gmd:function>
                                        </gmd:CI_OnlineResource>
                                    </gmd:onLine>
                                </gmd:MD_DigitalTransferOptions>
                            </gmd:distributorTransferOptions>
                        </gmd:MD_Distributor>
                    </gmd:distributor>
                </gmd:MD_Distribution>
            </gmd:distributionInfo>
            <gmd:dataQualityInfo>
                <gmd:DQ_DataQuality>
                    <gmd:scope>
                        <gmd:DQ_Scope>
                            <gmd:level>
                                <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/
gmxCodelists.xml#MD_ScopeCode" codeListValue="series"/>
                            </gmd:level>
                        </gmd:DQ_Scope>
                    </gmd:scope>
                    <gmd:lineage>
                        <gmd:LI_Lineage>
                            <gmd:statement>
                                <gco:CharacterString>not yet defined</gco:CharacterString>
                            </gmd:statement>
                        </gmd:LI_Lineage>
                    </gmd:lineage>
                </gmd:DQ_DataQuality>
            </gmd:dataQualityInfo>
</gmd:MD_Metadata>
```

B.1.2 ebXML 3.0 encoding

```
<?xml version="1.0" encoding="UTF-8"?>

<!--  Info   :  This is the I15 (V 1.0) mapping of the ISO19139 series instance. -->
<!--            Authors : Uwe Voges, Maria Rosaria Barone -->
<!--            Date: 01.10.08.2013 -->

 <rim:RegistryPackage xmlns:xi="http://www.w3.org/2001/XInclude"
          xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xlink="http://www.w3.org/1999/xlink"
          xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
          xmlns:ogc="http://www.opengis.net/ogc"
          xmlns:wrs="http://www.opengis.net/cat/wrs/1.0"
         xmlns:gml="http://www.opengis.net/gml">

<wrs:ExtrinsicObject id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::DatasetCollection">

   <rim:Slot name=" http://purl.org/dc/terms/type"
      slotType="urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString">
      <wrs:ValueList>
                    <wrs:AnyValue>
                        <rim:InternationalString>
```

```
                                    <rim:LocalizedString charset="UTF-8" xml:lang="en-US"
value="theme.par.Atmosphere"/>
                                </rim:InternationalString>
                            </wrs:AnyValue>
                        </wrs:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/elements/1.1/language"
        slotType="urn:ogc:def:dataType:RFC-4646:LanguageTag">
        <rim:ValueList>
            <rim:Value>en</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/terms/modified"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
        <rim:ValueList>
            <rim:Value>2010-09-29</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/terms/created"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
        <rim:ValueList>
            <rim:Value>2009-03-23</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/terms/issued"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
        <rim:ValueList>
            <rim:Value>2009-04-23</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/elements/1.1/format"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:String">
        <rim:ValueList>
            <rim:Value>urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::FormatNameAndVersion:BUFR</rim:Value>
            <rim:Value>urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::FormatNameAndVersion:Native</rim:Value>
            <rim:Value>urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::FormatNameAndVersion:HDF5EPS</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="http://purl.org/dc/elements/1.1/source"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:URI">
        <rim:ValueList>

<rim:Value>http://eoportal.eumetsat.int/userMgmt/protected/dataCentre.faces?acronym=IASSND02</rim:Value>
        </rim:ValueList>
    </rim:Slot>

   <rim:Slot name="http://purl.org/dc/elements/1.1/coverage"
        slotType="urn:oasis:names:tc:ebxml-regrep:DataType:String">
        <rim:ValueList>
            <rim:Value>Full Global</rim:Value>
        </rim:ValueList>
    </rim:Slot>

    <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::TemporalBegin"
         slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
        <rim:ValueList>
            <rim:Value>2009-03-23T00:00:00Z</rim:Value>
        </rim:ValueList>
    </rim:Slot>

  <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::TemporalEnd"
         slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
        <rim:ValueList>
            <rim:Value>2010-09-29T00:00:00Z</rim:Value>
        </rim:ValueList>
    </rim:Slot>

   <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::Lineage"
```

```
      slotType="urn:oasis:names:tc:ebxml-regrep:DataType:InternationalString">
      <wrs:ValueList>
                  <wrs:AnyValue>
                        <rim:InternationalString>
                              <rim:LocalizedString charset="UTF-8" xml:lang="en-US" value="not yet defined"/>
                        </rim:InternationalString>
                  </wrs:AnyValue>
                 </wrs:ValueList>
   </rim:Slot>

   <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::Envelope"
      slotType="urn:ogc:def:dataType:ISO-19107:GM_Envelope">
      <wrs:ValueList>
         <wrs:AnyValue>
          <gml:Envelope srsName="urn:ogc:def:crs:EPSG:4326">
             <gml:lowerCorner>-90.0 -180.0</gml:lowerCorner>
             <gml:upperCorner>90.0 180.0</gml:upperCorner>
          </gml:Envelope>
         </wrs:AnyValue>
      </wrs:ValueList>
   </rim:Slot>

   <rim:Slot name="http://purl.org/dc/terms/title"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:InternationalString">
      <wrs:ValueList>
                        <wrs:AnyValue>
                              <rim:InternationalString>
                                <rim:LocalizedString charset="UTF-8" xml:lang="en-US" value="IASIL2TWT"/>
                              </rim:InternationalString>
                  </wrs:AnyValue>
              </wrs:ValueList>
   </rim:Slot>

       <rim:ExternalIdentifier
      registryObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExternalIdentifier"
      identificationScheme="urn:x-ogc:specification:csw-ebrim:EO:UnknownIdentifiers"
      value="EO_EUM_DAT_METOP_IASIL2TWT" id="d1e61:ExternalIdentifier"/>

   <rim:Name>
      <rim:LocalizedString value="IASI Atmospheric Temperature Water Vapour and Surface Skin Temperature -
Metop"/>
   </rim:Name>

   <rim:Description>
      <rim:LocalizedString value="The main objective of the Infrared Atmospheric Sounding Interferometer (IASI) is
to provide high resolution atmospheric emission spectra to derive temperature and humidity profiles with high
spectral and vertical resolution and accuracy. Additionally it is used for the determination of trace gases, as well as
land and sea surface temperature, emissivity and cloud properties. The Atmospheric Water Vapour and Surface
Skin Temperature ( TWT) product contains the vertical profiles of atmospheric temperature and humidity, with a
vertical sampling at 90 pressure levels, and surface skin temperature. The vertical profiles are retrieved from the
IASI sounder measurements (of IASI L1C product), which has a spatial sampling of about 25 km at nadir. The
quality of the vertical profiles is strongly related to the cloud properties available in the IASI CLP product. This
product is available via the Data Centre as the IASI Combined Sounding Products:
EO:EUM:DAT:METOP:IASSND02"/>
   </rim:Description>

   <rim:Classification
      classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::TopicCategory"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::TopicCategory:climatologyMeteorologyAtmosphere"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::TopicCategory:climatologyMeteorologyAtmosphere">
   </rim:Classification>

   <rim:Classification
      classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::SpatialRepresentationType"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::SpatialRepresentation:grid"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::SpatialRepresentation:grid">
   </rim:Classification>
```



```
   <rim:Classification classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeDiscipline"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemeDiscipline:Atmosphere"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemeDiscipline:Atmosphere">
   </rim:Classification>

   <rim:Classification classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET - INSPIRE themes, version 1.0"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::ThesaurusKeywordScheme_GEMET -
INSPIRE themes, version 1.0:Atmospheric conditions"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET%20-%20INSPIRE%20themes%2c%20version%201.0:Atmospheric
conditions">
   </rim:Classification>

  <rim:Classification classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace:EUMETCast-
Europe"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemePlace:EUMETCast-Europe">
   </rim:Classification>

   <rim:Classification classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemePlace:EUMETSAT%20Data%20Centre"
      id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemePlace:EUMETSAT%20Data%20Centre">
   </rim:Classification>

   <rim:Classification classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
               objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
               classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet"
               classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet:utf8"
               id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CharacterSet:utf8">
       </rim:Classification>

</wrs:ExtrinsicObject>

<rim:ClassificationNode
       objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
       parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeDiscipline"
       code="Atmosphere"
       id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeDiscipline:Atmosphere">
        <rim:Name>
          <rim:LocalizedString xml:lang="en" value="Atmosphere"/>
        </rim:Name>
        <rim:Description>
          <rim:LocalizedString xml:lang="en" value="Description of Atmosphere"/>
        </rim:Description>
</rim:ClassificationNode>

 <rim:ClassificationNode
       objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
       parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace"
       code="EUMETCast-Europe"
       id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace:EUMETCast-Europe">
        <rim:Name>
          <rim:LocalizedString xml:lang="en" value="EUMETCast-Europe"/>
        </rim:Name>
        <rim:Description>
          <rim:LocalizedString xml:lang="en" value="Description of EUMETCast-Europe"/>
        </rim:Description>
</rim:ClassificationNode>
```

```
<rim:ClassificationNode
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
      parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemePlace"
      code="EUMETSAT Data Centre"
      id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemePlace:EUMETSAT%20Data%20Centre">
       <rim:Name>
         <rim:LocalizedString xml:lang="en" value="EUMETSAT Data Centre"/>
       </rim:Name>
       <rim:Description>
         <rim:LocalizedString xml:lang="en" value="Description of EUMETSAT Data Centre"/>
       </rim:Description>
</rim:ClassificationNode>

<rim:ClassificationScheme
  xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::ThesaurusKeywordScheme_GEMET%20-
%20INSPIRE%20themes%2c%20version%201.0"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationScheme"
  isInternal="true"
  nodeType="urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode">
     <rim:Name>
       <rim:LocalizedString xml:lang="en" value="GEMET - INSPIRE themes, version 1.0"/>
     </rim:Name>


    <rim:ClassificationNode
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
      parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::ThesaurusKeywordScheme_GEMET%20-
%20INSPIRE%20themes%2c%20version%201.0"
      code="Atmospheric conditions"
      id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::ThesaurusKeywordScheme_GEMET%20-
%20INSPIRE%20themes%2c%20version%201.0:Atmospheric%20conditions">
       <rim:Name>
         <rim:LocalizedString xml:lang="en" value="Atmospheric conditions"/>
       </rim:Name>
       <rim:Description>
         <rim:LocalizedString xml:lang="en" value="Description of Atmospheric conditions"/>
       </rim:Description>
     </rim:ClassificationNode>

</rim:ClassificationScheme>

       <wrs:ExtrinsicObject id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4:ExtrinsicObject:CitedItem:d2e258"
                objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::CitedItem">
    <rim:Slot name="http://purl.org/dc/terms/issued"
           slotType="urn:oasis:names:tc:ebxml-regrep:DataType:Date">
      <rim:ValueList>
        <rim:Value>2008-06-01</rim:Value>
      </rim:ValueList>
    </rim:Slot>
    <rim:Name>
      <rim:LocalizedString value="GEMET - INSPIRE themes, version 1.0"/>
    </rim:Name>
  </wrs:ExtrinsicObject>


  <rim:Association id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4:Association:Thesaurus::d2e258"
              associationType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::Thesaurus"
              sourceObject="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET%20-%20INSPIRE%20themes%2C%20version%201.0"
              targetObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4:ExtrinsicObject:CitedItem:d2e258"/>


<rim:Association id="d1e61:graphicOverviewAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationType="urn:ogc:def:ebRIM-AssociationType:OGC:GraphicOverview"
   sourceObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
   targetObject="urn:uuid:d1e61:graphicOverviewExtrinsicObject"/>

<rim:ExtrinsicObject id="urn:uuid:d1e61:graphicOverviewExtrinsicObject"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Image">
   <rim:Name>
     <rim:LocalizedString xml:lang="en-US" charset="UTF-8"
```

```
        value="http://navigator.eumetsat.int:80/smartEditor/preview/IASI_SST.jpg"/>
   </rim:Name>
</rim:ExtrinsicObject>

<rim:Association id="urn:uuid:d1e61:pointOfContactAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::CitedResponsibleParty"
   sourceObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
   targetObject="urn:uuid:d1e61:pointOfContactOrganization">

      <rim:Classification id="urn:uuid:d1e61:pointOfContactClassification"
       objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
       classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CitedResponsibleParty"
          classifiedObject="urn:uuid:d1e61:pointOfContactAssociation"
          classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CitedResponsibleParty:pointOfContact"/>

   </rim:Association>

<rim:Organization id="urn:uuid:d1e61:pointOfContactOrganization"  primaryContact="urn:uuid:d1e61:person"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization">
   <rim:Name>
      <rim:LocalizedString xml:lang="en-US" charset="UTF-8"
         value="EUMETSAT"/>
   </rim:Name>
   <EmailAddress address="ops@eumetsat.int"/>
</rim:Organization>

<rim:Person id="urn:uuid:d1e61:person"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Person">
   <rim:PersonName lastName="European Organisation for the Exploitation of Meteorological Satellites"/>
</rim:Person>

 <wrs:ExtrinsicObject id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e346"
                  objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::LegalConstraints">

     <rim:Description>
                     <rim:LocalizedString xml:lang="en" value="-"/>
              </rim:Description>

              <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e346"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e346"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::RestrictionCode:copyright">
                                 <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionType:d2e346"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e346"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionType:use"/>
              </rim:Classification>

              <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e358"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e346"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::RestrictionCode:copyright">
                              <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionType:d2e358"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e358"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionType:access"/>
              </rim:Classification>

 </wrs:ExtrinsicObject>

 <rim:Association id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4:Association:ResourceConstraints:d2e370"
               associationType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::ResourceConstraints"
               sourceObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
               targetObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e346"/>
```

```
<rim:Association id="urn:uuid:d1e61:resourceAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::ResourceMetadataInformation"
   sourceObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"
   targetObject="urn:uuid:d1e61:resourceMetadataInformation"/>


<wrs:ExtrinsicObject id="urn:uuid:d1e61:resourceMetadataInformation"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::MetadataInformation">

   <rim:Slot name="http://purl.org/dc/elements/1.1/identifier"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:String">
      <rim:ValueList>
         <rim:Value>EO_EUM_DAT_METOP_IASIL2TWT</rim:Value>
      </rim:ValueList>
   </rim:Slot>

  <rim:Slot name="http://purl.org/dc/elements/1.1/language"
      slotType="urn:ogc:def:dataType:RFC-4646:LanguageTag">
      <rim:ValueList>
         <rim:Value>en</rim:Value>
      </rim:ValueList>
   </rim:Slot>

  <rim:Slot name="http://purl.org/dc/elements/1.1/date"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:Date">
      <rim:ValueList>
         <rim:Value>2012-06-11</rim:Value>
      </rim:ValueList>
   </rim:Slot>

        <rim:Slot name="http://purl.org/dc/terms/conformsTo" slotType="urn:oasis:names:tc:ebxml-
regrep:DataType:String">
       <rim:ValueList>
         <rim:Value>urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::MetadataStandardNameAndVersion:ISO19115:2003/Cor.1:2006</rim:Value>
       </rim:ValueList>
     </rim:Slot>

<rim:Classification classifiedObject="urn:uuid:d1e61:resourceMetadataInformation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
   classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet"
   classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet:utf8"
   id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CharacterSet:utf8"> </rim:Classification>

</wrs:ExtrinsicObject>

<rim:ClassificationNode
       objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
       parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::MetadataStandardNameAndVersion"
       code="ISO19115:2003/Cor.1:2006"
       id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::MetadataStandardNameAndVersion:ISO19115:2003/Cor.1:2006">
        <rim:Name>
          <rim:LocalizedString xml:lang="en" value="ISO19115:2003/Cor.1:2006"/>
        </rim:Name>
        <rim:Description>
          <rim:LocalizedString xml:lang="en" value="Description of ISO19115:2003/Cor.1:2006"/>
        </rim:Description>
</rim:ClassificationNode>

</rim:RegistryPackage>
```

B.2 Service Example

This example shows an ISO19115/191139 file representing a service which is mapped to a I15 core representation[17] of a ServiceMetadata (including all slots, classification and associated ExtrinsicObjects) including an operatesOn association to the DatasetCollection defined in the previous example..

B.2.1 ISO19139 encoding

```
<!-- Info : This ISO19139 Service Instance is a fictitious metadata document developed by con terra GmbH (www.conterra.de) for the I15 specification document -->
<!-- Author : Uwe Voges -->
<!-- Date: 27.05.2013 -->
<MD_Metadata xmlns="http://www.isotc211.org/2005/gmd" xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:srv="http://www.isotc211.org/2005/srv" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:gml="http://www.opengis.net/gml" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gco="http://www.isotc211.org/2005/gco" xsi:schemaLocation="http://www.isotc211.org/2005/gmd
http://schemas.opengis.net/csw/2.0.2/profiles/apiso/1.0.0/apiso.xsd">
    <fileIdentifier>
        <gco:CharacterString>6CF2886F-0124-4A4C-B76B-38CC1D3D0D85</gco:CharacterString>
    </fileIdentifier>
    <language>
        <LanguageCode codeList="http://www.w3.org/WAI/ER/IG/ert/iso639.htm" codeListValue="en"/>
    </language>
    <characterSet>
        <MD_CharacterSetCode codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?MD_CharacterSetCode"
codeListValue="utf8"/>
    </characterSet>
    <hierarchyLevel>
        <MD_ScopeCode codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?MD_ScopeCode"
codeListValue="service"/>
    </hierarchyLevel>
    <contact>
        <CI_ResponsibleParty>
            <individualName>
                <gco:CharacterString>Uwe Voges</gco:CharacterString>
            </individualName>
            <organisationName>
                <gco:CharacterString>con terra GmbH</gco:CharacterString>
            </organisationName>
            <positionName>
                <gco:CharacterString>Geospatial Systems Architect</gco:CharacterString>
            </positionName>
            <contactInfo>
                <CI_Contact>
                    <phone>
                        <CI_Telephone>
                            <voice>
                                <gco:CharacterString>++49 (0)251 7474100</gco:CharacterString>
                            </voice>
                        </CI_Telephone>
                    </phone>
                    <address>
                        <CI_Address>
                            <deliveryPoint>
                                <gco:CharacterString>Martin-Luther-King-Weg 24</gco:CharacterString>
                            </deliveryPoint>
                            <city>
                                <gco:CharacterString>Münster</gco:CharacterString>
                            </city>
                            <postalCode>
                                <gco:CharacterString>48155</gco:CharacterString>
                            </postalCode>
```

[17] The Service ExtrinsicObject and the operatesOn associations defined in the Basic Extension Package are not considered here.


```
                                        <country>
                                            <gco:CharacterString>Germany</gco:CharacterString>
                                        </country>
                                        <electronicMailAddress>
                                            <gco:CharacterString>conterra@conterra.de</gco:CharacterString>
                                        </electronicMailAddress>
                                    </CI_Address>
                                </address>
                                <onlineResource>
                                    <CI_OnlineResource>
                                        <linkage>
                                            <URL>http://www.conterra.de</URL>
                                        </linkage>
                                    </CI_OnlineResource>
                                </onlineResource>
                            </CI_Contact>
                        </contactInfo>
                        <role>
                            <CI_RoleCode codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?CI_RoleCode"
codeListValue="pointOfContact"/>
                        </role>
                    </CI_ResponsibleParty>
                </contact>
                <dateStamp>
                    <gco:Date>2013-05-27</gco:Date>
                </dateStamp>
                <metadataStandardName>
                    <gco:CharacterString>ISO19119</gco:CharacterString>
                </metadataStandardName>
                <metadataStandardVersion>
                    <gco:CharacterString>2005/PDAM 1</gco:CharacterString>
                </metadataStandardVersion>
                <identificationInfo>
                    <srv:SV_ServiceIdentification xmlns:srv="http://www.isotc211.org/2005/srv" uuid="_0B23135A-0088-0A7A-72E6-
635462D987F4" id="_0B23135A-0088-0A7A-72E6-635462D987F4">
                        <citation>
                            <CI_Citation>
                                <title>
                                    <gco:CharacterString>Atmosphere Products WMS</gco:CharacterString>
                                </title>
                                <alternateTitle>
                                    <gco:CharacterString>Web Map Service providing EUMETSAT Atmosphere
Products</gco:CharacterString>
                                </alternateTitle>
                                <date>
                                    <CI_Date>
                                        <date>
                                            <gco:Date>2012-12-01</gco:Date>
                                        </date>
                                        <dateType>
                                            <CI_DateTypeCode
codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?CI_DateTypeCode" codeListValue="publication"/>
                                        </dateType>
                                    </CI_Date>
                                </date>
                                <identifier>
                                    <RS_Identifier>
                                        <code>
                                            <gco:CharacterString>_0B23135A-0088-0A7A-72E6-
635462D987F4</gco:CharacterString>
                                        </code>
                                        <codeSpace>
                                            <gco:CharacterString>http://www.eumetsat.int</gco:CharacterString>
                                        </codeSpace>
                                    </RS_Identifier>
                                </identifier>
                            </CI_Citation>
                        </citation>
                        <abstract>
                            <gco:CharacterString>This is the EUMETSAT Web Map Service providing the EUMETSAT Atmosphere
Products which have wider benefits than just its contribution to weather forecasting (e.g. helping detect climate change and are a
valuable resource to scientists trying to gain a better understanding of the processes that affect climate
change).</gco:CharacterString>
                        </abstract>
                        <purpose>
```

```
                    <gco:CharacterString>The primary purpose of this WMS is it´s usage in mapping applications in the
context of scenarios for weather forecasting and detecting climate change.</gco:CharacterString>
                </purpose>
                <status>
                    <MD_ProgressCode
codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?MD_ProgressCode" codeListValue="underDevelopment"/>
                </status>
                <pointOfContact>
                    <CI_ResponsibleParty>
                        <individualName>
                            <gco:CharacterString>European Organisation for the Exploitation of Meteorological
Satellites</gco:CharacterString>
                        </individualName>
                        <organisationName>
                            <gco:CharacterString>EUMETSAT</gco:CharacterString>
                        </organisationName>
                        <contactInfo>
                            <CI_Contact>
                                <phone>
                                    <CI_Telephone>
                                        <voice>
                                            <gco:CharacterString>+49(0)6151-807 366/377</gco:CharacterString>
                                        </voice>
                                        <facsimile>
                                            <gco:CharacterString>+49(0)6151-807 379</gco:CharacterString>
                                        </facsimile>
                                    </CI_Telephone>
                                </phone>
                                <address>
                                    <CI_Address>
                                        <deliveryPoint>
                                            <gco:CharacterString>EUMETSAT Allee 1</gco:CharacterString>
                                        </deliveryPoint>
                                        <city>
                                            <gco:CharacterString>Darmstadt</gco:CharacterString>
                                        </city>
                                        <administrativeArea>
                                            <gco:CharacterString>Hessen</gco:CharacterString>
                                        </administrativeArea>
                                        <postalCode>
                                            <gco:CharacterString>64295</gco:CharacterString>
                                        </postalCode>
                                        <country>
                                            <gco:CharacterString>Germany</gco:CharacterString>
                                        </country>
                                        <electronicMailAddress>
                                            <gco:CharacterString>ops@eumetsat.int</gco:CharacterString>
                                        </electronicMailAddress>
                                    </CI_Address>
                                </address>
                                <onlineResource>
                                    <CI_OnlineResource>
                                        <linkage>
                                            <URL>http://www.eumetsat.int</URL>
                                        </linkage>
                                    </CI_OnlineResource>
                                </onlineResource>
                            </CI_Contact>
                        </contactInfo>
                        <role>
                            <CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/ML_gmxCodelists.x
ml#MD_ScopeCode" codeListValue="originator">originator</CI_RoleCode>
                        </role>
                    </CI_ResponsibleParty>
                </pointOfContact>
                <resourceMaintenance>
                    <MD_MaintenanceInformation>
                        <maintenanceAndUpdateFrequency>
                            <MD_MaintenanceFrequencyCode
codeList="http://www.tc211.org/ISO19139/resources/codeList.xml?MD_MaintenanceFrequencyCode"
codeListValue="continual"/>
                        </maintenanceAndUpdateFrequency>
                    </MD_MaintenanceInformation>
                </resourceMaintenance>
```

```
                <descriptiveKeywords>
                    <MD_Keywords>
                        <keyword>
                            <gco:CharacterString>Atmospheric conditions</gco:CharacterString>
                        </keyword>
                        <type>
                            <MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_KeywordTypeCode" codeListValue="theme"/>
                        </type>
                        <thesaurusName>
                            <CI_Citation>
                                <title>
                                    <gco:CharacterString>GEMET - INSPIRE themes, version
1.0</gco:CharacterString>
                                </title>
                                <date>
                                    <CI_Date>
                                        <date>
                                            <gco:Date>2008-06-01</gco:Date>
                                        </date>
                                        <dateType>
                                            <CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#CI_DateTypeCode" codeListValue="publication">publication</CI_DateTypeCode>
                                        </dateType>
                                    </CI_Date>
                                </date>
                            </CI_Citation>
                        </thesaurusName>
                    </MD_Keywords>
                </descriptiveKeywords>
                <descriptiveKeywords>
                    <MD_Keywords>
                        <keyword>
                            <gco:CharacterString>Atmosphere</gco:CharacterString>
                        </keyword>
                        <type>
                            <MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_KeywordTypeCode" codeListValue="discipline"/>
                        </type>
                    </MD_Keywords>
                </descriptiveKeywords>
                <resourceConstraints>
                    <MD_LegalConstraints>
                        <useLimitation>
                            <gco:CharacterString>-</gco:CharacterString>
                        </useLimitation>
                        <accessConstraints>
                            <MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_RestrictionCode" codeListValue="copyright"/>
                        </accessConstraints>
                        <useConstraints>
                            <MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_RestrictionCode" codeListValue="copyright"/>
                        </useConstraints>
                    </MD_LegalConstraints>
                </resourceConstraints>
                <srv:serviceType>
                    <gco:LocalName>WMS</gco:LocalName>
                </srv:serviceType>
                <srv:serviceTypeVersion>
                    <gco:CharacterString>1.3.0</gco:CharacterString>
                </srv:serviceTypeVersion>
                <srv:extent>
                    <EX_Extent>
                        <geographicElement>
                            <EX_GeographicDescription>
                                <geographicIdentifier>
                                    <MD_Identifier>
                                        <code>
                                            <gco:CharacterString>Full Global</gco:CharacterString>
```

```
                                        </code>
                                    </MD_Identifier>
                                </geographicIdentifier>
                            </EX_GeographicDescription>
                        </geographicElement>
                        <geographicElement>
                            <EX_GeographicBoundingBox>
                                <extentTypeCode>
                                    <gco:Boolean>true</gco:Boolean>
                                </extentTypeCode>
                                <westBoundLongitude>
                                    <gco:Decimal>-180.0</gco:Decimal>
                                </westBoundLongitude>
                                <eastBoundLongitude>
                                    <gco:Decimal>180.0</gco:Decimal>
                                </eastBoundLongitude>
                                <southBoundLatitude>
                                    <gco:Decimal>-90.0</gco:Decimal>
                                </southBoundLatitude>
                                <northBoundLatitude>
                                    <gco:Decimal>90.0</gco:Decimal>
                                </northBoundLatitude>
                            </EX_GeographicBoundingBox>
                        </geographicElement>
                    </EX_Extent>
                </srv:extent>
                <srv:coupledResource>
                    <srv:SV_CoupledResource>
                        <srv:operationName>
                            <gco:CharacterString>GetMap</gco:CharacterString>
                        </srv:operationName>
                        <srv:identifier>
                            <gco:CharacterString>EO_EUM_DAT_METOP_IASIL2TWT</gco:CharacterString>
                        </srv:identifier>
                        <gco:ScopedName codeSpace="http://someurl">METOP_IASIL2TWT_Layer</gco:ScopedName>
                    </srv:SV_CoupledResource>
                </srv:coupledResource>
                <srv:couplingType>
                    <srv:SV_CouplingType codeList="http://someurl#SV_CouplingType" codeListValue="tight"/>
                </srv:couplingType>
                <srv:containsOperations>
                    <srv:SV_OperationMetadata>
                        <srv:operationName>
                            <gco:CharacterString>GetCapabilities</gco:CharacterString>
                        </srv:operationName>
                        <srv:DCP>
                            <srv:DCPList codeList="http://someurl#DCPList" codeListValue="WebServices"/>
                        </srv:DCP>
                        <srv:connectPoint>
                            <CI_OnlineResource>
                                <linkage>
                                    <URL>http://www.eumetsat.int/wms/...?</URL>
                                </linkage>
                            </CI_OnlineResource>
                        </srv:connectPoint>
                    </srv:SV_OperationMetadata>
                </srv:containsOperations>
                <srv:operatesOn xlink:href="http://www.eumetsat.int#EO_EUM_DAT_METOP_IASIL2TWT"
uuidref="EO_EUM_DAT_METOP_IASIL2TWT"/>
            </srv:SV_ServiceIdentification>
        </identificationInfo>
</MD_Metadata>
```

B.2.2 ebXML 3.0 encoding

```
<?xml version="1.0" encoding="UTF-8"?>

<!--  Info   :  This is the I15 (V 1.0) mapping of the ISO19139 service instance. -->
<!--            Authors : Uwe Voges, Maria Rosaria Barone -->
<!--            Date: 01.10.2013 -->

 <rim:RegistryPackage xmlns:xi="http://www.w3.org/2001/XInclude"
        xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
```

```
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns:xlink="http://www.w3.org/1999/xlink"
        xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
        xmlns:ogc="http://www.opengis.net/ogc"
        xmlns:wrs="http://www.opengis.net/cat/wrs/1.0"
       xmlns:gml="http://www.opengis.net/gml">

<wrs:ExtrinsicObject id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceMetadata">

   <rim:Slot name="http://purl.org/dc/terms/issued"
      slotType="urn:oasis:names:tc:ebxml-regrep:DataType:DateTime">
      <rim:ValueList>
         <rim:Value>2012-12-01</rim:Value>
      </rim:ValueList>
   </rim:Slot>

    <rim:Slot name="http://purl.org/dc/elements/1.1/coverage"
      slotType="urn:oasis:names:tc:ebxml-regrep:DataType:String">
      <rim:ValueList>
         <rim:Value>Full Global</rim:Value>
      </rim:ValueList>
   </rim:Slot>

   <rim:Slot name="urn:ogc:def:ebRIM-slot:OGC-I15::Envelope"
      slotType="urn:ogc:def:dataType:ISO-19107:GM_Envelope">
      <wrs:ValueList>
         <wrs:AnyValue>
          <gml:Envelope srsName="urn:ogc:def:crs:EPSG:4326">
            <gml:lowerCorner>-90.0 -180.0</gml:lowerCorner>
            <gml:upperCorner>90.0 180.0</gml:upperCorner>
          </gml:Envelope>
         </wrs:AnyValue>
      </wrs:ValueList>
   </rim:Slot>

   <rim:Slot name="http://purl.org/dc/terms/title"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:InternationalString">
      <wrs:ValueList>
                        <wrs:AnyValue>
                              <rim:InternationalString>
                                <rim:LocalizedString charset="UTF-8" xml:lang="en-US" value="Web Map Service
providing EUMETSAT Atmosphere Products"/>
                              </rim:InternationalString>
                     </wrs:AnyValue>
               </wrs:ValueList>
   </rim:Slot>

       <rim:ExternalIdentifier
      registryObject="urn:uuid:6b22d431-fe30-4bb0-ba54-1f85f925ffd9"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExternalIdentifier"
      identificationScheme="urn:x-ogc:specification:csw-ebrim:EO:UnknownIdentifiers"
      value="_0B23135A-0088-0A7A-72E6-635462D987F4" id="e4f33:ExternalIdentifier"/>

   <rim:Name>
      <rim:LocalizedString value="Atmosphere Products WMS"/>
   </rim:Name>

   <rim:Description>
      <rim:LocalizedString value="This is the EUMETSAT Web Map Service providing the EUMETSAT Atmosphere
Products which have wider benefits than just its contribution to weather forecasting (e.g. helping detect climate
change and are a valuable resource to scientists trying to gain a better understanding of the processes that affect
climate change)."/>
   </rim:Description>

  <rim:Classification classifiedObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:ISO-19119:2005:Services"
      classificationNode="urn:ogc:serviceType:WebMapService:1.3.0"
      id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5_urn:ogc:serviceType:WebMapService:1.3.0">
   </rim:Classification>

  <rim:Classification classifiedObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CouplingType"
```

```
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CouplingType:tight"
      id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CouplingType:tight">
   </rim:Classification>

   <rim:Classification classifiedObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::KeywordSchemeDiscipline"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemeDiscipline:Atmosphere"
      id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::KeywordSchemeDiscipline:Atmosphere">
   </rim:Classification>

   <rim:Classification classifiedObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET%20-%20INSPIRE%20themes%2c%20version%201.0"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET%20-
%20INSPIRE%20themes%2c%20version%201.0:Atmospheric%20conditions"
      id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::ThesaurusKeywordScheme_GEMET%20-
%20INSPIRE%20themes%2c%20version%201.0:Atmospheric%20conditions">
   </rim:Classification>

</wrs:ExtrinsicObject>

 <rim:ClassificationNode
    objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
    parent="urn:ogc:def:ebRIM-ClassificationNode:ISO-19119:2003:Service:Map-Access"
    code="WMS"
    id="urn:ogc:serviceType:WebMapService:1.3.0">
        <rim:Name>
          <rim:LocalizedString xml:lang="en" value="Web Mapping Service (WMS), Version 1.3.0"/>
        </rim:Name>
        <rim:Description>
          <rim:LocalizedString xml:lang="en" value="OGC web service that provides access to a store of geographic
graphics, i.e., pictures of geographic data."/>
        </rim:Description>
   </rim:ClassificationNode>

<rim:Association id="urn:uuid:a5c45:containsOperationAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationtType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::ContainsOperation"
   sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
   targetObject="urn:uuid:a5c45:serviceOperationExtrinsicObject:0">
</rim:Association>

<wrs:ExtrinsicObject id="urn:uuid:a5c45:serviceOperationExtrinsicObject:0"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::ServiceOperation">
        <rim:Name>
        <rim:LocalizedString xml:lang="en" value="GetCapabilities"/>
       </rim:Name>

  <rim:Slot name="http://purl.org/dc/elements/1.1/source"
      slotType="urn:oasis:names:tc:ebxml-regrep:DataType:URI">
      <rim:ValueList>
         <rim:Value>http://www.eumetsat.int/wms/...?</rim:Value>
      </rim:ValueList>
   </rim:Slot>

  <rim:Classification classifiedObject="urn:uuid:a5c45:serviceOperationExtrinsicObject:0"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::DCPList"
      classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::DCPList:WebServices"
      id="urn:uuid:a5c45:serviceOperationExtrinsicObject:0_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::DCPList:WebServices">
   </rim:Classification>

</wrs:ExtrinsicObject>

<rim:Association id="urn:uuid:a5c45:pointOfContactAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationtType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::CitedResponsibleParty"
```

```
   sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
   targetObject="urn:uuid:a5c45:pointOfContactOrganization">

      <rim:Classification id="urn:uuid:a5c45:pointOfContactClassification"
                          objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
                    classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CitedResponsibleParty"
         classifiedObject="urn:uuid:a5c45:pointOfContactAssociation"
         classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CitedResponsibleParty:pointOfContact"/>

   </rim:Association>

<rim:Organization id="urn:uuid:a5c45:pointOfContactOrganization"  primaryContact="urn:uuid:a5c45:person"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization">
   <rim:Name>
      <rim:LocalizedString xml:lang="en-US" charset="UTF-8"
         value="EUMETSAT"/>
   </rim:Name>
   <EmailAddress address="ops@eumetsat.int"/>
</rim:Organization>

<rim:Person id="urn:uuid:a5c45:person"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Person">
   <rim:PersonName lastName="European Organisation for the Exploitation of Meteorological Satellites"/>
</rim:Person>

<wrs:ExtrinsicObject id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e347"
                     objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::LegalConstraints">

    <rim:Description>
                  <rim:LocalizedString xml:lang="en" value="-"/>
            </rim:Description>

            <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e347"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e347"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionCode:copyright">

                        <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionType:d2e347"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e347"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionType:use"/>
            </rim:Classification>

            <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e359"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e347"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionCode:copyright">

                        <rim:Classification id="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionType:d2e359"
                  classifiedObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:Classification:RestrictionCode:d2e359"
                  classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::RestrictionType:access"/>
            </rim:Classification>

 </wrs:ExtrinsicObject>

<rim:Association id="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4:Association:ResourceConstraints:d2e371"
               associationType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::ResourceConstraints"
               sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
               targetObject="urn:uuid:3e31d431-fe30-4bb0-ba54-
1f85f926cac4:ExtrinsicObject:LegalConstraints:d2e347"/>

<rim:Association id="urn:uuid:e77a70:resourceAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationtType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::ResourceMetadataInformation"
   sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
   targetObject="urn:uuid:e77a70:resourceMetadataInformation"/>
```

```
<wrs:ExtrinsicObject id="urn:uuid:e77a70:resourceMetadataInformation"
   objectType="urn:ogc:def:ebRIM-ObjectType:OGC-I15::MetadataInformation">

   <rim:Slot name="http://purl.org/dc/elements/1.1/identifier"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:String">
      <rim:ValueList>
         <rim:Value>6CF2886F-0124-4A4C-B76B-38CC1D3D0D85</rim:Value>
      </rim:ValueList>
   </rim:Slot>

  <rim:Slot name="http://purl.org/dc/elements/1.1/language"
      slotType="urn:ogc:def:dataType:RFC-4646:LanguageTag">
      <rim:ValueList>
         <rim:Value>en</rim:Value>
      </rim:ValueList>
   </rim:Slot>

  <rim:Slot name="http://purl.org/dc/elements/1.1/date"
      slotType="urn:oasis:names:tc:ebxmlregrep:DataType:Date">
      <rim:ValueList>
         <rim:Value>2013-05-27</rim:Value>
      </rim:ValueList>
   </rim:Slot>

        <rim:Slot name="http://purl.org/dc/terms/conformsTo" slotType="urn:oasis:names:tc:ebxml-
regrep:DataType:String">
       <rim:ValueList>
         <rim:Value>urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::MetadataStandardNameAndVersion:ISO19115:2003/Cor.1:2006</rim:Value>
       </rim:ValueList>
     </rim:Slot>

<rim:Classification classifiedObject="urn:uuid:e77a70:resourceMetadataInformation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
   classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet"
   classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CharacterSet:utf8"
   id="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5_urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CharacterSet:utf8"> </rim:Classification>
</wrs:ExtrinsicObject>

<rim:ClassificationNode
       objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ClassificationNode"
       parent="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::MetadataStandardNameAndVersion"
       code="ISO19115:2003/Cor.1:2006"
       id="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::MetadataStandardNameAndVersion:ISO19119:2005/PDAM%201">
        <rim:Name>
          <rim:LocalizedString xml:lang="en" value="ISO19119:2005/PDAM 1"/>
        </rim:Name>
        <rim:Description>
          <rim:LocalizedString xml:lang="en" value="Description of ISO19119:2005/PDAM 1"/>
        </rim:Description>
</rim:ClassificationNode>

<rim:Association id="urn:uuid:e77a70:pointOfContactAssociation"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
   associationtType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::CitedResponsibleParty"
   sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
   targetObject="urn:uuid:e77a70:pointOfContactOrganization">

     <rim:Classification id="urn:uuid:e77a70:pointOfContactClassification"
      objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification"
      classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:OGC-I15::CitedResponsibleParty"
         classifiedObject="urn:uuid:e77a70:pointOfContactAssociation"
         classificationNode="urn:ogc:def:ebRIM-ClassificationScheme:OGC-
I15::CitedResponsibleParty:pointOfContact"/>
   </rim:Association>

<rim:Organization id="urn:uuid:e77a70:pointOfContactOrganization"  primaryContact="urn:uuid:e77a70:person"
   objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Organization">
   <rim:Name>
      <rim:LocalizedString xml:lang="en-US" charset="UTF-8"
         value="con terra GmbH"/>
   </rim:Name>
```

```
    <EmailAddress address="conterra@conterra.de"/>
</rim:Organization>

<rim:Person id="urn:uuid:e77a70:person"
    objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Person">
    <rim:PersonName lastName="Uwe Voges"/>
</rim:Person>

<rim:Association id="urn:uuid:e77a70:operatesOnAssociation"
    objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Association"
    associationtType="urn:ogc:def:ebRIM-AssociationType:OGC-I15::OperatesOn"
    sourceObject="urn:uuid:5f77d431-fe30-4bb0-ba54-1f85f926def5"
    targetObject="urn:uuid:3e31d431-fe30-4bb0-ba54-1f85f926cac4"> <!-- the DatasetCollection ExtrinsicObject -->
    </rim:Association>

</rim:RegistryPackage>
```

Annex C: Revision history

Date	Release	Editor	Primary clauses modified	Description
2007-03-22	0.1.0	N. Lesage	All	First draft
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.
2007-08-13	0.1.7	ML. Vautier	Various	Document corrected and clarified according to comments provided by Ionic
2007.11.19	0.1.8	ML. Vautier	Various	Update to new version of ebRIM AP (07-110)
2009.01.20	0.1.9	Fabian Skivée	Various	Add change request 08-198_CR Add change request 08-197
2009-02-05	0.1.9	Uwe Voges	Annex A-F and G	Review and some corrections.
2009-05-29	0.1.10	ML Vautier, F. Houbie	Annex A-F	Added ATS, edition of annex F
2009-06-02	0.1.10	ML. Vautier	Annex E and F	Corrected table references Modified quality conformance model Updated ATS
2009-07-14	0.1.11	Fabian Skivée Frederic Houbie	All	Reorganize the document structure to improve the readability Improve the thesaurus mapping Change URN to be compliant with OGC NA Change type of Spatial object
2009-12-14	0.1.12	N. Lesage, F. Houbie	10	Complete slot list, ISO-I15 mapping samples
2013-02-07	0.2.0	Uwe Voges	All	Added Requirements
2013-03-21	0.2.0	Uwe Voges	All	Revised main ExtrinsicObjects (including their associations, slots and classifications), e.g. added quality requirements from OWS9 or from 11-05, updated corresponding UML diagrams, changed keyword/thesaurus approach,, aligned data dictionary with revised UML diagrams,…
2013-05-22	0.2.0	Uwe Voges	All	Added Acquisition Information to UML model, data dictionary etc, updated and extended (Quality and Acqusition Information) ISO to I15 mappings, removed SOAP 1.1. support, a whole bunch of smaller changes…
2013-05-28	0.3.0	Uwe Voges	All	Added first ATS version.

2013-06-06	0.3.0	Uwe Voges	All	Added examples, update quality information (slots, mappings,…), OGC N-A URIs
2013-06-10	0.3.0	Uwe Voges	All	Updates Conf Classes, mapping Req Classes / Conf Classes…
2013-06-14	0.3.0	Uwe Voges	All	Solved RIDS from Intecs regarding temporal slot, lineage, primaryContact, …
2013-06-19	0.3.0	Uwe Voges	All	Reviewed the whole document and solved lots of smaller bugs (multiplicities, slot types,…) in UML diagrams, data dictionary and mapping tables.
2013-08-29	0.4.0	Uwe Voges	7.1, 7.3.1.1, 7.3.2, 7.3.9, A 1.2, A 2.1, Examples	Added /req/core/packageMembership, extended /req/extension/packageMembership, improved wording, clarified keyword handling, updated /req/extension/QualityInformation and improved formattings, improved examples, changes associationType "AcquisitionInformation" to "AcquiredBy",
2013-09-03	0.9.3	Uwe Voges	Examples	Review, Update of Examples, Doc ID changed from "07-038" to "13-084"
2013-09-25	1.0.0	Uwe Voges, Carl Reed	Cover page et al., keywords section	Edited cover page, other editorial stuff, updated list of contributors
2013-10-01	1.0.0	Uwe Voges		To be aligned with the Basic Extension Package 1.0.1 changed the following (confirmed in I15 SWG and HMA-S meeting): Prefixes: urn:ogc:def:objectType: changedInto urn:ogc:def:ebRIM-ObjectType: urn:ogc:def:associationType: changedInto urn:ogc:def:ebRIM-AssociationType: urn:ogc:def:classificationScheme: changedInto urn:ogc:def:ebRIM-ClassificationScheme: urn:ogc:def:registryPackage:OGC-CSW-ebRIM-CIM changedInto urn:ogc:def:ebRIM-RegistryPackage:OGC-I15 replaced everywhere: OGC-CSW-ebRIM-CIM into OGC-I15 Added clause regarding OGC-NA identifiers.
2014-01-16 (after OGC public review)	1.0.0	Uwe Voges	Different	ProcessStep EO has now slot Created instead of Date. DataQualityInfo added to DataMetadata in Dictionary, clarifications on usage of classifications in filters, mapping of ISO element resolution, additional ExternalIdentifier for fileIdentifier in GetRecordsResponse, final review, some editorial changes
2014-02-28 (after OGC voting)	1.0.0	Uwe Voges	Different	Moved 'Revision History' to end of document, per current OGC document template; Fixed: Some stereotype names appeared to have additional whitespace, causing formatting justification errors - e.g. Table 70 << Name >> Dropped 'Old Testcase #' from the

				conformance test tables. Some changes of the order of introductory clauses to be align with latest OGC template

