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CSW-ebRIM Registry Service – Part 2: Basic extension package

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i. Preface

Suggested additions, changes, and comments on this draft report are welcome and encouraged. Such suggestions may be submitted by email message or by making suggested changes in an edited copy of this document.

ii. Document terms and definitions

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

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iv. Revision history

Date	Release	Editor	Primary clauses modified	Description
2007-11-21	1.0.0-rc1	R. Martell		Initial release of candidate standard.
2007-12-12	1.0.0-rc2	R. Martell		RWG-approved standard.
2008-02-29	1.0.0	R. Martell		Final approved standard.

Foreword

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.

. The CSW-ebRIM Registry Service specification consists of the following parts:

- OGC 07-110r2, *CSW-ebRIM Registry Service, Part 1: ebRIM profile of CSW*
- OGC 07-144r2, *CSW-ebRIM Registry Service, Part 2: Basic extension package*

Introduction

The Basic package concentrates on the provision of service-related information in support of geospatial applications. It adopts concepts from a variety of sources, including the ISO 19100 series of geomatics standards.

CSW-ebRIM Registry Service – Part 2: Basic extension package

1 Scope

This OGC® document is a companion to the CSW-ebRIM catalogue profile (OGC 07-110r2). It specifies the content of the Basic extension package that shall be supported by all conforming services. The package includes extension elements of general utility that may be used to characterize a wide variety of geographic information resources, with a focus on service-oriented metadata management.

2 Compliance

Compliance with this specification shall be checked using all relevant tests specified in Annex A (normative).

3 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

OGC 03-105r1, *OpenGIS® Geography Markup Language (GML) Implementation Specification* (ISO/CD 19136).

OGC 07-110r2, *CSW-ebRIM Registry Service – Part 1: ebRIM profile of CSW*

OASIS regrep-rim-3.0-os, *ebXML Registry Information Model, Version 3.0*

ISO 19107:2003, *Geographic information – Spatial schema*

ISO 19108:2002, *Geographic information – Temporal schema*

ISO 19119:2003, *Geographic information – Services*

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

4 Terms and definitions

For the purposes of this specification, the definitions specified in Clause 4 of the Web Registry Service Implementation Specification [OGC 07-110r2] shall apply. In addition, the following terms and definitions apply.

4.1
taxonomy
hierarchically structured classification scheme.

4.2
thesaurus
controlled vocabulary comprising a set of interrelated terms.

5 Conventions

5.1 Abbreviated terms

Most of the abbreviated terms listed in Subclause 5.1 of the Web Registry Service Implementation Specification [OGC 07-110r2] apply to this document, plus the following abbreviated terms.

GML Geography Markup Language

5.2 Namespaces

Several prefixes are used throughout this document to designate XML namespaces. Table 1 lists the namespaces used in this document and the specifications in which they are defined; these bindings shall be assumed in the absence of an explicit declaration. The prefixes are **not** normative and are merely employed for convenience—they may appear in examples without being formally declared, and have no semantic significance whatsoever.

Table 1 – Namespace mappings

Prefix	Namespace URI	Specification
wrs	http://www.opengis.net/cat/wrs/1.0	CSW-ebRIM profile (OGC 07-110r2)
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	OGC Catalogue Services 2.0.2 (OGC 07-006r1)
ows	http://www.opengeospatial.net/ows	OWS Common 1.0 (OGC 05-008)
gml	http://www.opengis.net/gml	GML 3.1 (OGC 03-105r1)
wsdl	http://www.w3.org/ns/wsdl	W3C WSDL 2.0 Part 1
xlink	http://www.w3.org/1999/xlink	W3C XLink 1.0

6 Package overview

6.1 Purpose

The Basic package concentrates on the provision of service-related information in support of geospatial applications. It adopts concepts from a variety of sources, including several standards in the ISO 19100 series of geomatics standards.

The main extension elements are summarized in the following UML class diagram (Figure 1). The object types defined in this package are depicted as separate classes, but without exception they are all a kind of ExtrinsicObject.

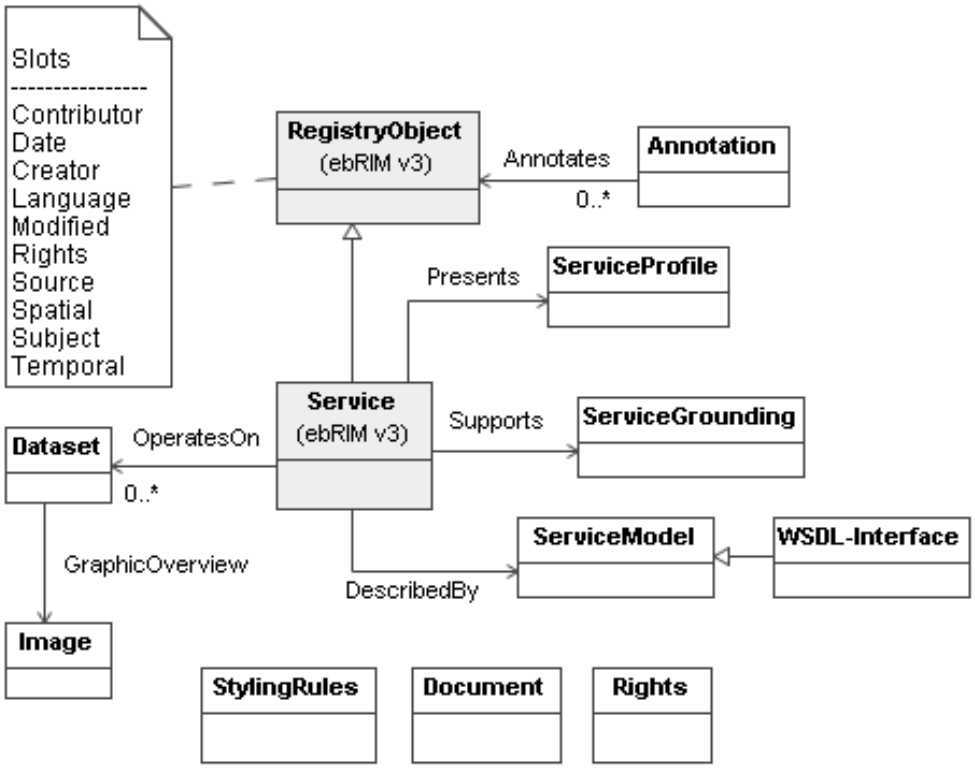

Figure 1 – Object and association types in the Basic package

Several fundamental spatial and temporal data types are defined, based on concepts in the ISO 19107 and ISO 19108 geomatics standards (Figure 2). These types extend the canonical DataType scheme defined in ebRIM 3.0 and are intended to specify the domain of complex slot values; the lexical representations are GML 3.1 elements (OGC 03-105r1). In any slot that contains a complex value, the slotType attribute shall refer to the corresponding node in the canonical data type scheme.

Example A slot specifying a bounding box.

```
<rim:Slot name="Spatial"
  slotType="urn:ogc:def:dataType:ISO-19107:GM_Envelope">
```



```
  <wrs:ValueList>
    <wrs:AnyValue>
      <gml:Envelope srsName="urn:ogc:def:crs:EPSG:4326">
        <gml:lowerCorner>60.042 13.754</gml:lowerCorner>
        <gml:upperCorner>68.410 17.920</gml:upperCorner>
      </gml:Envelope>
    </wrs:AnyValue>
  </wrs:ValueList>
<rim:Slot>
```

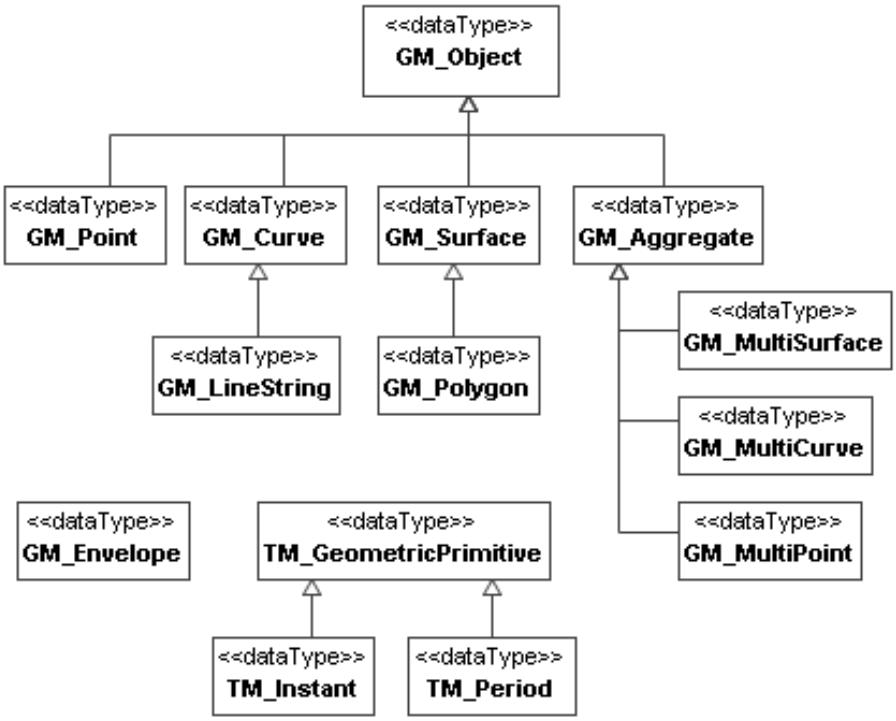

Figure 2 – Data types defined in the Basic package

6.2 Dependencies

The following canonical ebRIM 3.0 classification schemes are required by this package:

- ObjectType Classification Scheme
- AssociationType Classification Scheme
- EventType Classification Scheme
- NodeType Classification Scheme
- StatusType Classification Scheme
- QueryLanguage Classification Scheme

- DataType Classification Scheme

7 Classification schemes

7.1 ISO 19119 services taxonomy

A taxonomy of general geographical services is defined in Clause 8.3 of ISO 19119. A specific rim:Service instance shall be classified only once using this scheme, unless it is an aggregate service that implements more than one service type. The properties of the scheme are summarized in the table below.

Table 2 – Classification scheme: Geographic services taxonomy

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:ISO-19119:2003:Services
Name	Geographic services taxonomy
Description	Defines a taxonomy that may be used to classify services according to their general computational characteristics. See ISO 19119, Clause 8.3.
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	true

7.2 Geographical regions of the world

The Statistics Division of the United Nations Secretariat maintains a geographic coding scheme for statistical reporting purposes. It may be used to broadly indicate the geographic scope or coverage of some information resource. The properties of the scheme are summarized in the table below.

Table 3 – Classification scheme: Standard country or area codes

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:UNSD:Geo
Name	Standard country or area codes and geographical regions for statistical use
Description	Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings. Country codes are also included.
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	true
NOTE See <http://unstats.un.org/unsd/methods/m49/m49regin.htm>.	

7.3 DFDD feature taxonomy

The Digital Geospatial Information Working Group (DGIWG) maintains a Feature Data Dictionary Register containing geographic information concepts used to characterize aspects of real world phenomena. The register defines a comprehensive set of feature types pertaining to natural and built environments; these may be used to characterize the content of a geographic information resource. The properties of the scheme are summarized in the table below.

Table 4 – Classification scheme: DFDD feature taxonomy

Property	Value
Identifier	urn:ogc:def:ebRIM-ClassificationScheme:DGIWG:FeatureTypes
Name	DGIWG Feature Data Dictionary Register - Feature Types
Description	The DGIWG Feature Data Dictionary Register contains geographic information concepts that may be used to characterize aspects of real world phenomena.
Node type	urn:oasis:names:tc:ebxml-regrep:NodeType:UniqueCode
Internal nodes	false
NOTE See <https://www.dgiwg.org/FAD/registers.jsp?register=DFDD>.	

8 Classification nodes

8.1 Object types

8.1.1 ServiceProfile

The OWL-S ontology defines several top-level concepts used to characterize essential aspects of a web service. These concepts support the processing of different kinds of service-related information. A ServiceProfile item denotes an extrinsic object that describes what a service does—its features and capabilities; such information is typically used to discover services of interest. The properties of the classification node are summarized in the table below.

Table 5 – Object type: ServiceProfile

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceProfile
Name	ServiceProfile
Description	Describes what the service does: its features and capabilities (e.g., a capabilities document).
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	ServiceProfile
An OGC capabilities document corresponds to an extrinsic object of this type. It shall be related to a Service item using the "Presents" association (see 8.2.2). NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.1.2 ServiceGrounding

A ServiceGrounding item denotes an extrinsic object that describes how an agent may access a service using specific communication protocols and network endpoints. Alternative representations of such information—such as WSDL and OWL-S documents—are permitted. The properties of the classification node are summarized in the table below.

Table 6 – Object type: ServiceGrounding

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceGrounding
Name	ServiceGrounding
Description	Describes how to access the service: the communications protocols and network endpoints (e.g., a WSDL service description).
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	ServiceGrounding
A service-specific WSDL document (containing service and binding elements) corresponds to an extrinsic object of this type. It shall be related to a Service item using the "Supports" association (see 8.2.3). NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.1.3 ServiceModel

A ServiceModel item denotes an extrinsic object that describes the service interfaces and the semantic content of requests. No specific representation is prescribed, but a WSDL resource (containing interface and types elements) is commonly used for this purpose. The properties of the classification node are summarized in the table below.

Table 7 – Object type: ServiceModel

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceModel
Name	ServiceModel
Description	Describes how the service works, including its essential computational characteristics and behaviours (e.g., a WSDL interface description).
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	ServiceModel
An interface or a process specification corresponds to an extrinsic object of this type. It shall be related to a Service item using the "DescribedBy" association (see 8.2.4). NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.1.4 WSDL-Interface

A WSDL-Interface item describes a specialized ServiceModel object that describes the service interface(s) using the WSDL content model. The WSDL description must not include any service-specific information; this represents an abstract characterization of service operations—interfaces and standard protocol bindings—that are common to all implementations. The properties of the classification node are summarized in the table below.

Table 8 – Object type: WSDL-Interface

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceModel:WSDL-Interface
Name	WSDL-Interface
Description	Describes the service interface(s) and standard protocol bindings using the WSDL content model. No service-specific details are provided.
Parent	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceModel
Code	WSDL-Interface

8.1.5 WSDL-Service

A WSDL-Service item describes a specialized ServiceGrounding object that describes the service endpoints using the WSDL content model. The WSDL description shall include only service-specific details that permit a user agent to access the service. The properties of the classification node are summarized in the table below.

Table 9 – Object type: WSDL-Service

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceGrounding:WSDL-Service
Name	WSDL-Service
Description	Describes the service endpoints and alternative protocol bindings using the WSDL content model. No abstract interface details are provided.
Parent	urn:ogc:def:ebRIM-ObjectType:OGC:ServiceGrounding
Code	WSDL-Service

8.1.6 Dataset

A Dataset item represents a description of an available data resource. No particular data access methods are presumed, nor are any specific representations prescribed. No absolute distinction is drawn between ‘data’ and ‘metadata’, as such a differentiation is largely a matter of context.

Geographic data providers are encouraged to adopt the ISO/TS 19139 standard; this standard defines an XML grammar derived from ISO 19115 (Geographic information -- Metadata). It provides much information about many aspects of digital geographic data.

Table 10 – Object type: Dataset

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:Dataset
Name	Dataset
Description	Description of a data resource that may or may not be electronically available.
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	Dataset
A data description may be related to a Service item using the “OperatesOn” association (see 8.2.1). NOTE The ISO 19139 schemas are publicly available at this URL: <http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/>.	

8.1.7 StylingRules

A StylingRules item is a representation of a set of rules for portraying or formatting an information resource for display on some device; it is typically expressed using a formal style language. No style languages are prescribed, but standards such as XSLT and CSS are widely used. The mimeType attribute value will often serve to identify the style language (e.g. application/xslt+xml, text/css).

Table 11 – Object type: StylingRules

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:StylingRules
Name	StylingRules
Description	Defines a set of rules for portraying or formatting some information resource for display, typically expressed using a style language (e.g., XSLT, CSS).
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	StylingRules

8.1.8 Document

A Document item represents a text resource consisting primarily of words for reading.

Table 12 – Object type: Document

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:Document
Name	Document
Description	A text resource consisting primarily of words for reading.
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	Document

8.1.9 Annotation

An Annotation item represents commentary intended to interpret, explain, or clarify some other resource or part thereof. Annotations are not restricted to textual resources; graphic, audio, and video content may also be employed to provide such metadata.

Table 13 – Object type: Annotation

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:Annotation
Name	Annotation
Description	Commentary intended to interpret, explain, or clarify some other resource or part thereof.
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	Annotation

8.1.10 Image

An Image item is a visual representation other than text. Both still and moving images fall under this category.

EXAMPLE Photographs, maps, diagrams, videos, animations.

Table 14 – Object type: Image

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:Image
Name	Image
Description	A visual representation other than text. Examples: Photographs, maps, diagrams, videos, animations.
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	Image
NOTE The IANA media type registry is available at this URL: <http://www.iana.org/assignments/media-types/>.	

8.1.11 Rights

A Rights item represents information about the rights held in and over a resource. Typically, a Rights object embodies a rights management statement that stipulates conditions of use or distribution. No specific means of expressing or enforcing rights are prescribed, but the use of open standards is encouraged.

EXAMPLE An ODRL or MPEG-21/REL statement.

Table 15 – Object type: Rights

Property	Value
Identifier	urn:ogc:def:ebRIM-ObjectType:OGC:Rights
Name	Rights
Description	Information about the rights held in and over a resource. Typically, a Rights object embodies a rights management statement that stipulates conditions of use or distribution.
Parent	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:ExtrinsicObject
Code	Rights
NOTE See <http://odrl.net/>.	

8.2 Association types

8.2.1 OperatesOn

The "OperatesOn" association relates a Service offer with a description of the data that the service operates on as input or output (see ISO 19119, Table C.1). For an association of this type, the source and target objects shall be of the types indicated in Figure 3.

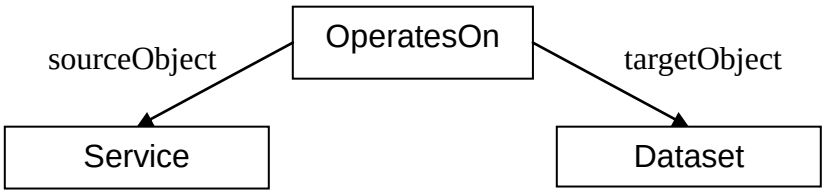

Figure 3 – Object type constraints for the 'OperatesOn' association

Example The "OperatesOn" association.

```
<rim:Association
  id="urn:uuid:ba8348a0-93b2-11dc-893e-0002a5d5c51b"
  sourceObject="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  targetObject="urn:uuid:7f2a1b80-93b2-11dc-bee7-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:OperatesOn"
/>

<rim:Service
  id="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Service" />

<wrs:ExtrinsicObject
  id="urn:uuid:7f2a1b80-93b2-11dc-bee7-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Dataset" />
```

The properties of the classification node are summarized in the table below.

Table 16 – Association type: OperatesOn

Property	Value
Identifier	urn:ogc:def:ebRIM-AssociationType:OGC:OperatesOn
Name	OperatesOn
Description	Associates a Service with a Dataset.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	OperatesOn

8.2.2 Presents

The "Presents" association relates a Service offer with a ServiceProfile resource (see 8.1.2) that describes its essential capabilities; this association type derives from the top level of the OWL-S service ontology [OWL-S]. For an association of this type, the source and target objects shall be of the types indicated in Figure 4.

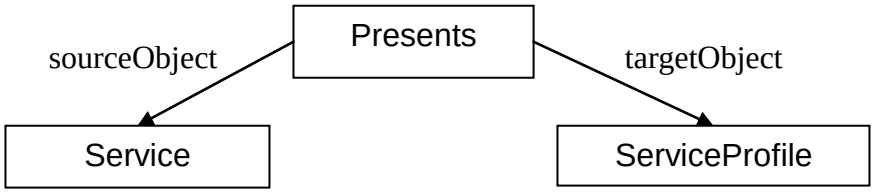

Figure 4 – Object type constraints for the 'Presents' association

Example The "Presents" association.

```
<rim:Association
  id="urn:uuid:b5584a00-93b8-11dc-924b-0002a5d5c51b"
  sourceObject="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  targetObject="urn:uuid:7b62a480-93b8-11dc-9ba1-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:Presents" />

<rim:Service
  id="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Service" />

<wrs:ExtrinsicObject
  id="urn:uuid:7b62a480-93b8-11dc-9ba1-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:ServiceProfile" />
```

The properties of the classification node are summarized in the table below.

Table 17 – Association type: Presents

Property	Value
Identifier	urn:ogc:def:ebRIM-AssociationType:OGC:Presents
Name	Presents
Description	Associates a Service with a ServiceProfile resource that describes its essential capabilities.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	Presents
NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.2.3 Supports

The "Supports" association relates a Service offer with a ServiceGrounding resource (see 8.1.2) that describes how to access the service using some communication protocol; this association type derives from the top level of the OWL-S service ontology [OWL-S]. For an association of this type, the source and target objects shall be of the types indicated in Figure 5.

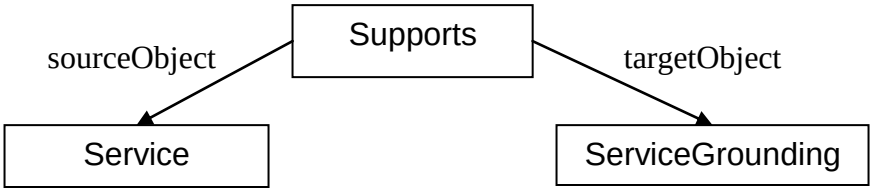

Figure 5 – Object type constraints for the 'Supports' association

Example The "Supports" association.

```
<rim:Association
  id="urn:uuid:24c81f00-93b9-11dc-93e3-0002a5d5c51b"
  sourceObject="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  targetObject="urn:uuid:12865aa0-93b9-11dc-bd37-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:Supports" />

<rim:Service
  id="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Service" />

<wrs:ExtrinsicObject
  id="urn:uuid:12865aa0-93b9-11dc-bd37-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:ServiceGrounding"
  mimeType="application/wsdl+xml">
  <rim:Description>
    <rim:LocalizedString value="WSDL description of service
instance."/>
  </rim:Description>
</wrs:ExtrinsicObject>
```

The properties of the classification node are summarized in the table below.

Table 18 – Association type: Supports

Property	Value
Identifier	urn:ogc:def:ebRIM-AssociationType:OGC:Supports
Name	Supports
Description	Associates a Service with a ServiceGrounding resource that describes how to access the service using some communication protocol.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	Supports
NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.2.4 DescribedBy

The "DescribedBy" association relates a Service offer with a ServiceModel resource (see 8.1.3) that describes how the service works—a specification of its interfaces or processing model; this association type derives from the top level of the OWL-S service ontology [OWL-S]. For an association of this type, the source and target objects shall be of the types indicated in Figure 6.

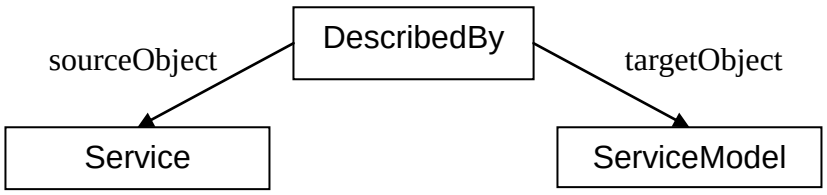

Figure 6 – Object type constraints for the 'DescribedBy' association

```
<rim:Association
  id="urn:uuid:e91c0500-93ba-11dc-9c45-0002a5d5c51b"
  sourceObject="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  targetObject="urn:uuid:88268c20-93ba-11dc-bc61-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:DescribedBy"
/>

<rim:Service
  id="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Service" />

<wrs:ExtrinsicObject
  id="urn:uuid:88268c20-93ba-11dc-bc61-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:ServiceModel"
  mimeType="application/wsdl+xml">
  <rim:Description>
```

```
    <rim:LocalizedString value="WSDL description of service
interface(s)."/>
  </rim:Description>
</wrs:ExtrinsicObject>
```

The properties of the classification node are summarized in the table below.

Table 19 – Association type: DescribedBy

Property	Value
Identifier	urn:ogc:def: ebRIM-AssociationType:OGC:DescribedBy
Name	DescribedBy
Description	Associates a Service with a ServiceModel resource that describes how the service works (i.e., its interfaces or processing model).
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	DescribedBy
NOTE See <http://www.daml.org/services/owl-s/1.1/overview/>.	

8.2.5 Annotates

The "Annotates" association relates an Annotation resource (see 8.1.7) with a registry object (of any type) that it provides additional commentary about. For an association of this type, the source and target objects shall be of the types indicated in Figure 7.

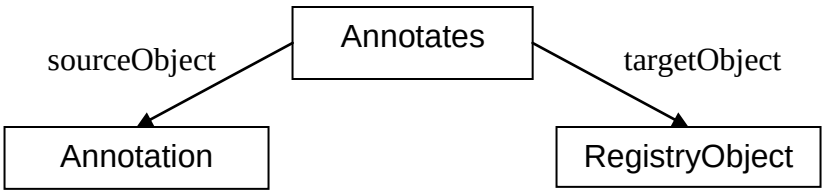

Figure 7 – Object type constraints for the 'Annotates' association

```
<rim:Association
  id="urn:uuid:bd9e2e20-93bb-11dc-b934-0002a5d5c51b"
  sourceObject="urn:uuid:c9d020e0-93bb-11dc-9c70-0002a5d5c51b"
  targetObject="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:Annotates"
/>

<rim:Service
  id="urn:uuid:aa779e20-93b2-11dc-a6e1-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Service" />
```



```
<wrs:ExtrinsicObject
  id="urn:uuid:c9d020e0-93bb-11dc-9c70-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Annotation" />
```

The properties of the classification node are summarized in the table below.

Table 20 – Association type: Annotates

Property	Value
Identifier	urn:ogc:def: ebRIM-AssociationType:OGC:Annotates
Name	Annotates
Description	Associates an Annotation resource with a registry object that it provides commentary about.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	Annotates

8.2.6 GraphicOverview

The "GraphicOverview" association relates a Dataset item with an Image resource that illustrates or graphically summarizes the data set in some manner (see ISO 19115, B.2.2.1). For an association of this type, the source and target objects shall be of the types indicated in Figure 8.

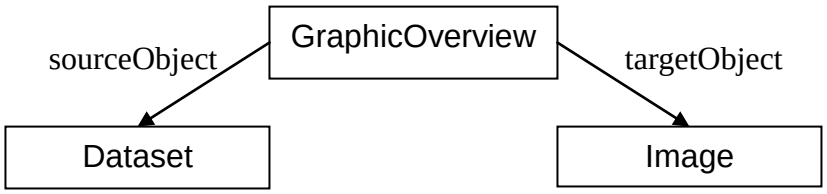

Figure 8 – Object type constraints for the 'GraphicOverview' association

```
<rim:Association
  id="urn:uuid:12b41a00-93bc-11dc-835f-0002a5d5c51b"
  sourceObject="urn:uuid:7f2a1b80-93b2-11dc-bee7-0002a5d5c51b"
  targetObject="urn:uuid:1d765020-93bc-11dc-a52b-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:
GraphicOverview" />

<wrs:ExtrinsicObject
  id="urn:uuid:7f2a1b80-93b2-11dc-bee7-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Dataset" />

<wrs:ExtrinsicObject
  id="urn:uuid:1d765020-93bc-11dc-a52b-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Image" />
```


The properties of the classification node are summarized in the table below.

Table 21 – Association type: GraphicOverview

Property	Value
Identifier	urn:ogc:def: ebRIM-AssociationType:OGC:GraphicOverview
Name	GraphicOverview
Description	Associates a Dataset item with an Image resource that illustrates or summarizes the data in some manner (e.g., a browsing aid).
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	GraphicOverview

8.2.7 Source

The "Source" association relates a registry object with an extrinsic object describing the resource from which it is derived in whole or in part. Such a derived registry object is typically created using information extracted from the corresponding repository item according to a set of mapping rules (see clause 12). For an association of this type, the source and target objects shall be of the types indicated in Figure 9.

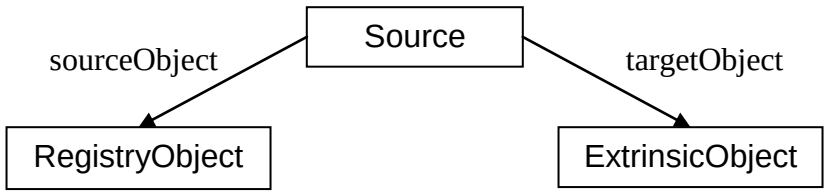

Figure 9 – Object type constraints for the 'Source' association

```
<rim:Association
  id="urn:uuid:b1467060-946a-11dc-8e65-0002a5d5c51b"
  sourceObject="urn:uuid:e124c5c0-946a-11dc-9d90-0002a5d5c51b"
  targetObject="urn:uuid:45d0de00-946b-11dc-988b-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:Source" />

<rim:Organization
  id="urn:uuid:e124c5c0-946a-11dc-9d90-0002a5d5c51b">
  <rim:Name>
    <rim:LocalizedString value="ACME Corp." />
  </rim:Name>
  <rim:EmailAddress address="support@acme.biz" />
</rim:Organization>

<wrs:ExtrinsicObject
  id="urn:uuid:45d0de00-946b-11dc-988b-0002a5d5c51b"
```



```
objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Dataset"
mimeType="application/xml" />
```

The properties of the classification node are summarized in the table below.

Table 22 – Association type: Source

Property	Value
Identifier	urn:ogc:def: ebRIM-AssociationType:OGC:Source
Name	Source
Description	Associates a registry object with an extrinsic object describing the resource from which the registry object is derived. It may be derived from the source resource in whole or in part.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:AssociationType
Code	Source

8.3 Data types

8.3.1 GM_Envelope

The `GM_Envelope` data type represents a geographic extent using a pair of positions defining opposite corners in arbitrary dimensions (see ISO 19107, Clause 6.4.3). It is typically used to specify a minimum bounding box or rectangle. The lexical representation is a <gml:Envelope> element.

Table 23 – Data type: GM_Envelope

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Envelope
Name	GM_Envelope
Description	Denotes a geographic extent using a pair of positions defining opposite corners in arbitrary dimensions. It is represented by a gml:Envelope element.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:DataType
Code	GM_Envelope

8.3.2 GM_Object

The `GM_Object` data type is the root geometry data type (see ISO 19107, Clause 6.2.2). The lexical representation includes all concrete GML 3.1 geometry representations that are allowed by the “simple features” profile (OGC 06-049r1). Coordinate reference systems shall be identified using the URN naming convention documented in OGC 06-023r1, Clause 7.2.

EXAMPLE `srsName=”urn:ogc:def:crs:EPSG:4326”`

Table 24 – Data type: GM_Object

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Object
Name	GM_Object
Description	The root geometry data type. Values shall be concrete GML 3.1 geometry representations allowed by the "GML Simple Features" profile.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:DataType
Code	GM_Object

8.3.3 GM_Point

The `GM_Point` data type represents a geometric object consisting of one and only one coordinate tuple (see ISO 19107, Clause 6.3.11). The lexical representation is a <gml:Point> element.

Table 25 – Data type: GM_Point

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Point
Name	GM_Point
Description	A Point is defined by a single coordinate tuple. It is represented by a gml:Point element.
Parent	urn:ogc:def:dataType:ISO-19107:GM_Object
Code	GM_Point

8.3.4 GM_Curve

The `GM_Curve` data type represents a curve composed of one or more (linear) curve segments (see ISO 19107, Clause 6.3.16). The lexical representation is a <gml:Curve> element containing <gml:LineStringSegment> components.

Table 26 – Data type: GM_Curve

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Curve
Name	GM_Curve
Description	A curve is composed of one or more (linear) curve segments. It is represented by a gml:Curve element containing gml:LineStringSegment components.
Parent	urn:ogc:def:dataType:ISO-19107:GM_Object
Code	GM_Curve

8.3.5 GM_LineString

The `GM_LineString` data type represents a special curve that consists of a single segment with linear interpolation (see ISO 19107, Clause 6.4.10). The lexical representation is a <gml:LineString> element.

Table 27 – Data type: GM_LineString

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_LineString
Name	GM_LineString
Description	A LineString is a special curve that consists of a single segment with linear interpolation. It is represented by a gml:LineString element..
Parent	urn:ogc:def:dataType:ISO-19107:GM_Curve
Code	GM_LineString

8.3.6 GM_Surface

The `GM_Surface` data type represents a 2-dimensional primitive composed of one or more (polygonal) surface patches (see ISO 19107, Clause 6.3.17). The lexical representation is a <gml:Surface> element containing <gml:PolygonPatch> components.

Table 28 – Data type: GM_Surface

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Surface
Name	GM_Surface
Description	A 2-dimensional primitive composed of one or more (polygonal) surface patches. It is represented by a gml:Surface element containing gml:PolygonPatch components.
Parent	urn:ogc:def:dataType:ISO-19107:GM_Object
Code	GM_Surface

8.3.7 GM_Polygon

The `GM_Polygon` data type represents a special surface that is defined by a single surface patch consisting of a set of boundary curves and an underlying surface to which these curves adhere; the curves are coplanar (see ISO 19107, Clause 6.4.36). The lexical representation is a <gml:Polygon> element.

Table 29 – Data type: GM_Polygon

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Polygon
Name	GM_Polygon
Description	A Polygon is a special surface that is defined by a single surface patch. It is represented by a gml:Polygon element..
Parent	urn:ogc:def:dataType:ISO-19107:GM_Surface
Code	GM_Polygon

8.3.8 GM_Aggregate

The `GM_Aggregate` data type represents a (heterogeneous) geometry collection that includes one or more geometry members (see ISO 19107, Clause 6.5.2). The lexical representation is a <gml:MultiGeometry> element.

Table 30 – Data type: GM_Aggregate

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_Aggregate
Name	GM_Aggregate
Description	A (heterogeneous) geometry collection that includes one or more geometry members. It is represented by a gml:MultiGeometry element.
Parent	urn:ogc:def:dataType:ISO-19107:GM_Object
Code	GM_Aggregate

8.3.9 GM_MultiPoint

The `GM_MultiPoint` data type represents a homogeneous geometry collection that includes one or more Point geometry members (see ISO 19107, Clause 6.5.4). The lexical representation is a <gml:MultiPoint> element.

Table 31 – Data type: GM_MultiPoint

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_MultiPoint
Name	GM_ MultiPoint
Description	A homogeneous geometry collection that includes one or more gml:Point members. It is represented by a gml:MultiPoint element.
Parent	urn:ogc:def:dataType:ISO-19107: GM_Aggregate
Code	GM_MultiPoint

8.3.10 GM_MultiCurve

The `GM_MultiCurve` data type represents a homogeneous geometry collection that includes one or more Curve geometry members (see ISO 19107, Clause 6.5.5). The lexical representation is a <gml:MultiCurve> element.

Table 32 – Data type: GM_MultiCurve

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_MultiCurve
Name	GM_ MultiCurve
Description	A homogeneous geometry collection that includes one or more gml:Curve members. It is represented by a gml:MultiCurve element.
Parent	urn:ogc:def:dataType:ISO-19107: GM_Aggregate
Code	GM_MultiCurve

8.3.11 GM_MultiSurface

The `GM_MultiSurface` data type represents a homogeneous geometry collection that includes one or more Surface members (see ISO 19107, Clause 6.5.6). The lexical representation is a <gml:MultiSurface> element.

Table 33 – Data type: GM_MultiSurface

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19107:GM_MultiSurface
Name	GM_ MultiSurface
Description	A homogeneous geometry collection that includes one or more gml:Surface members. It is represented by a gml:MultiSurface element.
Parent	urn:ogc:def:dataType:ISO-19107: GM_Aggregate
Code	GM_MultiSurface

8.3.12 TM_GeometricPrimitive

The `TM_GeomtricPrimitive` data type is the root temporal primitive data type (see ISO 19108, Clause 5.2.3.1). The lexical representation includes all concrete temporal primitive elements defined in GML 3.1. Following ISO 8601, the Gregorian calendar with UTC is the default reference system; the identifier for this reference system is “urn:ogc:def:trs:ISO-8601”.

Table 34 – Data type: TM_GeometricPrimitive

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19108:TM_GeometricPrimitive
Name	TM_GeometricPrimitive
Description	Root temporal primitive data type. Any primitive temporal subtype defined in GML 3.1 is a permissible value.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:DataType
Code	TM_GeometricPrimitive

8.3.13 TM_Instant

The `TM_Instant` data type represents a position in time; in practice, an instant is an interval whose duration is less than the resolution of the time scale (see ISO 19108, Clause 5.2.3.2). The lexical representation is a <gml:TimeInstant> element.

Table 35 – Data type: TM_Instant

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19108:TM_Instant
Name	TM_Instant
Description	The gml:TimeInstant element denotes a position in time.
Parent	urn:ogc:def:dataType:ISO-19108:TM_GeometricPrimitive
Code	TM_Instant

8.3.14 TM_Period

The `TM_Period` data type represents an extent in time; it is an open interval bounded by beginning and end points (i.e. instants), and has a duration (see ISO 19108, Clause 5.2.3.3). The lexical representation is a <gml:TimePeriod> element.

Table 36 – Data type: TM_Period

Property	Value
Identifier	urn:ogc:def:dataType:ISO-19108:TM_Period
Name	TM_Period
Description	The gml:TimePeriod element denotes an extent in time. It is an open interval bounded by beginning and end points (i.e. instants).
Parent	urn:ogc:def:dataType:ISO-19108:TM_GeometricPrimitive
Code	TM_Period

8.3.15 Language

The `Language` data type is used to identify the spoken, written, or signed language of some resource. The value is composed of one or more parts as specified in RFC 4646 (Tags for Identifying Languages); subtags may be used to indicate a variant.

Example en-US, fr-CA, de-CH

Table 37 – Data type: Language

Property	Value
Identifier	urn:ogc:def:dataType:RFC-4646:Language
Name	Language
Description	The value is a string consisting of a "primary language" subtag and a (possibly empty) series of subsequent subtags, each of which refines the principal tag in some manner. The IANA registry of language subtags is available online at <http://www.iana.org/assignments/language-subtag-registry>.
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:DataType
Code	Language

8.4 OGC service types

8.4.1 Web Feature Service (WFS)

A Web Feature Service (WFS) provides read—and possibly write—access to a repository of geographic features using the HTTP protocol. The principal data exchange format is GML.

Table 38 – Service type: WFS

Property	Value
Identifier	urn:ogc:serviceType:WebFeatureService
Name	Web Feature Service (WFS)
Description	Provides access to and management of a feature data repository.
Parent	urn:ogc:serviceType:ISO-19119:FeatureAccessService
Code	WFS

8.4.2 Web Map Service (WMS)

A Web Map Service (WMS) provides facilities for the creation and display of registered and superimposed map-like views of geographic information. The source data may be located in remote and heterogeneous repositories.

Table 39 – Service type: WMS

Property	Value
Identifier	urn:ogc:serviceType:WebMapService
Name	Web Map Service (WMS)
Description	Provides provides facilities for the creation and display of registered and superimposed map-like views of geographic information.
Parent	urn:ogc:serviceType:ISO-19119:MapAccessService
Code	WMS

8.4.3 Web Coverage Service (WCS)

A Web Coverage Service (WCS) supports the electronic retrieval of geospatial data as "coverages" representing space-varying phenomena that relate a spatio-temporal domain to a (possibly multidimensional) range of properties.

Table 40 – Service type: WCS

Property	Value
Identifier	urn:ogc:serviceType:WebCoverageService
Name	Web Coverage Service (WCS)
Description	Provides access to coverages representing space-varying phenomena that relate a spatio-temporal domain to a (possibly multidimensional) range of properties.
Parent	urn:ogc:serviceType:ISO-19119:CoverageAccessService
Code	WCS

8.4.4 Catalogue Service

A Catalogue Service provides facilities for discovering, browsing, and searching descriptions about data, services, and other information resources.

Table 41 – Service type: Catalogue

Property	Value
Identifier	urn:ogc:serviceType:CatalogueService
Name	Catalogue Service
Description	Provides facilities for discovering, browsing, and searching descriptions about data, services, and other information resources.
Parent	urn:ogc:serviceType:ISO-19109:CatalogueService
Code	CAT

8.4.5 CSW-ebRIM Registry Service

A CSW-ebRIM Registry Service is a specialized CSW-based catalogue service that uses the OASIS ebXML Registry Information Model (ebRIM). It provides facilities for discovering and managing almost any kind of information resource and enables the creation and maintenance of official registers.

Table 42 – Service type: CatalogueService-ebRIM

Property	Value
Identifier	urn:ogc:serviceType:CatalogueService-ebRIM
Name	CSW-ebRIM Registry Service
Description	A specialized CSW-based catalogue service that uses the OASIS ebXML Registry Information Model (ebRIM). It provides facilities for creating, searching, and maintaining registers.
Parent	urn:ogc:serviceType:CatalogueService
Code	CSW-ebRIM

8.5 Query languages

All CSW-based catalogue implementations are required to support OGC filter predicates in query expressions (see OGC 07-006r1, Clause 10.3.4(b)). This XML-based query syntax is added as a node to the canonical query language scheme.

Table 43 – Query language: CSW-filter

Property	Value
Identifier	urn:ogc:def:ebRIM-QueryLanguage:CSW-Filter
Name	CSW query with OGC filter predicates
Description	The XML query syntax defined in Clause 10.8 of the OGC Catalogue Services Specification (OGC 07-006r1); predicates are expressed using the OGC filter grammar (OGC 04-095).
Parent	urn:oasis:names:tc:ebxml-regrep:classificationScheme:QueryLanguage
Code	CSW-Filter

9 Slots

The Basic package includes the slots defined in the following tables. In general, the slot type shall refer to a classification scheme or classification node that describes the value domain; a value of "–" appearing in the tables below indicates the absence of a more specific constraint.

Table 44 – Slot: Contributor

Name	http://purl.org/dc/elements/1.1/contributor
Definition	An entity responsible for making contributions to the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#contributor>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 45 – Slot: Spatial

Name	http://purl.org/dc/terms/spatial
Definition	Spatial characteristics of the intellectual content of the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#spatial>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:ObjectRef[a]
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject
a The slotType attribute value refers to a geographic scheme or a geometry data type node.	

Table 46 – Slot: Temporal

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

Table 47 – Slot: Creator

Name	http://purl.org/dc/elements/1.1/creator
Definition	An entity primarily responsible for making the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#creator>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 48 – Slot: Date

Name	http://purl.org/dc/elements/1.1/date
Definition	A point or period of time associated with an event in the lifecycle of the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#date>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:Date
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 49 – Slot: Modified

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

Table 50 – Slot: Language

Name	http://purl.org/dc/elements/1.1/language
Definition	A language of the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#language>
Slot type	urn:ogc:def:dataType:RFC-4646:Language
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 51 – Slot: Rights

Name	http://purl.org/dc/elements/1.1/rights
Definition	Information about rights held in and over the resource..
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#rights>
Slot type	–
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 52 – Slot: Source

Name	http://purl.org/dc/elements/1.1/source
Definition	The resource from which the described resource is derived.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#source>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:URI
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 53 – Slot: Subject

Name	http://purl.org/dc/elements/1.1/subject
Definition	The topic of the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#subject>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 54 – Slot: Format

Name	http://purl.org/dc/elements/1.1/format
Definition	The file format, physical medium, or dimensions of the resource.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#format>
Slot type	urn:oasis:names:tc:ebxml-regrep:DataType:String
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

Table 55 – Slot: Coverage

Name	http://purl.org/dc/elements/1.1/coverage
Definition	The spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant.
Source	DCMI Metadata terms <http://dublincore.org/documents/dcmi-terms/#coverage>
Slot type	–
Parent object type	urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject

10 Predefined queries

10.1 listExtensionPackages

Invoking the `listExtensionPackages` query returns a list of supported extension packages. The Basic package shall be supported by every conforming service.

Table 56 – Predefined query: listExtensionPackages

Identifier	urn:ogc:def:ebRIM-Query:OGC:listExtensionPackages
Name	listExtensionPackages
Parameters	None
Response	A <csw:GetRecordsResponse> element containing a <rim:RegistryPackage> element corresponding to each supported extension package.

10.2 showStoredQueries

Invoking the `showStoredQueries` query returns a listing of all predefined queries recognized by the service.

Table 57 – Predefined query: showStoredQueries

Identifier	urn:ogc:def:ebRIM-Query:OGC:showStoredQueries
Name	showStoredQueries
Parameters	None
Response	A <csw:GetRecordsResponse> element containing a <rim:AdhocQuery> element corresponding to each predefined query recognized by the service.

10.3 findServices

Invoking the `findServices` query returns a listing of all service offers. The serviceType parameter may be included to request a subset of services classified using the ISO 19119 services taxonomy (see Clause 7.1).

Table 58 – Predefined query: findServices

Identifier	urn:ogc:def:ebRIM-Query:OGC:findServices
Name	findServices
Parameters	*serviceType* (optional) A service type code value from the ISO 19119 services taxonomy.
Response	A <csw:GetRecordsResponse> element containing <rim:Service> items that are classified as the requested type. If the type corresponds to a branch node in the scheme, all service offers classified anywhere in the subtree shall be included.

10.4 findObjectsByClassificationNode

Invoking the `findObjectsByClassificationNode` query returns the set of all registry objects that are classified using the specified classification node(s). A regular expression—as defined in section F of XML Schema Part 2—may be used to expand the search to also encompass descendent or ancestor nodes.

Table 59 – Predefined query: findObjectsByClassificationNode

Identifier	urn:ogc:def:ebRIM-Query:OGC:findObjectsByClassificationNode
Name	findObjectsByClassificationNode
Parameters	*objectType* (optional) The type of registry object ("urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject" by default). *node* A reference to a classification node; the value may be a regular expression that matches multiple nodes.
Response	A <csw:GetRecordsResponse> element containing registry objects of the requested type that are classified using the specified node(s).

10.5 findObjectsByClassificationPath

Invoking the `findObjectsByClassificationPath` query returns the set of all registry objects that are classified according to the specified classification path(s). A regular expression may be used to specify branching paths.

Table 60 – Predefined query: findServices

Identifier	urn:ogc:def:ebRIM-Query:OGC:findObjectsByClassificationPath
Name	findObjectsByClassificationPath
Parameters	*objectType* (optional) The type of registry object ("urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject" by default). *path* A classification path that conforms to the syntax defined in section 4.2.5 of ebRIM 3.0; the value may be a regular expression that encompasses branching paths.
Response	A <csw:GetRecordsResponse> element containing registry objects of the requested type that are classified according to the the specified path value(s).

11 Extrinsic objects

This document is included as a member of the package.

Table 61 – Extrinsic object: Package documentation

Identifier	urn:ogc:specification:07-144r2:1.0.0
Name	CSW-ebRIM Registry Service – Part 2: Basic extension package
Object type	urn:ogc:def:ebrim-ObjectType:OGC:Document
Media type	application/pdf
Opaque content	true
Slots	Language: en

12 Metadata extraction rules

12.1 Default behaviour

In the absence of specific rules regarding the ingestion of a given kind of repository item, upon accepting the item the service shall create a wrs:ExtrinsicObject element that describes it. The value of the mimeType attribute shall identify the media type, and the wrs:repositoryItemRef element shall specify a URL from which the item may be retrieved using a GET method request.

Note: The retrieval URL should be the URL used in a GetRepositoryItem request.

12.2 OGC service descriptions

All OGC services are described in terms of a capabilities document, the common elements of which are specified in OGC 05-008 (*OWS Common*). For each valid service capabilities document processed by the service, the following ebRIM objects shall be constructed:

a) One `wrs:ExtrinsicObject` element with the following information items:

- @objectType = “urn:ogc:def:ebRIM-ObjectType:OGC:ServiceProfile”
- @mimeType = “application/xml”

b) Zero (if preexisting) or one `rim:Service` element with the following information items:

- rim:Name/rim:LocalizedString/@value = /ows:ServiceIdentification/ows:Title/ text()
- rim:Description/rim:LocalizedString/@value = /ows:ServiceIdentification/ ows:Abstract/ text()

c) One `rim:Classification` element that classifies the service in b) using the ISO 19119 services taxonomy (see clause 7.1). The object properties shall be set as follows:

- @classificationScheme = "urn:ogc:def:ebRIM-ClassificationScheme:ISO-19119:2003:Services"
- @classificationNode = value of ows:ServiceIdentification/ows:ServiceType

d) One `rim:Association` element that links the service in b) to the source object created in a), where associationType = "urn:ogc:def:ebRIM-AssociationType: OGC:Presents".

If the value of the ows:ServiceType element in 12.2(c) is incorrect or does not match a known OGC service type, it may be possible to deduce the service type from the namespace of the document (root) element in the capabilities document, as indicated in the following table.

Table 62 – Deducing service type from namespace of OGC capabilities document

Namespace name[a]	**Service type**
^http://www\.opengis\.net/cat/wrs	urn:ogc:serviceType:WebRegistryService
^http://www\.opengis\.net/wfs	urn:ogc:serviceType:WebFeatureService
^http://www\.opengis\.net/wms	urn:ogc:serviceType:WebMapService
^http://www\.opengis\.net/wcs	urn:ogc:serviceType:WebCoverageService
a The namespace name must match the given regular expression.	

Example Registry objects derived from an OGC service description (preexisting rim:Service having id = "urn:uuid:bcabcbc0-93a3-11dc-8c1a-0002a5d5c51b").

```
<wrs:ExtrinsicObject
  id="urn:uuid:78dadfa0-93a1-11dc-9f12-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:ServiceProfile"
  mimeType="application/xml">
  <wrs:repositoryItemRef xlink:type="simple"
xlink:href="http://host:port/path?service=CSW-
ebRIM&version=1.0.0&request=GetRepositoryItem&id=urn:uuid:78dadfa0-
93a1-11dc-9f12-0002a5d5c51b" />
</wrs:ExtrinsicObject>

<rim:Classification
  id="0b90db60-93a2-11dc-854b-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Classification"
  classifiedObject="urn:uuid:bcabcbc0-93a3-11dc-8c1a-0002a5d5c51b"
  classificationScheme="urn:ogc:def:ebRIM-ClassificationScheme:ISO-
19119:2003:Services"
  classificationNode="urn:ogc:serviceType:WebRegistryService">
  <rim:Slot name="http://purl.org/dc/elements/1.1/source"
slotType="urn:oasis:names:tc:ebxml-regrep:DataType:ObjectRef">
    <rim:ValueList>
      <rim:Value>urn:uuid:78dadfa0-93a1-11dc-9f12-
0002a5d5c51b</rim:Value>
    </rim:ValueList>
```



```
  </rim:Slot>
</rim:Classification>

<rim:Association
  id="25d87500-93a2-11dc-9232-0002a5d5c51b"
  objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:
RegistryObject:Association"
  sourceObject="urn:uuid:bcabcbc0-93a3-11dc-8c1a-0002a5d5c51b"
  targetObject="urn:uuid:78dadfa0-93a1-11dc-9f12-0002a5d5c51b"
  associationType="urn:ogc:def:ebRIM-AssociationType:OGC:Presents">
  <rim:Slot name="http://purl.org/dc/elements/1.1/source"
slotType="urn:oasis:names:tc:ebxml-regrep:DataType:ObjectRef">
    <rim:ValueList>
      <rim:Value>urn:uuid:78dadfa0-93a1-11dc-9f12-
0002a5d5c51b</rim:Value>
    </rim:ValueList>
  </rim:Slot>
</rim:Association>
```

12.3 WSDL service descriptions

A W3C WSDL service description may be used to indicate how potential clients are intended to interact with a web service in terms of abstract interfaces and concrete protocol bindings. The document element has the following infoset properties:

- [local name] = “description”
- [namespace name] = “http://www.w3.org/ns/wsdl”

For each valid WSDL document processed by the service, the following ebRIM objects shall be constructed:

a) One wrs:ExtrinsicObject element with the following information items:
   - @objectType = “urn:ogc:def: ebRIM-ObjectType:OGC:ServiceGrounding”;
   - @mimeType = “application/wsdl+xml”

b) Zero (if preexisting) or one rim:Service element corresponding to each wsdl:service element, with the following infoset properties:
   - rim:Name/rim:LocalizedString/@value = wsdl:service/@name

c) One rim:Association object that links the service object(s) in b) to the primary object created in a), where associationType = “urn:ogc:def:ebRIM-AssociationType: OGC:Presents”.

d) One rim:ServiceBinding elements corresponding to each wsdl:endpoint element, with the following information items:
   - @service = identifier of rim:Service item in b)
   - rim:Name/rim:LocalizedString/@value = wsdl:endpoint/@name
   - @accessURI = wsdl:endpoint/@address

Example Registry objects derived from a W3C WSDL service description.


```
<wrs:ExtrinsicObject
  id="urn:uuid:9a9a57a0-93a7-11dc-b9f7-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:ServiceGrounding"
  mimeType="application/wsdl+xml">
  <wrs:repositoryItemRef xlink:type="simple"
xlink:href="http://host:port/path?service=CSW-
ebRIM&version=1.0.0&request= GetRepositoryItem&id="urn:uuid:9a9a57a0-
93a7-11dc-b9f7-0002a5d5c51b"/>
</wrs:ExtrinsicObject>
```

12.4 ISO 19139 data descriptions

ISO/TS 19139 defines an XML grammar for describing digital geographic data. The document element has the following infoset properties:

- [local name] = “DS_Dataset” or “MD_Metadata”
- [namespace name] = “http://www.isotc211.org/2005/gmd”

For each valid representation processed by the service, one wrs:ExtrinsicObject shall be created with the following information items:

a) @objectType = “urn:ogc:def:ebRIM-ObjectType:OGC:Dataset”

b) @mimeType = “application/xml”

c) Slot[@name=“http://purl.org/dc/elements/1.1/date”]/rim:ValueList/rim:Value = gmd:dateStamp/gco:Date

d) Slot[@name=“http://purl.org/dc/terms/spatial”]/@slotType = “urn:ogc:def:dataType:ISO-19107:GM_Envelope”, where the slot value is a gml:Envelope element constructed from the content of gmd:MD_DataIdentification/gmd:extent/gmd: geographicElement/gmd:EX_Extent/gmd: EX_GeographicBoundingBox

e) rim:Name/rim:LocalizedString/@value = gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:title/gco:CharacterString/text()

f) rim:Description/rim:LocalizedString/@value = gmd:MD_DataIdentification/ gmd:abstract/text()

NOTE These rules cover only a subset of the mandatory ISO 19139 elements—more detailed mapping rules may be defined by other extension packages.

Example A registry object derived from a ISO 19139 data description

```
<wrs:ExtrinsicObject
  id="urn:uuid:4400ef20-939e-11dc-b94f-0002a5d5c51b"
  objectType="urn:ogc:def:ebRIM-ObjectType:OGC:Dataset"
  mimeType="application/xml">
  <rim:Slot name="http://purl.org/dc/elements/1.1/date"
    slotType="urn:oasis:names:tc:ebxml-regrep:DataType:Date">
    <rim:ValueList>
      <rim:Value>2007-11-15</rim:Value>
```



```
    </rim:ValueList>
  </rim:Slot>
  <rim:Slot name="http://purl.org/dc/terms/spatial"
    slotType="urn:ogc:def:dataType:ISO-19107:GM_Envelope">
    <wrs:ValueList>
      <wrs:AnyValue>
        <gml:Envelope srsName="urn:ogc:def:crs:EPSG:4326">
          <gml:lowerCorner>60.042 13.754</gml:lowerCorner>
          <gml:upperCorner>68.410 17.920</gml:upperCorner>
        </gml:Envelope>
      </wrs:AnyValue>
    </wrs:ValueList>
  </rim:Slot>
  <rim:Name>
    <rim:LocalizedString value="Suspendisse varius ullamcorper
ligula."/>
  </rim:Name>
  <rim:Description>
    <rim:LocalizedString
      value="Sed aliquam, enim in lacinia malesuada, justo lorem
aliquet diam, non hendrerit est lorem a purus"/>
  </rim:Description>
  <wrs:repositoryItemRef xlink:type="simple"
xlink:href="http://host:port/path?service=CSW-
ebRIM&version=1.0.0&request= GetRepositoryItem&id=urn:uuid:4400ef20-
939e-11dc-b94f-0002a5d5c51b" />
</wrs:ExtrinsicObject>
```


Annex A
(normative)

Abstract test suite

A.1 Test module for Basic extension package

A.1.1 Basic extension package

e) Purpose: Check that the IUT satisfies all assertions pertaining to the Basic extension package.

f) Method: Functional testing performed in an automated and/or manual manner. Assess the observable behaviour of the IUT with respect to the use of package-specific extensions:

- Classification schemes (cl. 7)
- Object types (cl. 8.1)
- Association types (cl 8.2)
- Data types (cl. 8.3)
- OGC service types (cl. 8.4)
- Query languages (cl. 8.5)
- Slots (cl. 9)
- Predefined queries (cl. 10)
- Metadata extraction rules (cl. 12)

g) Reference: OGC 07-144r2; OGC 07-110r2

h) Test type: Capability

A.1.2 Test case for package availability

Table A.1 – Package availability

Identifier	http://www.opengis.net/cat/wrs/1.0/atc/Basic/availability
Test purpose	Check that the Basic package is available as a supported extension package and is complete.
Test method	Pass if the assertion is satisfied; fail otherwise. A rim:RegistryPackage element with @id = “urn:ogc:def:ebRIM-RegistryPackage:OGC:Basic” must be a member of the ‘root’ package.
Reference	- OGC 07-144r2: cl. 1 - OGC 07-110r2: cl. 17.1
Test type	Basic

A.1.3 Test case for findServices query

Table A.2 – findServices query

Identifier	http://www.opengis.net/cat/wrs/1.0/atc/Basic/findServices
Test purpose	Confirm that the response to a request that invokes the stored query "findServices" is valid and correct.
Test method	Pass if the assertion is satisfied; fail otherwise.
Reference	- OGC 07-144r2: cl. 10.3
Test type	Capability

A.1.4 Test case for OGC service descriptions

Table A.3 – OGC service descriptions

Identifier	http://www.opengis.net/cat/wrs/1.0/atc/Basic/OGCServiceDescriptions
Test purpose	Verify that the ebRIM mappings defined for OGC service descriptions are correctly implemented.
Test method	Pass if the mappings are are correctly applied; fail otherwise.
Reference	- OGC 07-144r2: cl. 12.2
Test type	Capability

Bibliography

[1] ISO/TS 19139:2007, *Geographic information – Metadata – XML schema implementation*

[2] OGC 04-094, *Web Feature Service Implementation Specification, Version 1.1.0.* Available from: <http://portal.opengeospatial.org/files/?artifact_id=8339>.

[3] *OWL-S: Semantic Markup for Web Services*. Available from: <http://www.daml.org/services/owl-s/1.1/overview/>.

