Exchange Data Model and Protocol - OOTS

The **Exchange Data Model** section describes the scope and goals of the Exchange Data Model. It provides the business requirements for the EDM Request (Request from Evidence Requester to Evidence Provider to request certain data or documents) and the EDM Response (Response from Evidence Provider to Evidence Requester to deliver the requested data or documents). The Query Model that is being used is detailed, supporting document-based queries. The syntax mapping of the data model is also provided, including examples.

In this section, the **Exchange Data Model (EDM)** is being detailed. In the EDM, there are three main messages defined:

- Evidence Request;
- Evidence Response;
- Error Response.

The Evidence Request is the message created by the Evidence Requester, containing all the necessary information requirements for requesting Evidence. These can be either structured or unstructured document-based Evidence requests sent to the Evidence Provider to request specific data or documents. The Evidence Response is the response to an Evidence Request from the Evidence Provider to the Evidence Requester, containing the necessary information for the correlation of the Evidence Response with the respective Evidence Request, the actual data provided and the metadata of the Evidence Provider who is the responder. The Error Response message is used when technical or functional errors occur during the transaction, for example, when the Evidence Provider cannot find a dataset or data subject.

The Exchange Data Model specification includes the scope, goals, and high-level business requirements of the EDM, and the business requirements for the Evidence Request, the Evidence Response and the Error Response. The EDM makes use of the functional capabilities of the OASIS RegRep V4 Query Protocol, and therefore the request and response messages are being modelled in the form of a query. The Query Model supports multiple types of queries that the Evidence Requester can request from the Evidence Provider. Each query type request can have different attributes depending on the query type and different response structures depending on the query structure. Currently, only document-based queries are being detailed. The syntax mapping of the data model is also provided. Finally, the code lists and identifier used by the OOTS are also provided in the EDM and the additional business rules that constrain the use of the Exchange Data model.

This section includes the following sub-sections:

Scope and Goals

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Scope & Goals

The OOTS Exchange Data Model design describes a process providing electronic messaging support for requesting specific concepts or documents. The specification, therefore, differentiates between the Evidence Request transaction and the Evidence Response transaction. Differences between these two transactions are found on the conceptual and process level. While the Evidence Request enables Evidence Requesters (ER) to initiate concept and document queries to the Evidence Providers (EP), the Evidence Response provides the possibility to return the concrete concept values and document metadata requested. Thus:

- The Evidence Request describes the transaction from ER to EP to request certain concepts or documents.
- The Evidence Response describes the transaction from EP to ER to deliver the requested concept values (metadata) or document.

The OOTS Exchange Data Model structure is generic in its design, meaning that the structure itself is independent of specific evidence types. However, the OOTS Exchange Data Model's abstract structure must be combined with concrete datasets established in certain business domains. The Evidence Request then enables ERs to ask for certain defined documents (e.g. Birth Certificates) in these business domains. The Response enables the EPs of that business domain to deliver the corresponding documents as evidence.

To ensure a high level of interoperability, comprehension and reusability, the OOTS Exchange Data Model is based on several core vocabularies and metadata profiles such as CCCEV, DCAT, CBV and CPV. These standards are integrated and combined with the overarching standard OASIS ebXML RegRep Version 4.0 to form a generic query model. Besides this, the OOTS Exchange Data Model defines additional information entities related to requirements raised by other OOTS High-Level Architecture components (e.g. eDelivery, eID, DSD) to facilitate their interaction.

Thus, the main goals to be gained by implementing the OOTS Exchange Data Model are:

ID	Description
G-001	The OOTS Exchange Data Model allows an evidence exchange between the ER and the EP.
G-003	An EP can automatically generate an Evidence Response according to the Evidence Request of an ER.
G-004	The OOTS Exchange Data Model structure must be abstract to allow the request for data or documents for any electronic procedure.
G-005	The OOTS Exchange Data Model is based on existing architecture components and standards and facilitates their interaction (e.g. eDelivery, eID, DSD)

Architecture Requirements

To enable this data exchange, the OOTS Exchange Data Model requires further information elements. It needs to describe and identify the Data Subject (DS) uniquely, as either a legal or a natural person (taking into account whether they have appropriate authorisation to make such request). The DS must then provide its explicit request to an ER to initiate an Evidence Request for a piece of specific evidence. On the other hand, an EP needs to identify the requested evidence and prove an ER's authorisation to request certain data before the data provision. After this, the Evidence Request needs to enable the EP to identify the DS through record matching using an appropriate DS

identifier of the Evidence Request. When compiling the Evidence Response, an EP needs to place the requested data and document elements inside the response and their metadata. Therefore, it may only refer to documents that can be requested at a later stage through an appropriate identifier for the concrete distribution (two-step document query). If an EP cannot answer an Evidence Request, it must provide notification back to the DS by sending an appropriate Evidence Error Response with the reasons for failure.

The following architecture requirements are a subset of the architecture requirements connected to the EDM.

ID	Description	Quality Attribute	Reference to Business Requirement
ASR-IOP-01	Evidence Requester must be able to request Evidence about the user from the Evidence Provider.	Compatibility Interoperability	R1-46
ASR-IOP-03	Evidence Provider must be able to transmit requested Evidence to Evidence Requester.	Compatibility Interoperability	R25-39
ASR-IOP-04	Evidence Requester must be able to understand and automatically process Evidence retrieved from Evidence Provider unambiguously.	Compatibility Interoperability	R29-39
ASR-SEC-08	If Evidence Provider cannot transmit any evidence, the Evidence Provider must give reasons for this.	Security	R40-46
ASR-SEC-11	ER must identify the DS associated with the user.	Security	R12-16
ASR-SEC-12	EP must validate that the user is authorised to retrieve information about the Data Subject.	Security	R12-R17
ASR-SEC-13	The participants in the Evidence exchange process must be identified, specifically ER and EP.	Security	R10-11, R28
ASR-SEC-15	Evidence Requester must prove that the user explicitly requested the retrieval of Evidence from the Evidence Provider.	Security	R17
ASR-SEC-18	The Evidence transmitted by Evidence Provider to Evidence Requester shall be limited to what has been requested.	Security	R7, R8-9, R18-24

Business Requirements

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In this section, the business requirements of the Evidence Request, the Evidence Response and the Evidence Error Response are identified in a structured format.

Evidence Request Business Requirements

The following tables structure the business requirements identified for the Evidence Request. In the **information entity** column, we map the information entity that covers the requirement.

General Processing

ID	Requirement	Information Entity
R1	The Evidence Request must be identified.	query:QueryRequest
R2	The Evidence Request must be timestamped.	rim:Slot "IssueDateTime"
R3	The Evidence Request must point to its underlying specification.	rim:Slot "SpecificationIdentifier"
R4	The Evidence Request shall point to the business process in which the Evidence Request is used.	query:Query
R5	The Evidence Request must be addressable to a specific Evidence Provider via electronic address.	Routing Information Profile
R6	The Evidence Request should contain information if a document or a reference to a document in the EP database is requested.	query:ResponseOption
R7	The Evidence Request must point to the Dataset for which the concept request or distribution request is initiated.	rim:Slot "DataSetIdentifier"

Context

ID	Requirement	Information Entity
R8	An Evidence Request should describe the procedure in which it was created and initiated.	rim:Slot "Procedure"
R9	An Evidence Request should name the requirement for which it was created and initiated.	rim:Slot "FulfillingRequirement"

Evidence Requester

ID	Requirement	Information Entity
R10	The Evidence Request must contain the identifier and name of an ER.	rim:Slot "Evidence Requester"
R11	The Evidence Request should describe the address of the ER.	rim:Slot "Evidence Requester"

Data Subject

ID	Requirement	Information Entity
R12	The Evidence Request must determine if the request is related to a legal person or a natural person.	rim:Slot "Natural Person" rim:Slot "Legal Person"
R13	When evidence request subject is a legal person, the identification information must ensure the legal person's identification on the side of the EP to provide the correct responses for a given Evidence Request. The OOTS should, therefore, use the attributes described in the eIDAS SAML Attribute Profile. The minimum data set (mandatory elements) to identify legal persons described in this profile are the Uniqueness Identifier and Legal Name. Additionally, optional elements may be used where appropriate.	rim:Slot "Legal Person"
R14	The Evidence Request should describe a natural person with the authorisation and power to act on behalf of a legal entity or natural person.	rim:Slot "Authorized Representative"

ID	Requirement	Information Entity
R15	The Evidence Request must describe the data request subject being a natural person. The information must ensure the identification of the natural person on the EP's side to provide the correct responses for a given Evidence Request. The OOTS should, therefore, use the attributes described in the eIDAS SAML Attribute Profile. The Minimum Data Set (MDS) or mandatory elements) to identify natural persons described in this profile are the Uniqueness Identifier, Family Name, First Name and Date of Birth. Additionally, the optional elements Place of Birth, Family name(s) at birth, address and gender may be used where appropriate.	rim:Slot "Natural Person"
R16	In cases where the eIDAS data is not able to provide the required identification information needed by the EP to identify the data subject, an alternative person identifier must be provided (Record matching).	cva:CoreBusiness/ cvb:LegalEntityID cva:CorePerson/ cvb:PersonID

Evidence Query

ID	Requirement	Information Entity
R21	The Evidence Request must enable the ER to request documents from an EP.	rim:Slot "DistributionRequestList"
R22	ERs should be enabled to specify a preferred media type. If the EP offers a document in several formats, it should choose the media type that was indicated by the ER.	dcat:distribution
R23	ERs should be enabled to specify their preference to retrieve structured pieces of evidence conformant to the common data models available in the semantic repository or unstructured data.	dcat:distribution
R24	ERs should be enabled to request specific document instances based on a previous Evidence Request that has only referenced that document instance through an ID.	rim:Slot "id"

Evidence Response Business Requirements

The following tables structure the business requirements identified for the Evidence Response.

General Processing

ID	Requirement	Information Entity
R25	The Evidence Response must be timestamped.	rim:Slot "IssueDateTime"
R26	The Evidence Response must point to the Evidence Request for which the Evidence Response was created.	query:QueryResponse
R27	The Evidence Response must point to its underlying specification.	rim:Slot "SpecificationIdentifier"

Evidence Provider

ID	Requirement	Information Entity
R28	The Evidence Response must contain the following information about the EP: An identifier of the EP and its name.	rim:Slot "DataProvider"

Document-based Response

ID	Requirement	Information Entity
R34	An Evidence Response for document-based queries must describe the provided document: document name, document description.	dcat:Dataset
R35	An Evidence Response for document-based queries should contain the identifier, issue time, last modification date and language of a document.	dcat:Dataset
R36	An Evidence Response for document-based queries should describe the document issuer, the issue place, the validity period and other references that are connected to the document (e.g. underlying legislation).	creator temporal
R37	An Evidence Response for document-based queries should describe the details (description, media type and language) of the document instance provided.	dcat:distribution

ID	Requirement	Information Entity
R38	In case a document instance is provided by the EP in the Evidence Response, it must contain an identifier that points to the internal location of the document.	rim:RespositoryItemRef

Evidence Error Response Business Requirements

The following tables structure the business requirements identified for the Evidence Response.

General Processing

ID	Requirement	Information Entity
R40	An Evidence Error Response must point to its underlying specification.	rim:Slot "SpecificationIdentifier"
R41	The Evidence Error Response must point to the Evidence Request for which the Evidence Error Response was created.	query:QueryResponse

Error Provider

ID	Requirement	Information Entity
R42	A failed Evidence Exchange Transaction should provide a reference to the provider of the Error.	rim:Slot "ErrorProvider"

Error Responses

ID	Requirement	Information Entity
R43	A failed Evidence Exchange Transaction should trigger a response with the origin of an error: RequestSubmission, RequestReception, ResponseCreation, ResponseSubmission and ResponseReception.	rim:Slot "ErrorOrigin"
R44	A failed Evidence Exchange Transaction should trigger a response with an error code and the details of the failure.	rs:Exception/detail rs:Exception/code

ID	Requirement	Information Entity
R45	A failed Evidence Exchange Transaction must indicate the category, severity and reason(s) of the failure.	rs:Exception/xsi:type rs:Exception/severity rs:Exception/message
R46	The Evidence Response must link each error to a timestamp indicating when it was created.	rim:Slot "Timestamp"

Query Model

Contents

Overview

The Exchange Data Model makes use of the functional capabilities that are provided by the RegRep V4 Query Protocol and can support multiple types of queries that can be requested by the ER to the EP. Each query type request can have different kinds of attributes depending on the query type and different kinds of response structure depending on the query structure. In the following section, we describe the different types of queries that are supported by EPs.

Common Query Attributes

The following table depicts the attributes that are common between all the types of requests and are expressed as top-level Regrep Information Model Slots.

SLOT NAME	TYPE	VOCABULARIES	CARDINALITY
Top-Level Slots			
SpecificationIdentifier	StringValueType	-	1..1
IssueDateTime	DateTimeValueType	-	1..1

Procedure	InternationalStringValueType	-	0..1
FullfillingRequirement	AnyValueType	Core Criterion and Core Evidence Vocabulary	0..1
ConsentToken	StringValueType	-	0..1
DatasetIdentifier	StringValueType	-	1..1
EvidenceRequester	AnyValueType	Agent SDG AP Profile	1..1
Query Slots → Data Request Subject			
LegalPerson	AnyValueType	Core Business	0..1 → Must contain either a Legal or a Natural Person but **NOT** both.
NaturalPerson	AnyValueType	Core Person	0..1 → Must contain either a Legal or a Natural Person but **NOT** both.
AuthorizedRepresentative	AnyValueType	Core Person	0..1

Data Request Subject

The attributes for the identification of the Data Request Subject are common in both query types. The Data Request Subject is either a Natural or a Legal Person. Both query types contain all the required information of the Legal or Natural Person that makes the request.

A Query Request may either contain a NaturalPerson **OR** a LegalPerson depending on the subject of the query, but **NOT** both. An additional Authorized Representative may be specified.

In order to describe the Natural Person and the Legal Representative, the ISA^2 Core Person Vocabulary is used. For the Legal Person, the ISA^2 Core Business Vocabulary is used. For their addresses, the ISA^2 Core Location Vocabulary is used.

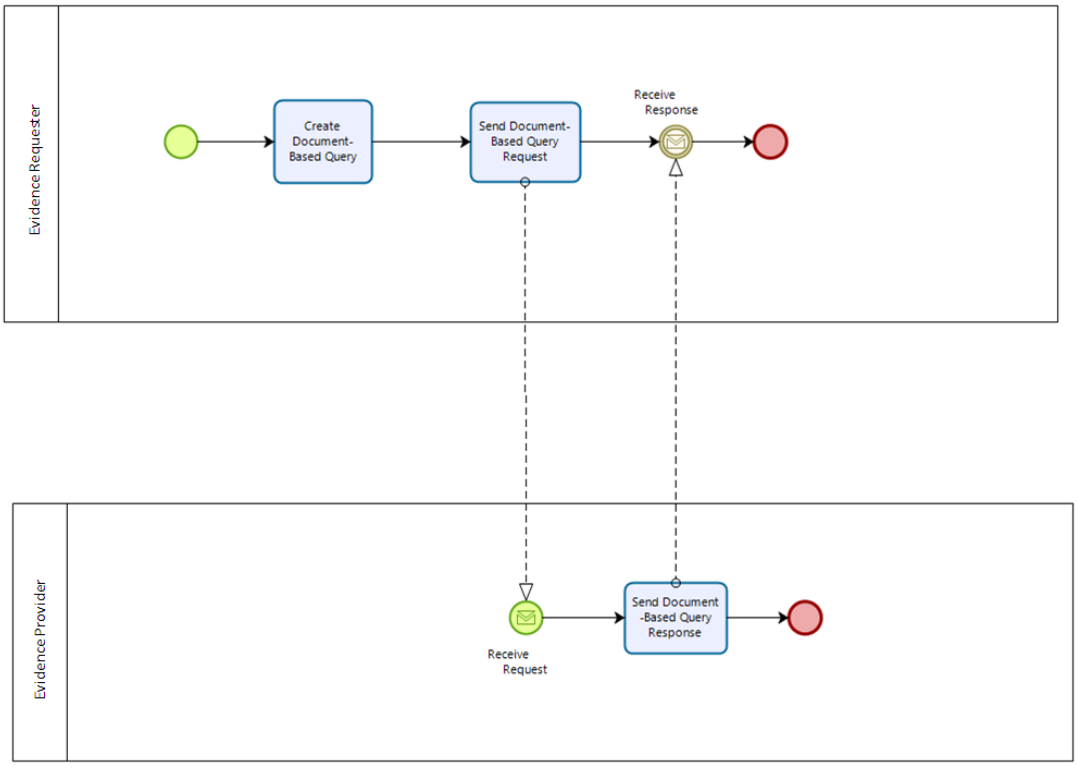
The Document-Based Query defines a structure for requesting specific, unstructured or structured documents that will be used as evidence in a specific procedure. The Query Response contains the document metadata with a reference to the document itself.

Document-Based Query

In the Document-Based Query, the ER requests for the document and its metadata to be provided in the response. The table below shows the query attributes and their value/structure.

Query Attribute	Value / Structure
Query Definition	DocumentQuery
Response Option Attribute	LeafClassWithRepositoryItem
Request Parameters	Distribution attributes of the document, like the format, media type, etc.
Response Values	Document Metadata and attached Document Evidence

The following process model provides an overview of the One Step Document-Based Query. The process model depicts the specific query attributes of a Concept-Based Query as transaction notes. These attributes are required to formulate a valid query for the desired query type. The common query attributes are not illustrated in the process model but the next section provides a brief overview.



Document-Based Query Request

The ER needs to provide the document distribution details as request parameters. The distribution details contain the following attributes which act as a filtering mechanism to the EP:

- The Format of the Distribution
- The Conformant Standard, in case the document is a structured one.

Additionally, to explicitly state that the requested document MUST be inside Query Response from the EP, by setting the response option attribute returnType set as "LeafClassWithRepositoryItem".

The request metadata is expressed using SDG AP Vocabulary and is available in the Common Metadata Model page for Evidence Request.

Document-Based Query Response

The response contains the document metadata of the attached documents together with the documents themselves. The response metadata is expressed using SDG AP Vocabulary and is available in the Common Metadata Model page for Evidence Response.

Syntax Mapping

Overview

The OOTS uses OASIS Regrep v4 for the syntax mapping of the EDM. It provides a standardised way of expressing messaging transactions, like queries, data creation and data updates. RegRep v4 uses the Slot mechanism for data provision, and it is extensively used in the EDM profile.

In the EDM, there are two main messages defined: The Evidence Request and the Evidence Response. The Evidence Request is the message created by the Evidence Requester, containing all the necessary information requirements for requesting datasets, whether they are structured or unstructured datasets. The Evidence Response responds to an Evidence Request with the necessary information for the correlation of the Evidence Response with the respective Evidence Request, the actual data provided and the metadata of the Evidence Provider who is the responder.

Each message defines its own information requirements that are expressed as slots. Depending on the type of request, the information requirements can vary. In the following sections, we describe the messages, the common information requirements and the specific information requirements.

The Syntax Mapping of the Data Model is further analysed, and some examples for the EDM are provided in the following pages:

- Evidence Request Syntax Mapping
- Evidence Response Syntax Mapping
- Evidence Error Response Syntax Mapping
- Message Examples

Evidence Request Syntax Mapping

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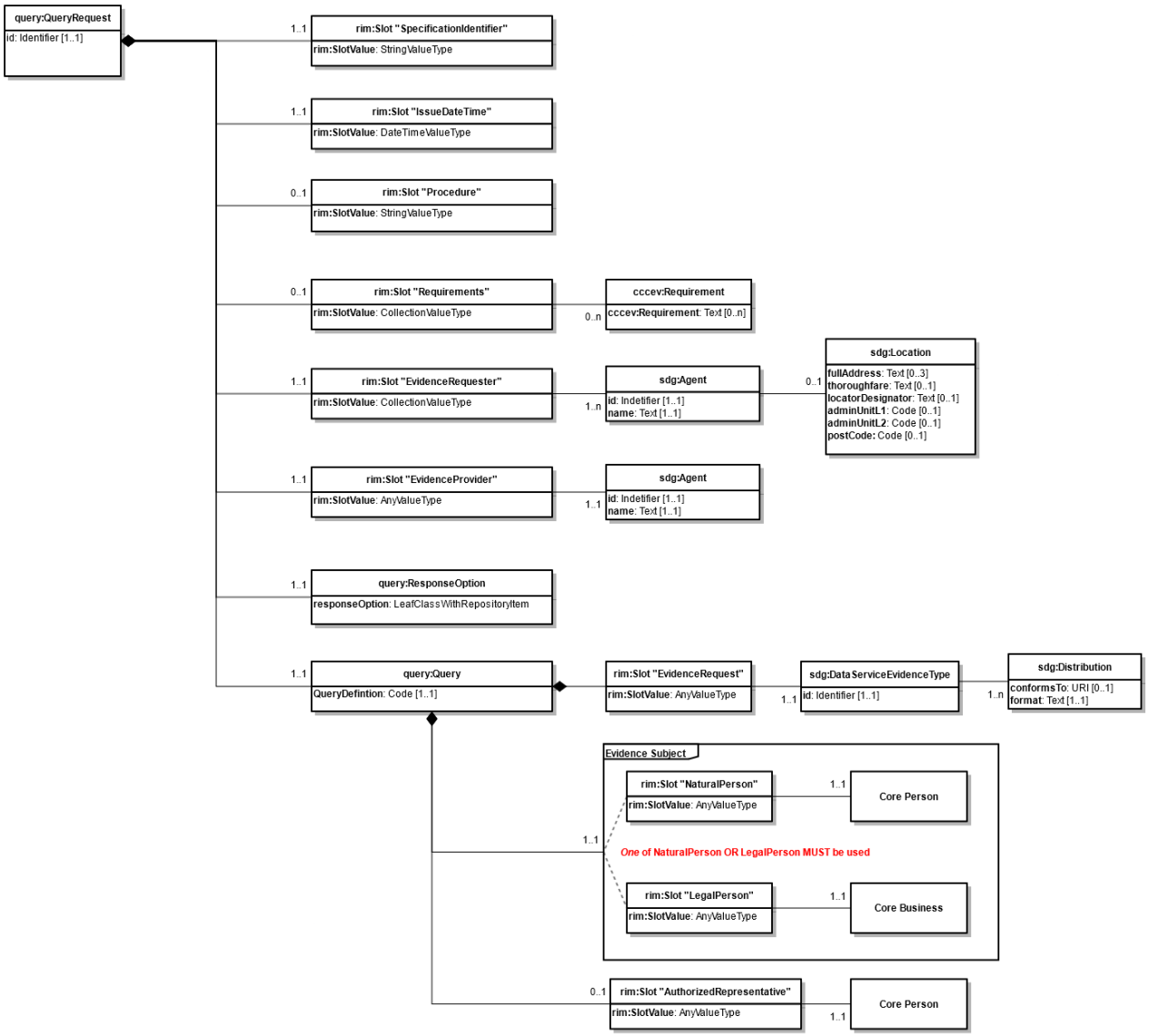
Exchange Data Model: QueryRequest (Evidence Request)

The following exchange data model provides an overview of the information entities and information elements contained in the QueryRequest (or Evidence Request).



To form a valid QueryRequest, at least the following elements are required:

- the "id" of the QueryRequest;
- the "SpecificationIdentifier" to identify the version of this specification. Please use the value "oots-edm:v2.1";
- the "IssueDateTime" to describe the time of the request;
- the "EvidenceRequester" to identify the one or more entities that are technically executing the request on behalf of the User;
- the "EvidenceProvider" to identify the entity that the Evidence Request is sent to;
- the "queryResponse" option "LeafClassWithRepositoryItem".
- the queryDefinition expressed through the information entity "DataServiceEvidenceType", which is used to form the "DocumentQuery".
- the highlighted information entities "LegalPerson" and "NaturalPerson" to identify the Data Subject (or User) for which the query is done. The business rules do not permit the use of both information entities at the same time;

All query types of requests are based on the same XSD and Schematron specification to simplify the overall use.

Implementation Guideline: QueryRequest (Evidence Request)

This guideline explains how to use the ebRS QueryRequest syntax to implement the Business Requirements (Req ID) described for the Evidence Request. The guideline describes the information entities and properties in the same hierarchical order of the corresponding Exchange Data Model, while classes are marked in red, properties in white and subclasses in green. Most rim:Slots therefore do not contain sub-properties other than the SlotValue itself, except if they are collections or if they reference the integrated standards such as CCCEV, CBV and CPV. The guideline provides specific details for each class and information element including the underlying standards, data types and cardinalities to produce conformant XML documents.

The Information model of the Query Request uses ebRS QueryRequest in combination with the SDG Application Profile of the Evidence Query to implement the Business Requirements (Req ID) described for the Evidence Request. the information model describes the information entities and properties in the same hierarchical order of the corresponding Exchange Data Model. Most rim:Slots do therefore not contain sub-properties other than the SlotValue itself, unless they are collections or if they are referencing of the integrated standard such as SDG Application Profile of the Evidence Query. The information Model provides specific details for each class and information element including the underlying standards, data types and cardinalities to produce conformant XML documents. In following sections we describe the XML serialization of the Evidence Request Information Model.

XML Example and Walkthrough: QueryRequest (Evidence Request)

The Evidence Request is syntactically expressed using the ebRS QueryRequest, as shown in the example below:

```
<?xml version="1.0" encoding="UTF-8"?>
<query:QueryRequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"
    id="c4369c4d-740e-4b64-80f0-7b209a66d629">


    <!-- Data Omitted for brevity -->

    <!-- Default Response Option, returnType Can be Omitted -->
    <query:ResponseOption returnType="LeafClassWithRepositoryItem"/>

    <!-- Query Definition -->
    <query:Query queryDefinition="DocumentQuery">

        <!-- Further information are omitted for clarity. -->

    </query:Query>
</query:QueryRequest>
```

Slot Definitions

The elements in this section are expressed using ebRIM SlotType instances, which have a name and a value. The value is of type ValueType. In the following table, we provide an overview of the slots profiled for the Evidence Request.

SLOT NAME	TYPE	VOCABULARIES	SCHEMA CLASS	CARDINALITY
Top-Level Slots				
SpecificationIdentifier	StringValueType	-	-	1..1
IssueDateTime	DateTimeValueType	-	-	1..1
Procedure	InternationalStringValueType	-	-	0..1
FullfillingRequirement	AnyValueType	Core Criterion and Core Evidence Vocabulary	Requirement	0..1
DatasetIdentifier	StringValueType	-	-	0..1
EvidenceRequester	CollectionValueType	SDG Application Profile	Agent	1..n
EvidenceProvider	AnyValueType	SDG Application Profile	Agent	1..1
Query Slots → Data Request Subject				
LegalPerson	AnyValueType	Core Business	Business	0..1 → Must contain either a Legal or a Natural Person but **NOT** both.
NaturalPerson	AnyValueType	Core Person	Person	0..1 → Must contain either a Legal or a Natural Person but **NOT** both.
AuthorizedRepresentative	AnyValueType	Core Person	Person	0..1
Query Slots → Dataset Request				
DataServiceEvidenceType	AnyValueType	SDG Application Profile	DataServiceEvidenceType	1..1

Attribute Definitions

In the following table we provide an overview of the mandatory attributes for each ebRIM element and the information they contain.

ATTRIBUTE NAME	DATA	COMMENT
query:QueryRequest		
id	UUID	Must be unique for each request.
query:ResponseOption		
returnType	"LeafClassWithRepositoryItem"	Must be "LeafClassWithRepositoryItem"
query:Query		
queryDefinition	"DocumentQuery"	

Specification Identifier

The SpecificationIdentifier element is used for expressing the version of the specification used for creating the referred message. A Slot with the name of "SpecificationIdentifier" is used with the ValueType of StringValueType. In this version of the design documentation, this MUST be set to the value “oots-edm:v1.0”

```
<!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>oots-edm:v1.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Issue Date and Time

The IssueDateTime element is used for expressing the creation date and time of the referred document.

A Slot with the name of "IssueDateTime" is used with the ValueType of DateTimeValueType which takes a value of ISO timestamp.

```
<!-- ISSUE DATE / TIME  -->
 <rim:Slot name="IssueDateTime">
     <rim:SlotValue xsi:type="rim:DateTimeValueType">
         <rim:Value>2021-02-14T19:20:30+01:00</rim:Value>
     </rim:SlotValue>
 </rim:Slot>
```

Evidence Requester Request Reason

The RequestReason element contains a definition of the purpose of the data request that can be freely defined by the Evidence Requester.

A slot with the name Procedure and ValueType of InternationalStringValueType is used to represent the information contained in one or more local languages and has a sequence of LocalizedString instances. Each LocalizedString instance is specific to a particular locale. The language must be specified using ISO 639-1 two-letter codes.

A slot with the name FullfillingRequirement and ValueType of CollectionValueType is used as a list with alternative descriptions of the procedure using CCCEV Vocabulary.

```
    <!--  REQUEST REASON: Request Reason Slot flattened to Procedure and FullfillingRequirement slots -->
<rim:Slot name="Procedure">
    <rim:SlotValue xsi:type="rim:InternationalStringValueType">
        <rim:Value>
            <rim:LocalizedString
                value="GBM Procedure"
                xml:lang="EN"/>
        </rim:Value>
    </rim:SlotValue>
</rim:Slot>
<rim:Slot name="FullfillingRequirement">
    <rim:SlotValue xsi:type="rim:CollectionValueType" collectionType="urn:oasis:names:tc:ebxml-regrep:CollectionType:Set">
        <rim:Element xsi:type="rim:AnyValueType">
            <!--  cccev requirement-->
        </rim:Element>
        <rim:Element xsi:type="rim:AnyValueType">
            <!--  cccev requirement-->
        </rim:Element>
    </rim:SlotValue>
</rim:Slot>
```

Evidence Requester

The Evidence Requester element is used to describe an organisation that requests data or documents from Evidence Providers.

A Slot with the name of "EvidenceRequester" is used with the ValueType of AnyValueType which accepts any xml representation. In this particular case, the Agent class is used for the expression of the Evidence Requester information inside the AnyValueType Slot and more specifically the SDG AP Agent Class.

```
   <rim:Slot name="EvidenceRequester">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <Agent xmlns="https://data.europa.eu/sdg/xml#>
            <id schemeID="VATRegistration">DE730757727</id>
            <Name>aCompanyName</Name>
            <Location>
                <Address>
                    <FullAddress>Prince Street 15</FullAddress>
                    <Thoroughfare>Prince Street</Thoroughfare>
                    <LocatorDesignator>15</LocatorDesignator>
                    <PostName>LiverPool</PostName>
                    <AdminUnitLevel1>GB</AdminUnitLevel1>
                    <PostCode>15115</PostCode>
                </Address>
            </Location>
        </Agent>
    </rim:SlotValue>
</rim:Slot>
```

Evidence Provider

The Evidence Provider element is used to describe an organisation that receives the Evidence Request from the Evidence Request.

A Slot with the name of "EvidenceProvider" is used with the ValueType of AnyValueType which accepts any xml representation. In this particular case, the Agent class is used for the expression of the Evidence Provider information inside the AnyValueType Slot and more specifically the SDG AP Agent Class.

```
   <rim:Slot name="EvidenceRequester">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <Agent xmlns="https://data.europa.eu/sdg/xml#>
            <id schemeID="VATRegistration">DE730757727</id>
            <Name>aCompanyName</Name>
        </Agent>
    </rim:SlotValue>
</rim:Slot>
```

Evidence Query Definitions

Evidence Subject

The Query inside an Evidence Request must contain a Data Subject. This Data Subject may either be a Legal Person or a Natural Person. This can be represented either by a NaturalPerson **OR** a LegalPerson slot. A request may contain one of the two but **NOT** both. An optional Authorized Representative may also be defined.

Legal Person

The LegalPerson slot contains data that describes the Legal Person (a.k.a. a Company) that submits this request. This data is represented using the ISA Core Business Vocabulary CoreBusiness class.

When using an ISA Core Vocabulary for representing the value of a slot, AnyValueType is used as its type since it allows data in XML form to be used as the slot's value.

```
<rim:Slot name="LegalPerson">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <!--     Core Business Vocabulary (CBV) Expression of the Legal Person   -->
        <Business xmlns="https://data.europa.eu/sdg/xml#">
            <!-- eIDAS Authentication Attributes -->
            <LegalName LevelOfAssurance="http://eidas.europa.eu/LoA/High">AnyCompanyName</
LegalName>
            <LegalIdentifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="VAT">113
123123123123</LegalIdentifier>
            <!-- Any other identifier that is not coming from eIDAS Authentication Attributes -->
            <Identifier SchemeID="GLN">1131231231231231</Identifier>
            <RegisteredAddress>
              <FullAddress LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince Street 15</
FullAddress>
              <PoBox LevelOfAssurance="http://eidas.europa.eu/LoA/High">11221</PoBox>
              <LocatorDesignator LevelOfAssurance="http://eidas.europa.eu/LoA/High">15</
LocatorDesignator>
              <Thoroughfare LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince Street</
Thoroughfare>
              <AdminUnitLevel1 LevelOfAssurance="http://eidas.europa.eu/LoA/High">SE</
AdminUnitLevel1>
           </RegisteredAddress>
        </Business>
    </rim:SlotValue>
</rim:Slot>
```

Natural Person

The NaturalPerson slot contains data that describes a Natural Person. The data of the NaturalPerson are represented using the Person class of the SDG Agent Application Profile mapped from the ISA Core Person Vocabulary.

When using an ISA Core Vocabulary for representing the value of a slot, AnyValueType is used as its type since it allows data in XML format to be used as the slot's value.

```
<rim:Slot name="NaturalPerson">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <!--     Core Person Vocabulary (CPV) Expression of the NaturalPerson-->
        <Person xmlns="https://data.europa.eu/sdg/xml#">
         <!-- elements originating from the eIDAS authentication contain the LevelOfAssurance attribute -->
            <FullName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John Alvarez Doe</FullName>
            <FamilyName LevelOfAssurance="http://eidas.europa.eu/LoA/High">Doe</FamilyName>
            <GivenName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John</GivenName>
            <PatronymicName>Doe</PatronymicName>
            <GenderCode LevelOfAssurance="http://eidas.europa.eu/LoA/High">M</GenderCode>
            <BirthDate>2006-05-04</BirthDate>
            <!-- eIDAS Identifier -->
            <Identifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="eIDAS">EL/ES/112332123</Identifier>
            <CountryOfBirth LevelOfAssurance="http://eidas.europa.eu/LoA/High">ES</CountryOfBirth>
        </Person>
    </rim:SlotValue>
</rim:Slot>
```

Authorized Representative

The AuthorizedRepresentative slot contains data that describes the Legal Representative of a company. This slot is optional and may be used either with a LegalPerson or a NaturalPerson slot. The data of the AuthorizedRepresentative are represented using the are represented using the Person class of the SDG Agent Application Profile mapped from the ISA Core Person Vocabulary.

When using an ISA Core Vocabulary for representing the value of a slot, AnyValueType is used as its type since it allows data in XML format to be used as the slot's value.

```
 <!-- Both LegalPerson and NaturalPerson can have an AuthorizedRepresentative (optional 0..1)-->
<rim:Slot name="AuthorizedRepresentative">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
        <Person xmlns="https://data.europa.eu/sdg/xml#">
         <!-- elements originating from the eIDAS authentication contain the LevelOfAssurance attribute -->
            <FullName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John Alvarez Doe</FullName>
            <FamilyName LevelOfAssurance="http://eidas.europa.eu/LoA/High">Doe</FamilyName>
            <GivenName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John</GivenName>
            <PatronymicName>Doe</PatronymicName>
            <GenderCode LevelOfAssurance="http://eidas.europa.eu/LoA/High">M</GenderCode>
            <BirthDate>2006-05-04</BirthDate>
            <!-- eIDAS Identifier -->
            <Identifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="eIDAS">EL/ES/112332123</Identifier>
            <CountryOfBirth LevelOfAssurance="http://eidas.europa.eu/LoA/High">ES</cvb:AdminunitFirstline></CountryOfBirth>
        </Person>
    </rim:SlotValue>
</rim:Slot>
```

Query Profiles

In order to specify a Query, the ebXML Element Query is used. The attribute queryDefinition can be used to specify the type of Query to be done. The value of this attribute must come from the appropriate codelist.

Query Definition for Document Query

The value of the queryDefinition attribute in the Query element must always be "DocumentQuery" when requesting Document Evidence.

```
<query:Query queryDefinition="DocumentQuery"> ... </query:Query>
```

EvidenceRequest slot

The EvidenceRequest Slot has a SlotValue of type AnyValueType. It contains a **DataServiceEvidenceType** from the SDG AP, containing one or more Distribution classes as defined by the SDG AP. This class must specify the Identifier of the Evidence type requested together with one or more distributions containing the format and the conformance profile requested when applicable (e.g. when evidence is structured), as it comes from the Data Services Directory.

When using a Core Vocabulary is used for representing the value of each element, AnyValueType is used as its type since it allows data in XML format to be used as the slot's value.

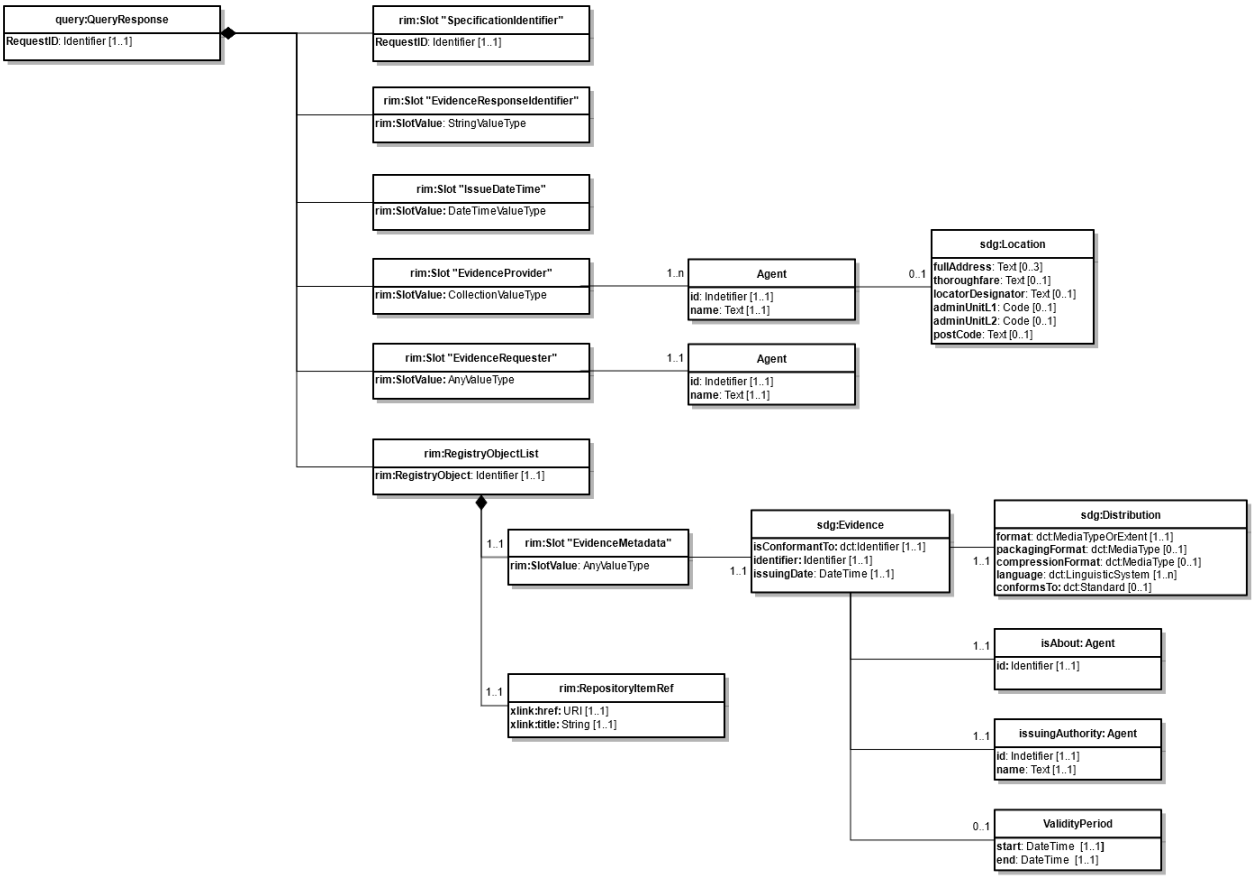
```
        <rim:Slot name="EvidenceRequest">
           <rim:SlotValue xsi:type="rim:AnyValueType">
                <DataServiceEvidenceType xmlns="https://data.europa.eu/sdg/xml#">
                   <Id>DE11TT121212333</Id>
                   <distribution>
                       <conformsTo>https://semic.org/sa/common/birthcert-1.0.0</conformsTo>
                       <format>application/xml</format>
                   </distribution>
                </DataServiceEvidenceType>
           </rim:SlotValue>
        </rim:Slot>
```

Evidence Response Syntax Mapping

Contents

Exchange Data Model: QueryResponse (Evidence Response)

The following exchange data model provides an overview of the information entities and information elements contained in the QueryResponse (or Evidence Response).



To form a valid QueryResponse, at least the following elements are required:

- the "requestID" of the QueryRequest;
- the "EvidenceResponseIdentifier" providing a unique identifier of the Response Message.
- the "SpecificationIdentifier" to identify the version of this specification.
- the "IssueDateTime" to describe the time of the request;
- the "EvidenceProvider" to describe the entity that is technically responsible for creating the QueryResponse;
- the "EvidenceRequester" to describe the entity that is technically responsible for receiving the QueryResponse;
- the QueryResponse must include a "rim:RegistryObjectList" which returns the requested information. A "DocumentQuery" triggers a response with the rim:Slot "EvidenceMetadata".

All QueryResponses are based on the same XSD and Schematron specification to simplify the overall use.

Information Model - QueryResponse (Evidence Response)

The Information model of the Query response uses ebRS QueryResponse in combination with the SDG Application Profile of the Evidence Response to implement the Business Requirements (Req ID) described for the Evidence Response. the information model describes the information entities and properties in the same hierarchical order of the corresponding Exchange Data Model. Most rim:Slots do therefore not contain sub-properties other than the SlotValue itself, unless they are collections or if they are referencing of the integrated standard such as SDG Application Profile of the Evidence Response. The information Model provides specific details for each class and

information element including the underlying standards, data types and cardinalities to produce conformant XML documents. In following sections we describe the XML serialization of the Evidence Response Information Model.

XML Example and Walkthrough: QueryResponse (Evidence Response)

The Evidence Response is expressed using the ebRS Query Response Message. It contains a reference to the query it is responding to, and thus there is no need to include any information already present in the request. This reference is in the form of a **requestID attribute**.

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

<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"

    requestId="c4369c4d-740e-4b64-80f0-7b209a66d629"
    status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success">

    <!-- Top Level Slots, providing metadata about the Response and the Evidence Provider -->

    <rim:RegistryObjectList>
        <rim:RegistryObject id="c4369c4d-740e-4b64-80f0-7b209a66d629">
            <!-- Response is included here, using Slot Mechanism -->
      </rim:RegistryObject>
    </rim:RegistryObjectList>

</query:QueryResponse>
```

Slot Definitions

The elements in this section are expressed using ebRIM SlotType instances, which have a name and a value. The value is of type ValueType. In the following table, an overview of the slots profiled for the Evidence Response is provided.

SLOT NAME	TYPE	VOCABULARIES	SCHEMA CLASS	CARDINALITY
Top-Level Slots				
EvidenceResponseIdentifier	StringValueType	-	-	1..1
SpecificationIdentifier	StringValueType	-	-	1..1

SLOT NAME	TYPE	VOCABULARIES	SCHEMA CLASS	CARDINALITY
IssueDateTime	DateTimeValueType	-	-	1..1
EvidenceProvider	AnyValueType	SDG Application Profile	Agent	1..1
Query Response Slots				
EvidenceMetadata	AnyValueType	SDG Application Profile	Evidence, Distribution, Agent	1..1

Attribute Definitions

In the following table we provide an overview of the mandatory attributes for each ebRIM element and the information they contain.

ATTRIBUTE NAME	DATA	COMMENT
query:QueryResponse		
requestId	UUID	Must be the same as the id attribute of the QueryRequest that generated this QueryResponse.
status	"urn:oasis:nammes:tc:ebxml-regrep:ResponseStatusType:Success"	Must always be "urn:oasis:nammes:tc:ebxml-regrep:ResponseStatusType:Success" when a response is successfully generated.
rim:RegistryObject		
id	UUID	Must be unique for each RegistryObject. This value is defined by the Evidence Provider.

Evidence Response Identifier

The SpecificationIdentifier element is used for expressing the Unique Identifier of the response generated by the evidence provider.

A Slot with the name of "EvidenceResponseIdentifier" is used with the ValueType of StringValueType.

```
<!-- EVIDENCE RESPONSE IDENTIFIER -->
    <rim:Slot name="EvidenceResponseIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>530ad1e2-5eaf-4a9a-8192-227432eea95d</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Specification Identifier

The SpecificationIdentifier element is used for expressing the version of the specification used for creating the referred document.

A Slot with the name of "SpecificationIdentifier" is used with the ValueType of StringValueType.

```
<!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>oots-edm:v1.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Issue Date and Time

The IssueDateTime element is used for expressing the creation date and time of the referenced document.

A Slot with the name of "IssueDateTime" is used with the ValueType of DateTimeValueType which has the value of ISO timestamp.

```
1    <!-- ISSUE DATE / TIME  -->
2     <rim:Slot name="IssueDateTime">
3         <rim:SlotValue xsi:type="rim:DateTimeValueType">
4             <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
5         </rim:SlotValue>
6     </rim:Slot>
```

Evidence Provider Metadata

The Evidence Provider element is used to describe an organisation that provides data or documents requested by an Evidence Requester.

The Evidence Provider element is expressed using a Slot with the name of "EvidenceProvider" and ValueType of AnyValueType in order to express the information using an ISA Core Vocabulary. The Evidence Provider information inside the AnyValueType Slot is expressed using the Agent Class.

```
   <!--   Evidence Provider Metadata  -->
<rim:Slot name="EvidenceProvider">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <Agent xmlns="https://data.europa.eu/sdg/xml#>
            <id schemeID="ZZZ">12345678</cbc:id>
            <name>DPName</cbc:name>
        </Agent>
    </rim:SlotValue>
</rim:Slot>
```

Evidence Response

The EvidenceMetadata Slot has a SlotValue of type AnyValueType containing an Evidence class as defined by the SDG AP of the CCCEV.
The Evidence class contains:

- Title;
- Distribution class, which includes:
    - Format, conformance and locale code as defined in the SDG Application Profile.
- Issuing Body which uses the Agent class from the SDG Application Profile using the Vocabulary's Agent class:
    - This includes an identifier, the name and an address.
- The document's issue date;
- Language(s) used in the specific included evidence.
- Optionally, a validity period, specified in the temporal element with a start and end date;

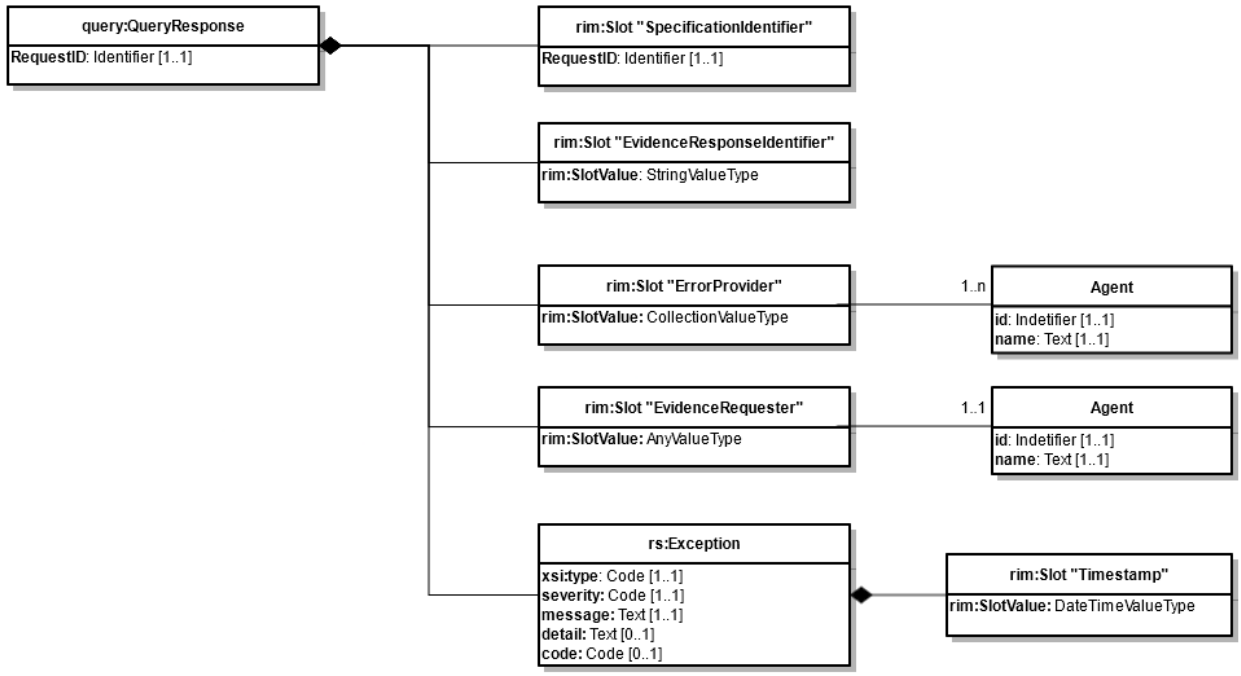
When using a Core Vocabulary for representing the value of each element, AnyValueType is used as its type since it allows data in XML format to be used as the slot's value.

```
  <rim:RegistryObjectList>
        <rim:RegistryObject xsi:type="rim:ExtrinsicObjectType" id="555555-740e-4b64-80f0-2462462462">
            <rim:Slot name="EvidenceMetadata">
                <rim:SlotValue xsi:type="rim:AnyValueType">
                    <Evidence xmlns="https://data.europa.eu/sdg/xml#">
                        <Title>Name</Title>
                        <Distribution>
                            <Format>http://publications.europa.eu/resource/authority/file-type/PDF</Format>
                        </Distribution>
                        <!-- issuingBody an Agent OrganizationType-->
                        <IssuingBody>
                            <Id>5555</id>
                            <Name>Issuing Body Name</name>
                            <Location>
                                <Address>
                                    <PostName>postname</postName>
                                </Address>
                            </Location>
                        </IssuingBody>
                        <!-- Release date -->
                        <Issued>2019-05-15T10:20:15</Issued>
                            <Language>http://publications.europa.eu/resource/authority/language/NLD</Language>
                            <ValidityPeriod>
                                <StartDate>2021-01-02</StartDate>
                                <EndDate>2022-05-05</EndDate>
                            </ValidityPeriod>
                    </Evidence>
                </rim:SlotValue>
            </rim:Slot>
            <!-- The attached Document Provided as Evidence. Points to an AS4 attachment -->
            <rim:RepositoryItemRef xlink:href="cid:attachment123@example.oots.eu" xlink:title="Company Registration Document"/>
        </rim:RegistryObject>
    </rim:RegistryObjectList>
```

Evidence Error Response Syntax Mapping

Exchange Data Model: QueryResponseError (EDM Error Response)

The following exchange data model provides an overview of the information entities and information elements contained in the EDM Error Response.



To form a valid EDM Error Response at least the following elements are required:

- the "requestID" of the QueryRequest;
- the "EvidenceResponseIdentifier" providing a unique identifier of the Response Message.
- the "SpecificationIdentifier" to identify the version of this specification.
- the "EvidenceProvider" to describe the entity that is technically responsible for creating the QueryResponse;
- the "EvidenceRequester" to describe the entity that is technically responsible for receiving the QueryResponse;
- the "Exception" described through several mandatory codes and error message. Each "Exception" must contain:
    - the "Timestamp" of the exception.

The EDM Error Response will also be used in the case of a failing QueryResponse for a DocumentQuery.

Implementation Guideline: QueryResponseError (EDM Error Response)

The Information model of the Query response uses ebRS QueryResponseusing the ebRS RegistryExceptionType syntax to implement the Business Requirements (Req ID) described for the EDM Error Response. The information model describes the information entities and properties in the same hierarchical order of the corresponding Exchange Data Model. Most rim:Slots do therefore not contain sub-properties other than the SlotValue itself, unless they are collections or if they are referencing of the integrated standard such as SDG Application Profile of the Evidence Response. The Information Model provides specific details for each class and information element including the underlying standards, data types and cardinalities to produce conformant XML documents. In the following sections, we describe the XML serialization of the Error Response Information Model.

XML Example and Walkthrough: QueryResponseError (EDM Error Response)

The EDM Error Responses are syntactically expressed inside an ebRS QueryResponse using the ebRS RegistryExceptionType as shown in the example below:

TOOP Error Example

```
<?xml version="1.0" encoding="UTF-8"?>
<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"
    xmlns:toop="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0:toop"
    requestId="c4369c4d-740e-4b64-80f0-7b209a66d629"
    status="urn:oasis:nammes:tc:ebxml-regrep:ResponseStatusType:Failure">

    <!-- Additional elements describing the response -->

    <rs:Exception xsi:type="rs:ObjectNotFoundExceptionType" severity="FAILURE"
        message="No data found." detail="No data could be found for the Legal Person with ID 1234."
        code="GEN">

        <!-- Additional elements describing the exception -->

    </rs:Exception>

</query:QueryResponse>
```

One or more **Exception** elements **(1..n)** can be put inside a QueryResponse.

Slot Definitions

The additional elements in this section are expressed using ebRIM SlotType instances, which have a name and a value. The value is of type ValueType.

SLOT NAME	TYPE	VOCABULARIES	SCHEMA CLASS	CARDINALITY
Top-Level Slots				
SpecificationIdentifier	StringValueType	-	-	1..1
EvidenceResponseIdentifier	StringValueType	-	-	1..1
ErrorProvider	AnyValueType	SDG Application Profile	Agent	1..1

SLOT NAME	TYPE	VOCABULARIES	SCHEMA CLASS	CARDINALITY
Top-Level Slots				
EvidenceRequester	AnyValueType	SDG Application Profile	Agent	1..1
Exception Slots				
Timestamp	DateTimeValueType	-	-	1..1

Attribute Definitions

In the following table, we provide an overview of the attributes for each ebRIM element and the information they contain.

ATTRIBUTE NAME	DATA	COMMENT	CARDINALITY
query:QueryResponse			
requestId	UUID	Must be the same as the id attribute of the QueryRequest that generated this QueryResponse.	1..1
status	"urn:oasis:nammes:tc:ebxml-regrep:ResponseStatusType:Failure"	Must always be "urn:oasis:nammes:tc:ebxml-regrep:ResponseStatusType:Failure" when an EDM Error Response is generated.	1..1
rs:Exception			
xsi:type	One of the exception types listed in the table below.	Describes the nature of the error that occurred.	1..1
code	An ErrorCode codelist value.	Must contain an appropriate value for the error.	0..1
detail	Text	Must contain detailed information about the error such as technical information or a stack trace.	0..1
message	Text	Must be a brief message summarizing the error.	1..1
severity	An ErrorSeverity code list value.	Describes the severity of the error.	1..1

Exception Type Definitions

In the following table, the list of all available ebRS Protocol Exceptions is provided.

EXCEPTION TYPE	DESCRIPTION
AuthenticationExceptionType	Generated when a client sends a request with authentication credentials and the authentication fails for any reason.
AuthorizationExceptionType	Generated when a client sends a request to the server for which it is not authorised.
InvalidRequestExceptionType	Generated when a client sends a request that is syntactically or semantically invalid.
ObjectExistsExceptionType	Generated when a SubmitObjectsRequest attempts to create an object with the same id as an existing object and the mode is “CreateOnly”.
ObjectNotFoundExceptionType	Generated when a QueryRequest expects an object but it is not found in the server.
QuotaExceededExceptionType	Generated when a request exceeds a server-specific quota for the client.
ReferencesExistExceptionType	Generated when a RemoveObjectRequest attempts to remove a RegistryObject while references to it still exist.
TimeoutExceptionType	Generated when the processing of a request exceeds a server-specific timeout period.
UnresolvedReferenceExceptionType	Generated when a request references an object that cannot be resolved within the request or to an existing object in the server.
UnsupportedCapabilityExceptionType	Generated when a request attempts to use an optional feature or capability that the server does not support.
QueryExceptionType	Generated when the query syntax or semantics were invalid. Client must fix the query syntax or semantic error and re-submit the query.

Top-Level Slots

Specification Identifier

The SpecificationIdentifier element is used for expressing the version of the specification used for creating the referred document.

A Slot with the name of "SpecificationIdentifier" is used with the ValueType of StringValueType.

```
    <!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>oots-edm:v1.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Error Provider Metadata

The Error Provider element is used to describe the organisation that created this error.

The Error Provider element is expressed using a Slot with the name of "ErrorProvider" and ValueType of AnyValueType in order to express the information using an ISA Core Vocabulary. The Error Provider information inside the AnyValueType Slot is expressed using the SDG Application Profile Core Agent Class.

```
<!--   Evidence Provider Metadata  -->
<rim:Slot name="ErrorProvider">
   <rim:SlotValue xsi:type="rim:AnyValueType">
        <Agent xmlns="https://data.europa.eu/sdg/xml#>
            <id schemeID="ZZZ">12345678</cbc:id>
            <name>DPName</cbc:name>
        </Agent>
    </rim:SlotValue>
</rim:Slot>
```

Evidence Provider Metadata

The Evidence Provider element is used to describe an organisation that provides data or documents requested by an Evidence Requester.

The Evidence Provider element is expressed using a Slot with the name of "EvidenceProvider" and ValueType of AnyValueType in order to express the information using an ISA Core Vocabulary. The Evidence Provider information inside the AnyValueType Slot is expressed using the Agent Class.

```
   <!--   Evidence Provider Metadata  -->
<rim:Slot name="EvidenceProvider">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <Agent xmlns="https://data.europa.eu/sdg/xml#>
            <id schemeID="ZZZ">12345678</cbc:id>
            <name>DPName</cbc:name>
        </Agent>
    </rim:SlotValue>
</rim:Slot>
```

Exception Slots

Timestamp

The Timestamp element is used for expressing the creation date and time of the referenced error.

A Slot with the name of "Timestamp" is used with the ValueType of DateTimeValueType which has the value of ISO timestamp.

```
   <!-- TimeStamp -->
    <rim:Slot name="Timestamp">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Message Examples

In this section, some examples for the Exchange Data Model are provided for document-based queries.

The section includes the following sub-sections:

- EDM Document-Based Examples

EDM Document-Based Examples

- Document-Based Example
- Step 1 - Document Request
    - Required Data
        - Specification Identifier
        - Issue Date and Time
        - Request Reason
        - Evidence Requester Information
        - Response Option
        - Query
            - Data Request Subject
            - Evidence Request
- Step 1 - Document Response

Document-Based Example

In this example, we consider the case of someone (Legal or Natural Person) who requires a certificate for their or their company. Instead of them filling in their information manually and submitting it, the service they are using (Evidence Requester - ER) can get their information for them through the OOTS service. To do this, a Document Request is sent, which contains information about who is participating in this data exchange and which certificate is required. This request is sent to a service that can provide the evidence (Evidence Provider - EP). The EP then sends back to the ER an Evidence Response that contains either the certificates that have been requested or a list of all the available certificates from which the ER user can choose.

Step 1 - Document Request

The first step of a Document Request contains information about the ER who is requesting the data (LegalPerson and AuthorizedRepresentative) and what data is required, in the form of a DocumentQuery. More information about how this information is represented within the XML document can be found in RegRep v4 Syntax Mapping.

Step 1 Document Request Example XML follows:

Step 1 Dataset Request XML Example

```
<query:QueryRequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"
    id="c4369c4d-740e-4b64-80f0-7b209a66d629">

    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>oots-edm:v1.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2021-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <rim:Slot name="Procedure">
        <rim:SlotValue xsi:type="rim:InternationalStringValueType">
            <rim:Value>
                <rim:LocalizedString value="SDG_PROC_1" xml:lang="EN"/>
            </rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!-- Should we remove this. If not, will we have a mapping on the SDG AP. This must be the same as the one in the Evidence Broker -->
    <rim:Slot name="FullfillingRequirement">
        <rim:SlotValue xsi:type="rim:CollectionValueType" collectionType="urn:oasis:names:tc:ebxml-regrep:CollectionType:Set">
            <rim:Element xsi:type="rim:AnyValueType">
                <!--  cccev requirement-->
            </rim:Element>
            <rim:Element xsi:type="rim:AnyValueType">
                <!--  cccev requirement-->
            </rim:Element>
        </rim:SlotValue>
    </rim:Slot>

    <!-- use of the Agent Class as part of the SDG AP -->
    <rim:Slot name="EvidenceRequester">
        <!--   Expression of ER information using Agent class of SDG AP -->
        <rim:SlotValue xsi:type="rim:CollectionValueType" collectionType="urn:oasis:names:tc:ebxml-regrep:CollectionType:Set">
            <rim:Element xsi:type="rim:AnyValueType">
                <Agent xmlns="https://data.europa.eu/sdg/xml#">
                    <id schemeID="VATRegistration">DE730757727</id>
                    <Name>aCompanyName</Name>
                    <Location>
                        <Address>
                            <FullAddress>Prince Street 15</FullAddress>
```

```
                            <Thoroughfare>Prince Street</Thoroughfare>
                            <LocatorDesignator>15</LocatorDesignator>
                            <PostName>LiverPool</PostName>
                            <AdminUnitLevel1>GB</AdminUnitLevel1>
                            <PostCode>15115</PostCode>
                        </Address>
                    </Location>
                </Agent>
            </rim:Element>
        </rim:SlotValue>
    </rim:Slot>

    <rim:Slot name="LegalPerson">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--     Core Business Vocabulary (CBV) Expression of the Legal Person   -->
            <Business xmlns="https://data.europa.eu/sdg/xml#">
                <!-- eIDAS Authentication Attributes -->
                <LegalName LevelOfAssurance="http://eidas.europa.eu/LoA/High">AnyCompanyName</
LegalName>
                <LegalIdentifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="VAT">
113123123123123</LegalIdentifier>
                <!-- Any other identifier that is not coming from eIDAS Authentication Attributes
-->
                <Identifier SchemeID="GLN">113123123123123</Identifier>
                <RegisteredAddress>
                    <FullAddress LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince Street
15</FullAddress>
                    <PoBox LevelOfAssurance="http://eidas.europa.eu/LoA/High">11221</PoBox>
                    <LocatorDesignator LevelOfAssurance="http://eidas.europa.eu/LoA/High">15</
LocatorDesignator>
                    <Thoroughfare LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince
Street</Thoroughfare>
                    <AdminUnitLevel1 LevelOfAssurance="http://eidas.europa.eu/LoA/High">SE</
AdminUnitLevel1>
                </RegisteredAddress>
            </Business>
        </rim:SlotValue>
    </rim:Slot>

    <!-- Both LegalPerson and NaturalPerson can have an AuthorizedRepresentative (optional 0..1)--
>
    <rim:Slot name="AuthorizedRepresentative">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
            <Person xmlns="https://data.europa.eu/sdg/xml#">
                <!-- elements originating from the eIDAS authentication contain the
LevelOfAssurance attribute -->
                <FullName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John Alvarez Doe</
FullName>
                <FamilyName LevelOfAssurance="http://eidas.europa.eu/LoA/High">Doe</FamilyName>
                <GivenName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John</GivenName>
                <PatronymicName>Doe</PatronymicName>
                <GenderCode LevelOfAssurance="http://eidas.europa.eu/LoA/High">M</GenderCode>
                <BirthDate>2006-05-04</BirthDate>
                <!-- eIDAS Identifier -->
```

```
                <Identifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="eIDAS">EL/ES/112332123</Identifier>
                <CountryOfBirth LevelOfAssurance="http://eidas.europa.eu/LoA/High">ES</CountryOfBirth>
            </Person>
        </rim:SlotValue>
    </rim:Slot>

    <!-- Default Response Option, returnType Can be Omitted -->
    <query:ResponseOption returnType="LeafClassWithRepositoryItem"/>

    <!-- Query Definition -->
    <query:Query queryDefinition="DocumentQuery">
        <rim:Slot name="EvidenceRequest">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <DataServiceEvidenceType xmlns="https://data.europa.eu/sdg/xml#">
                    <!-- This is the ID that is fetched from the Data Services Directory -->
                    <Identifier>DE11TT121212333</Identifier>
                    <!-- This is the list of the selected distributions requested.
                        It is a subset of the distributions provided by the DSD for this specific Data Service Evidence Type
                    -->
                    <Distribution>
                        <ConformsTo>https://semic.org/sa/common/birthcert-1.0.0</ConformsTo>
                        <Format>application/xml</Format>
                    </Distribution>
                </DataServiceEvidenceType>
            </rim:SlotValue>
        </rim:Slot>
    </query:Query>
</query:QueryRequest>
```

Required Data

Specification Identifier

The Document Request should contain information about the specification used for the creation of the referenced document.

```
<!-- SPECIFICATION IDENTIFIER -->
<rim:Slot name="SpecificationIdentifier">
    <rim:SlotValue xsi:type="rim:StringValueType">
        <rim:Value>oots-edm:v1.0</rim:Value>
    </rim:SlotValue>
</rim:Slot>
```

Issue Date and Time

The Document Request should contain information about when it was generated and is contained within the IssueDateTime element. This should be an ISO timestamp.

```
    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Request Reason

The reason for the request is contained here. The Procedure element should contain a short description of the procedure that will utilise the data. Multiple translations for this description can be specified. The language must be specified using ISO 639-1 two-letter code.

```
    <!--  REQUEST REASON: Request Reason Slot flattened to Procedure and FullfillingRequirement slots -->
    <rim:Slot name="Procedure">
        <rim:SlotValue xsi:type="rim:InternationalStringValueType">
            <rim:Value>
                <rim:LocalizedString
                    value="Request to Open a Branch"
                    xml:lang="EN"/>
            </rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Evidence Requester Information

Information about the ER must be specified in the Request. This information must include an Identifier for the ER specified in the AgentID element, the ER name specified in the AgentName element and its Address in the AgentHasAddress element:

- FullAddress: contains the street name and the number;
- Thoroughfare: contains the street name;
- LocatorDesignator: contains the street number;
- PostName: contains the name of the city;
- AdminUnitL1: contains the ISO 3166-1 alpha-2 two-letter country code;
- PostCode: contains the postal code.

```
<!-- use of the Agent Class as part of the SDG AP -->
    <rim:Slot name="EvidenceRequester">
        <!--   Expression of ER information using Agent class of SDG AP -->
        <rim:SlotValue xsi:type="rim:CollectionValueType" collectionType="urn:oasis:names:tc:ebxml
-regrep:CollectionType:Set">
            <rim:Element xsi:type="rim:AnyValueType">
                <Agent xmlns="https://data.europa.eu/sdg/xml#">
                    <id schemeID="VATRegistration">DE730757727</id>
                    <Name>aCompanyName</Name>
                    <Location>
                        <Address>
                            <FullAddress>Prince Street 15</FullAddress>
                            <Thoroughfare>Prince Street</Thoroughfare>
                            <LocatorDesignator>15</LocatorDesignator>
                            <PostName>LiverPool</PostName>
                            <AdminUnitLevel1>GB</AdminUnitLevel1>
                            <PostCode>15115</PostCode>
                        </Address>
                    </Location>
                </Agent>
            </rim:Element>
        </rim:SlotValue>
    </rim:Slot>
```

Response Option

The response option element must be set as "LeafClassWithRepositoryItem" to signify to the EP that a list of certificates is requested.

```
    <!-- Default Response Option, returnType Can be Omitted -->
    <query:ResponseOption returnType="LeafClassWithRepositoryItem"/>
```

Query

The value of the queryDefinition attribute in the Query element must always be "DocumentQuery" for Step 1 - Document Requests.

```
    <query:Query queryDefinition="DocumentQuery">
```

The following are included inside the Query element:

Data Request Subject
The Data Request Subject is comprised of all the required information on the Legal or Natural Person that makes the request.

A Query Request may contain either a naturalPerson or a LegalPerson Slot, depending on the subject of the query. An additional Authorized Representative slot may be specified either with a Natural or a Legal Person.

```
 <rim:Slot name="LegalPerson">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--     Core Business Vocabulary (CBV) Expression of the Legal Person   -->
            <Business xmlns="https://data.europa.eu/sdg/xml#">
                <!-- eIDAS Authentication Attributes -->
                <LegalName LevelOfAssurance="http://eidas.europa.eu/LoA/High">AnyCompanyName</LegalName>
                <LegalIdentifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="VAT">113123123123123</LegalIdentifier>
                <!-- Any other identifier that is not coming from eIDAS Authentication Attributes -->
                <Identifier SchemeID="GLN">113123123123123</Identifier>
                <RegisteredAddress>
                    <FullAddress LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince Street 15</FullAddress>
                    <PoBox LevelOfAssurance="http://eidas.europa.eu/LoA/High">11221</PoBox>
                    <LocatorDesignator LevelOfAssurance="http://eidas.europa.eu/LoA/High">15</LocatorDesignator>
                    <Thoroughfare LevelOfAssurance="http://eidas.europa.eu/LoA/High">Prince Street</Thoroughfare>
                    <AdminUnitLevel1 LevelOfAssurance="http://eidas.europa.eu/LoA/High">SE</AdminUnitLevel1>
                </RegisteredAddress>
            </Business>
        </rim:SlotValue>
    </rim:Slot>

    <!-- Both LegalPerson and NaturalPerson can have an AuthorizedRepresentative (optional 0..1)-->
    <rim:Slot name="AuthorizedRepresentative">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
            <Person xmlns="https://data.europa.eu/sdg/xml#">
                <!-- elements originating from the eIDAS authentication contain the LevelOfAssurance attribute -->
                <FullName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John Alvarez Doe</FullName>
                <FamilyName LevelOfAssurance="http://eidas.europa.eu/LoA/High">Doe</FamilyName>
                <GivenName LevelOfAssurance="http://eidas.europa.eu/LoA/High">John</GivenName>
                <PatronymicName>Doe</PatronymicName>
                <GenderCode LevelOfAssurance="http://eidas.europa.eu/LoA/High">M</GenderCode>
                <BirthDate>2006-05-04</BirthDate>
                <!-- eIDAS Identifier -->
                <Identifier LevelOfAssurance="http://eidas.europa.eu/LoA/High" SchemeID="eIDAS">EL/ES/112332123</Identifier>
                <CountryOfBirth LevelOfAssurance="http://eidas.europa.eu/LoA/High">ES</CountryOfBirth>
            </Person>
        </rim:SlotValue>
    </rim:Slot>
```

Evidence Request

The Evidence Request element contains a list with all the requested certificates described in Distribution elements. Each Distribution contains a format that describes in which form the certificate is to be returned:

```
        <rim:Slot name="DistributionRequestList">
            <rim:SlotValue xsi:type="rim:CollectionValueType"
                collectionType="urn:oasis:names:tc:ebxml-regrep:CollectionType:Set">
                <rim:Element xsi:type="rim:AnyValueType">
                    <ERat:distribution xmlns:ERat ="http://data.europa.eu/r5r/"
                        xmlns:ERt="http://purl.org/ER/terms/">
                        <!--  accessURL mandatory element in the ERat xsd but not needed in EDM --
>
                        <ERat:accessURL></ERat:accessURL>
                        <ERt:format>UNSTRUCTURED</ERt:format>
                        <!-- added mediaType -->
                        <ERat:mediaType>application/pdf</ERat:mediaType>
                    </ERat:distribution>
                </rim:Element>
            </rim:SlotValue>
        </rim:Slot>
```

Step 1 - Document Response

In this scenario, the Document Response for the first step of the process contains information about the EP, IDs linking to the requested certificates and document metadata. More information about how this information is represented within the XML document can be found in RegRep v4 Syntax Mapping.

Step 1 Document Response Example XML follows:

Step 1 Dataset Response XML Example

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

<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"
    xmlns:toop="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0:toop"
    requestId="c4369c4d-740e-4b64-80f0-7b209a66d629"
    status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success">

    <!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>toop-edm:v2.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!--   Evidence Provider Metadata  -->
    <rim:Slot name="EvidenceProvider">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--   Expression of EP information using Agent class of CAGV   -->
            <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#"
                xmlns:locn="http://www.w3.org/ns/locn#">
                <cbc:id schemeID="VATRegistration">12345678</cbc:id>
                <cbc:name>Port Authority</cbc:name>
            </cagv:Agent>
        </rim:SlotValue>
    </rim:Slot>

    <!--
        The ObjectRef list contains all the references to the requested objects.
        Each ObjectRef must contain an identifier as a reference
        to an object instead of the object itself.
    -->
     <!-- List of Ship Certificates -->
   <rim:ObjectRefList>
        <rim:ObjectRef id="c4369c4d-740e-4b64-80f0-7b209a66d629">
            <rim:Slot name="DocumentMetadata">
                <rim:SlotValue xsi:type="rim:AnyValueType">
                    <ERat:dataset xmlns:cccev="https://data.europe.eu/semanticassets/ns/cv/
cccev_v2.0.0#"
                        xmlns:ERat="http://data.europa.eu/r5r/"
                        xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/
cbc_v2.0.0#">
```

```
                        <ERt:description>Document of Compliance (DOC)</description>
                        <ERt:title>ISMCompliance</title>
                        <!-- DocumentReference-->
                        <ERat:distribution>
                            <ERat:accessURL>file:/attachments/SeaWindDOC2.pdf</ERat:accessURL>
                            <ERt:description>Document of Compliance (DOC)</ERt:description>
                            <ERat:mediaType>DOC</ERat:mediaType>
                        </ERat:distribution>
                        <!-- Creator is an Agent OrganizationType-->
                        <creator xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                            xmlns="http://purl.org/ER/terms/" xsi:type="cagv:OrganizationType">
                            <!--AgentIdentifier-->
                            <cbc:id>5555</cbc:id>
                            <cbc:name>Greek Maritime Authority Agency</cbc:name>
                            <cagv:location>
                                <locn:address xmlns:locn="http://www.w3.org/ns/locn#">
                                    <locn:postName>ELTA post Office</locn:postName>
                                </locn:address>
                            </cagv:location>
                        </creator>
                        <identifier xmlns="http://purl.org/ER/terms/">077SM/16</identifier>
                        <!-- DocumentNumber -->
                        <identifier xmlns="http://purl.org/ER/terms/">DOC-555</identifier>
                        <!-- Release date -->
                        <issued xmlns="http://purl.org/ER/terms/">2019-05-15T10:20:15</issued>
                        <language xmlns="http://purl.org/ER/terms/">DE</language>
                        <modified xmlns="http://purl.org/ER/terms/">2020-05-15T10:20:15</modified>
                        <!-- PeriodofTime is now temporal-->
                        <temporal xmlns="http://purl.org/ER/terms/">
                            <startDate xmlns="http://purl.org/ER/terms/">2020-01-02</startDate>
                            <endDate xmlns="http://purl.org/ER/terms/">2022-05-05</endDate>
                        </temporal>
                        <!-- LegalResource ReferenceFramework-->
                        <ERat:qualifiedRelation>
                            <relation xmlns="http://purl.org/ER/terms/" xsi:type="cccev:ReferenceF
rameworkType">
                                <description xmlns="http://purl.org/ER/terms/">Safety of Life at
Sea</description>
                                <title xmlns="http://purl.org/ER/terms/">SOLAS 1974</title>
                                <identifier xmlns="http://purl.org/ER/terms/">RE238918378</
identifier>
                            </relation>
                        </ERat:qualifiedRelation>
                    </ERat:dataset>
                </rim:SlotValue>
            </rim:Slot>
        </rim:ObjectRef>
    </rim:ObjectRefList>


</query:QueryResponse>
```

Required Data

Request ID

Each Document Response must reference its request by defining the requestID attribute in the QueryResponse element:

```
<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"

    requestId="cf024f3d-72ea-4b87-bbe0-7334b27526cd"
    status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success">

<!-- Rest of the response follows -->
```

Specification Identifier

Like the Document Request, the Document Response should contain information about the specification used to create the referenced document.

```
<!-- SPECIFICATION IDENTIFIER -->
<rim:Slot name="SpecificationIdentifier">
    <rim:SlotValue xsi:type="rim:StringValueType">
        <rim:Value>toop-edm:v2.0</rim:Value>
    </rim:SlotValue>
</rim:Slot>
```

Issue Date and Time

Like the Document Request, the Document Response should contain information about when it was generated and contained within the IssueDateTime element. This should be an ISO timestamp.

```
    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Evidence Provider Information

The EvidenceProvider element in the Document Response contains information about the Evidence Provider, which issues the Response. This data includes an Identifier and its Type (Identifier Type) and the name of the EP.

```
 <!--   Evidence Provider Metadata  -->
<rim:Slot name="EvidenceProvider">
    <rim:SlotValue xsi:type="rim:AnyValueType">
        <!--   Expression of EP information using Agent class of CAGV   -->
        <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
            xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#"
            xmlns:locn="http://www.w3.org/ns/locn#">
            <cbc:id schemeID="VATRegistration">12345678</cbc:id>
            <cbc:name>Port Authority</cbc:name>
        </cagv:Agent>
    </rim:SlotValue>
</rim:Slot>
```

Ship Certificate List

In the first step of the Maritime Document Response, the ER receives a list of IDs for all the requested certificates and their metadata. Those IDs are declared in the id attribute of the ObjectRef element. Additional IDs can be included in multiple ObjectRef elements in the ObjectRef list.

In the Slot element with the attribute "DocumentMetadata", metadata about the certificate file is attached, including:

- A document identifier;
- Document number specified in a second identifier element;
- Type, containing the type of the document;
- Issued and modified elements containing a timestamp of the document's issue and last modification date, respectively;
- A title;
- A short description;
- The language of the document;
- Information about the agency that issued this document in the creator element:
    - This information includes an identifier, the name and their address.
- A validity period, specified in the temporal element with a start and end date;
- A distribution element which includes information about the attached certificate, including:
    - An access URL to the file;
    - A short description;
    - Its media type.
- qualifiedRelation which refers to a Legal Resource, which includes:
    - An identifier;
    - A title for the resource;
    - A short description.

Step 1 - Document Request

In the Maritime scenario, the second step of a Document Request contains information about the ER requesting the data (LegalPerson and NaturalPerson) and the IDs of the certificates requested. More information about how this information is represented within the XML document can be found in RegRep v4 Syntax Mapping.

Step 2 Document Request Example XML follows:

Step 2 Dataset Request Maritime XML Example

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

<!--
        QueryRequest message type based on the OASIS ebXML OASIS ebXML RegRep Version 4.0
        Part 2: Services and Protocols (ebRS) OASIS Standard.

        Specification, schemas, samples etc. available from OASIS:
        http://docs.oasis-open.org/regrep/regrep-core/v4.0/os/

        This sample is based on the version of the ebRS v4.0 standard,
        as well as ISA2 XML schemas for core vocabularies.
    -->

<query:QueryRequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink" id="d5569c4d-740e-4b64-80f0-7b209a66d629"
    xmlns:toop="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0:toop">

    <!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>toop-edm:v2.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

   <!--  REQUEST REASON: Procedure -->
    <rim:Slot name="Procedure">
        <rim:SlotValue xsi:type="rim:InternationalStringValueType">
            <rim:Value>
                <rim:LocalizedString
                    value="Retrieve META data for ship certificate"
                    xml:lang="EN"/>
            </rim:Value>
        </rim:SlotValue>
    </rim:Slot>

   <rim:Slot name="EvidenceRequester">
        <!--   Expression of ER information using Agent class of CAGV   -->
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#"
                xmlns:locn="http://www.w3.org/ns/locn#">
                <cbc:id schemeID="VATRegistration">SVU12345678</cbc:id>
                <cbc:name>Maritime Authority - Port Control</cbc:name>
```

```
                <cagv:location>
                    <locn:address>
                        <locn:fullAddress>4220 Korsør, Denmark</locn:fullAddress>
                        <locn:thoroughfare>Fjordvænget 30</locn:thoroughfare>
                        <locn:locatorDesignator>30</locn:locatorDesignator>
                        <locn:postName>Korsør</locn:postName>
                        <locn:adminUnitLevel1>DK</locn:adminUnitLevel1>
                        <locn:postCode>4220</locn:postCode>
                    </locn:address>
                </cagv:location>
            </cagv:Agent>
        </rim:SlotValue>
    </rim:Slot>

    <!--    Authorization token renamed to ConsentToken -->
    <rim:Slot name="ConsentToken">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>MTExMDEwMTAxMDEwMTAwMDExMTAxMDE=</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!--  DataSet Identifier  -->
    <rim:Slot name="DataSetIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>DATASETIDENTIFIER</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <query:ResponseOption returnType="LeafClassWithRepositoryItem"/>

    <!--
        Canonical query GetObjectByID
        Should do one Request per dataset ID as required
    -->
    <query:Query queryDefinition="urn:oasis:names:tc:ebxml-regrep:query:GetObjectById">

        <!--  It will be LegalPerson OR Natural Person.  Putting both for reference  -->
        <rim:Slot name="LegalPerson">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Business Vocabuary (CBV) Expression of the Legal Person   -->
                <cva:CoreBusiness
                    xmlns:cva="http://www.w3.org/ns/corevocabulary/AggregateComponents"
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:LegalEntityLegalID schemeID="VATRegistration">0273544290</cvb:LegalEntity
LegalID>
                    <cvb:LegalEntityID schemeID="EIDAS">EE/DK/0273544290</cvb:LegalEntityID>
                    <cvb:LegalEntityLegalName>SeaWind</cvb:LegalEntityLegalName>
                    <!--     Core Location Vocabuary (CLV) Expression of the
LegalEntityRegisteredAddress  -->
                    <cva:LegalEntityCoreAddress>
                        <cvb:AddressFullAddress>4220, Denmark</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Fjordvænget 30</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>30</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Korsør</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>DK</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>4220</cvb:AddressPostCode>
```

```
                    </cva:LegalEntityCoreAddress>
                </cva:CoreBusiness>
            </rim:SlotValue>
        </rim:Slot>

         <rim:Slot name="NaturalPerson">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
                <cva:CorePerson xmlns:cva="http://www.w3.org/ns/corevocabulary/
AggregateComponents"
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:PersonID schemeID="EIDAS">SV/PF/123456</cvb:PersonID>
                    <cvb:PersonFamilyName>Parker</cvb:PersonFamilyName>
                    <cvb:PersonGivenName>Mary</cvb:PersonGivenName>
                    <cvb:PersonGenderCode>F</cvb:PersonGenderCode>
                    <cvb:PersonBirthName>Mary James Parker</cvb:PersonBirthName>
                    <cvb:PersonBirthDate>1994-05-15</cvb:PersonBirthDate>
                    <cva:PersonCoreAddress>
                        <cvb:AddressFullAddress>4220 Korsør, Denmark</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Fjordvænget 30</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>30</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Korsør</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>DK</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>4220</cvb:AddressPostCode>
                    </cva:PersonCoreAddress>
                </cva:CorePerson>
            </rim:SlotValue>
        </rim:Slot>
        <!--        Both LegalPerson and NaturalPerson can have an AuthorizedRepresentative
(optional 0..1)-->
        <rim:Slot name="AuthorizedRepresentative">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
                <cva:CorePerson xmlns:cva="http://www.w3.org/ns/corevocabulary/
AggregateComponents"
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:PersonID schemeID="EIDAS">EE/DK/12345678</cvb:PersonID>
                    <cvb:PersonFamilyName>Smith</cvb:PersonFamilyName>
                    <cvb:PersonGivenName>Mark</cvb:PersonGivenName>
                    <cvb:PersonGenderCode>M</cvb:PersonGenderCode>
                    <cvb:PersonBirthName>Mark Smith</cvb:PersonBirthName>
                    <cvb:PersonBirthDate>1990-01-01</cvb:PersonBirthDate>
                    <cva:PersonCoreAddress>
                        <cvb:AddressFullAddress>Some other Street 15</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Prince Street</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>19</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Liverpool</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>GB</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>15115</cvb:AddressPostCode>
                    </cva:PersonCoreAddress>
                </cva:CorePerson>
            </rim:SlotValue>
        </rim:Slot>

        <rim:Slot name="id">
```

```
            <rim:SlotValue xsi:type="rim:StringValueType" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance">
                <rim:Value>4edf26e5-d0de-4f90-a173-c9f8d4e3b9c3</rim:Value>
            </rim:SlotValue>
        </rim:Slot>
    </query:Query>

</query:QueryRequest>
```

Required Data

Specification Identifier

The Document Request should contain information about the specification used for the creation of the referenced document.

```
<!-- SPECIFICATION IDENTIFIER -->
<rim:Slot name="SpecificationIdentifier">
    <rim:SlotValue xsi:type="rim:StringValueType">
        <rim:Value>toop-edm:v2.0</rim:Value>
    </rim:SlotValue>
</rim:Slot>
```

Issue Date and Time

The Document Request should contain information about when it was generated and is contained within the IssueDateTime element. This should be an ISO timestamp.

```
    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Request Reason

The reason for the request is contained here. The Procedure element should contain a short description of the procedure that will utilise the data. Multiple translations for this description can be specified. The language must be specified using ISO 639-1 two-letter code.

```
    <!--  REQUEST REASON: Request Reason Slot flattened to Procedure and FullfillingRequirement slots -->
    <rim:Slot name="Procedure">
        <rim:SlotValue xsi:type="rim:InternationalStringValueType">
            <rim:Value>
                <rim:LocalizedString
                    value="Retrieve META data for ship certificates"
                    xml:lang="EN"/>
            </rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Evidence Requester Information

Information for the ER must be specified in the request. This information must include an Identifier for the ER specified in the id element, the ER name specified in the name element and its Address in the location element:

- FullAddress: contains the street name and the number;
- Thoroughfare: contains the street name;
- LocatorDesignator: contains the street number;
- PostName: contains the name of the city;
- AdminUnitLevel1: contains the ISO 3166-1 alpha-2 two-letter country code;
- PostCode: contains the postal code.

```
     <rim:Slot name="EvidenceRequester">
        <!--   Expression of ER information using Agent class of CAGV   -->
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                xmlns:locn="http://www.w3.org/ns/locn#">
                <cbc:id schemeID="VATRegistration">SVU12345678</cbc:id>
                <cbc:name>Maritime Authority - Port Control</cbc:name>
                <cagv:location>
                    <locn:address>
                        <locn:fullAddress>4220 Korsør, Denmark</locn:fullAddress>
                        <locn:thoroughfare>Fjordvænget 30</locn:thoroughfare>
                        <locn:locatorDesignator>30</locn:locatorDesignator>
                        <locn:postName>Korsør</locn:postName>
                        <locn:adminUnitLevel1>DK</locn:adminUnitLevel1>
                        <locn:postCode>4220</locn:postCode>
                    </locn:address>
                </cagv:location>
            </cagv:Agent>
        </rim:SlotValue>
    </rim:Slot>
```

Consent Token

This element contains a token that may authorise the acquisition of the requested data.

```
<!--    Authorization token renamed to ConsentToken -->
    <rim:Slot name="ConsentToken">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>MTExMDEwMTAxMDEwMTAwMDExMTAxMDE=</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Dataset Identifier

This element contains an identifier for which dataset will be queried on the EP.

```

<!--  DataSet Identifier  -->
    <rim:Slot name="DatasetIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>DATASETIDENTIFIER</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Response Option

The response option element must be set as "LeafClassWithRepositoryItem" to signify to the EP that the certificate is now requested.

```
    <query:ResponseOption returnType="LeafClassWithRepositoryItem"/>
```

Query

The value of the queryDefinition attribute in the Query element must always be "urn:oasis:names:tc:ebxml-regrep:query:GetObjectById" for Step 2 - Document Requests.

```
    <query:Query queryDefinition="urn:oasis:names:tc:ebxml-regrep:query:GetObjectById">
```

The following are included inside the Query element:

Data Request Subject
The Data Request Subject is comprised of all the required information on the Legal or Natural Person that makes the request.

A Query Request may either contain a NaturalPerson or a LegalPerson Slot, depending on the subject of the query. An additional Authorized Representative slot (and their Address) may be specified either with a Natural or a Legal Person.

In this example, the Natural Person contains the following:

- PersonFamilyName: the family/last name;
- PersonGivenName: the first name;
- PersonGenderCode: the gender of the natural person (F for Female);
- PersonBirthName: the full name;
- PersonBirthDate: the date of birth;

- PersonID, which contains the eIDAS identifier;
- PersonCoreAddress: information about the address of the Natural Person. This information includes:
    - AddressFullAddress: the street name and the number;
    - AddressThoroughfare: the street name;
    - AddressLocatorDesignator: the street number;
    - AddressPostName: the name of the city;
    - AddressAdminUnitLocationOne: the ISO 3166-1 alpha-2 two-letter country code;
    - AddressPostCode: the postal code.

The specification of the AuthorizedRepresentative and the AuthorizedRepresentativeAddress follows a similar structure.

For reference, in this example, a Legal Person is also included:

- LegalEntityLegalName: the name of the company;
- LegalEntityID: the eIDAS/TOOP identifier of the company;
- LegalEntityLegalID: another identifier with its type (e.g. the VAT);
- LegalEntityCoreAddress: follows a similar structure to the PersonCoreAddress.

```
        <!--  It will be LegalPerson OR Natural Person.  Putting both for reference  -->
        <rim:Slot name="LegalPerson">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Business Vocabuary (CBV) Expression of the Legal Person   -->
                <cva:CoreBusiness
                    xmlns:cva="http://www.w3.org/ns/corevocabulary/AggregateComponents"
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:LegalEntityLegalID schemeID="VATRegistration">0273544290</cvb:LegalEntity
LegalID>
                    <cvb:LegalEntityID schemeID="EIDAS">EE/DK/0273544290</cvb:LegalEntityID>
                    <cvb:LegalEntityLegalName>SeaWind</cvb:LegalEntityLegalName>
                    <!--     Core Location Vocabuary (CLV) Expression of the
LegalEntityRegisteredAddress  -->
                    <cva:LegalEntityCoreAddress>
                        <cvb:AddressFullAddress>4220, Denmark</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Fjordvænget 30</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>30</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Korsør</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>DK</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>4220</cvb:AddressPostCode>
                    </cva:LegalEntityCoreAddress>
                </cva:CoreBusiness>
            </rim:SlotValue>
        </rim:Slot>

        <rim:Slot name="NaturalPerson">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
                <cva:CorePerson xmlns:cva="http://www.w3.org/ns/corevocabulary/
AggregateComponents"
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:PersonID schemeID="EIDAS">SV/PF/123456</cvb:PersonID>
                    <cvb:PersonFamilyName>Parker</cvb:PersonFamilyName>
                    <cvb:PersonGivenName>Mary</cvb:PersonGivenName>
                    <cvb:PersonGenderCode>F</cvb:PersonGenderCode>
                    <cvb:PersonBirthName>Mary James Parker</cvb:PersonBirthName>
                    <cvb:PersonBirthDate>1994-05-15</cvb:PersonBirthDate>
                    <cva:PersonCoreAddress>
                        <cvb:AddressFullAddress>4220 Korsør, Denmark</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Fjordvænget 30</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>30</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Korsør</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>DK</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>4220</cvb:AddressPostCode>
                    </cva:PersonCoreAddress>
                </cva:CorePerson>
            </rim:SlotValue>
        </rim:Slot>
        <!--        Both LegalPerson and NaturalPerson can have an AuthorizedRepresentative
(optional 0..1)-->
        <rim:Slot name="AuthorizedRepresentative">
            <rim:SlotValue xsi:type="rim:AnyValueType">
                <!--     Core Person Vocabulary (CPV) Expression of the LegalRepresentative -->
                <cva:CorePerson xmlns:cva="http://www.w3.org/ns/corevocabulary/
AggregateComponents"
```

```
                    xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents">
                    <cvb:PersonID schemeID="EIDAS">EE/DK/12345678</cvb:PersonID>
                    <cvb:PersonFamilyName>Smith</cvb:PersonFamilyName>
                    <cvb:PersonGivenName>Mark</cvb:PersonGivenName>
                    <cvb:PersonGenderCode>M</cvb:PersonGenderCode>
                    <cvb:PersonBirthName>Mark Smith</cvb:PersonBirthName>
                    <cvb:PersonBirthDate>1990-01-01</cvb:PersonBirthDate>
                    <cva:PersonCoreAddress>
                        <cvb:AddressFullAddress>Some other Street 15</cvb:AddressFullAddress>
                        <cvb:AddressThoroughfare>Prince Street</cvb:AddressThoroughfare>
                        <cvb:AddressLocatorDesignator>19</cvb:AddressLocatorDesignator>
                        <cvb:AddressPostName>Liverpool</cvb:AddressPostName>
                        <cvb:AddressAdminUnitLocationOne>GB</cvb:AddressAdminUnitLocationOne>
                        <cvb:AddressPostCode>15115</cvb:AddressPostCode>
                    </cva:PersonCoreAddress>
                </cva:CorePerson>
            </rim:SlotValue>
        </rim:Slot>
```

Certificate ID
The ID of the certificate to be requested is specified in the Value element within the Slot with the attribute "id". If multiple IDs need to be requested, a separate request is made for each ID.

```
    <!--
        Canonical query GetObjectByID
        Should do one Request per dataset ID as required
    -->
    <query:Query queryDefinition="urn:oasis:names:tc:ebxml-regrep:query:GetObjectById">
        <rim:Slot name="id">
            <rim:SlotValue xsi:type="rim:StringValueType" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance">
                <rim:Value>4edf26e5-d0de-4f90-a173-c9f8d4e3b9c3</rim:Value>
            </rim:SlotValue>
        </rim:Slot>
    </query:Query>
```

Step 2 - Document Response

In the Maritime scenario, the Document Response for the second step contains information about the EP and the requested certificates. More information about how this information is represented within the XML document can be found in RegRep v4 Syntax Mapping.

Step 2 Document Response Example XML follows:

Step 2 Concept Response XML Example

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

<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"
    xmlns:xlink="http://www.w3.org/1999/xlink"
    xmlns:toop="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0:toop"
    requestId="d5569c4d-740e-4b64-80f0-7b209a66d629"

    status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success">

    <!-- SPECIFICATION IDENTIFIER -->
    <rim:Slot name="SpecificationIdentifier">
        <rim:SlotValue xsi:type="rim:StringValueType">
            <rim:Value>toop-edm:v2.0</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>

     <!--   Evidence Provider Metadata  -->
    <rim:Slot name="EvidenceProvider">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--   Expression of EP information using Agent class of CAGV   -->
            <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#"
                xmlns:locn="http://www.w3.org/ns/locn#">
                <cbc:id schemeID="VATRegistration">EE12345678</cbc:id>
                <cbc:name>EE-EMA</cbc:name>
            </cagv:Agent>
        </rim:SlotValue>
    </rim:Slot>

   <rim:RegistryObjectList>
        <rim:RegistryObject xsi:type="rim:ExtrinsicObjectType"
            id="4edf26e5-d0de-4f90-a173-c9f8d4e3b9c3">
            <rim:Slot name="DocumentMetadata">
                <rim:SlotValue xsi:type="rim:AnyValueType">
                    <ERat:dataset xmlns:cccev="https://data.europe.eu/semanticassets/ns/cv/
cccev_v2.0.0#"
                        xmlns:ERat="http://data.europa.eu/r5r/"
                        xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/
cbc_v2.0.0#">
                        <ERt:description>Document of Compliance (DOC)</description>
                        <ERt:title>ISMCompliance</title>
                        <!-- DocumentReference-->
                        <ERat:distribution>
```

```
                            <ERat:accessURL>file:/attachments/SeaWindDOC2.pdf</ERat:accessURL>
                            <ERt:description>Document of Compliance (DOC)</ERt:description>
                            <ERat:mediaType>application/pdf</ERat:mediaType>
                        </ERat:distribution>
                        <!-- Creator is an Agent OrganizationType-->
                        <creator xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                            xmlns="http://purl.org/ER/terms/" xsi:type="cagv:OrganizationType">
                            <!--AgentIdentifier-->
                            <cbc:id>5555</cbc:id>
                            <cbc:name>Greek Maritime Authority Agency</cbc:name>
                            <cagv:location>
                                <locn:address xmlns:locn="http://www.w3.org/ns/locn#">
                                    <locn:postName>ELTA post Office</locn:postName>
                                </locn:address>
                            </cagv:location>
                        </creator>
                        <identifier xmlns="http://purl.org/ER/terms/">077SM/16</identifier>
                        <!-- DocumentNumber -->
                        <identifier xmlns="http://purl.org/ER/terms/">DOC-555</identifier>
                        <!-- Release date -->
                        <issued xmlns="http://purl.org/ER/terms/">2019-05-15T10:20:15</issued>
                        <language xmlns="http://purl.org/ER/terms/">DE</language>
                        <modified xmlns="http://purl.org/ER/terms/">2020-05-15T10:20:15</modified>
                        <!-- PeriodofTime is now temporal-->
                        <temporal xmlns="http://purl.org/ER/terms/">
                            <startDate xmlns="http://purl.org/ER/terms/">2020-01-02</startDate>
                            <endDate xmlns="http://purl.org/ER/terms/">2022-05-05</endDate>
                        </temporal>
                        <!-- LegalResource ReferenceFramework-->
                        <ERat:qualifiedRelation>
                            <relation xmlns="http://purl.org/ER/terms/" xsi:type="cccev:ReferenceF
rameworkType">
                                <description xmlns="http://purl.org/ER/terms/">Safety of Life at
Sea</description>
                                <title xmlns="http://purl.org/ER/terms/">SOLAS 1974</title>
                                <identifier xmlns="http://purl.org/ER/terms/">RE238918378</
identifier>
                            </relation>
                        </ERat:qualifiedRelation>
                    </ERat:dataset>
                </rim:SlotValue>
            </rim:Slot>

            <!-- The attached Document Provided as Evidence. Points to an AS4 attachment -->
            <rim:RepositoryItemRef xlink:href="cid:attachment123@example.toop.eu"
                xlink:title="Ship certificate document"/>
        </rim:RegistryObject>

    </rim:RegistryObjectList>

</query:QueryResponse>
```

Required Data

Request ID

Each Document Response must reference its request by defining the requestID attribute in the QueryResponse element:

```
<query:QueryResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:4.0"
    xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:4.0"
    xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:4.0"

    requestId="cf024f3d-72ea-4b87-bbe0-7334b27526cd"
    status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success">

<!-- Rest of the response follows -->
```

Specification Identifier

Like the Document Request, the Document Response should contain information about the specification used to create the referenced document.

```
<!-- SPECIFICATION IDENTIFIER -->
<rim:Slot name="SpecificationIdentifier">
    <rim:SlotValue xsi:type="rim:StringValueType">
        <rim:Value>toop-edm:v2.0</rim:Value>
    </rim:SlotValue>
</rim:Slot>
```

Issue Date and Time

Like the Document Request, the Document Response should contain information about when it was generated and contained within the IssueDateTime element. This should be an ISO timestamp.

```
    <!-- ISSUE DATE / TIME  -->
    <rim:Slot name="IssueDateTime">
        <rim:SlotValue xsi:type="rim:DateTimeValueType">
            <rim:Value>2020-02-14T19:20:30+01:00</rim:Value>
        </rim:SlotValue>
    </rim:Slot>
```

Evidence Provider Information

The EvidenceProvider element in the Document Response contains information about the Evidence Provider, which issues the Response. This data includes an Identifier and its Type (Identifier Type) and the name of the EP.

```
    <!--   Evidence Provider Metadata  -->
    <rim:Slot name="EvidenceProvider">
        <rim:SlotValue xsi:type="rim:AnyValueType">
            <!--   Expression of EP information using Agent class of CAGV   -->
            <cagv:Agent xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#"
                xmlns:locn="http://www.w3.org/ns/locn#">
                <cbc:id schemeID="VATRegistration">EE12345678</cbc:id>
                <cbc:name>EE-EMA</cbc:name>
            </cagv:Agent>
        </rim:SlotValue>
    </rim:Slot>
```

Ship Certificates

In the second step of the Maritime Document Response, the ER receives all the requested certificates. In the Slot element with the attribute "DocumentMetadata", metadata about the certificate file is attached, including:

- A document identifier;
- Document number specified in a second identifier element;
- Type, containing the type of the document;
- Issued and modified elements containing a timestamp of the document's issue and last modification date, respectively;
- A title;
- A short description;
- The language of the document;
- Information about the agency that issued this document in the creator element:
    - This information includes an identifier, the name and their address.
- A validity period, specified in the temporal element with a start and end date;
- A distribution element which includes information about the attached certificate, including:
    - An access URL to the file;
    - A short description;
    - Its media type.
- qualifiedRelation which refers to a Legal Resource, which includes:
    - An identifier;
    - A title for the resource;
    - A short description.

The RepositoryItemRef element contains a link to the document (certificate) within the xlink:href attribute. This link points to an AS4 attachment using Content ID. A title for the document can be specified in the xlink:title attribute.

```
<rim:RegistryObjectList>
        <rim:RegistryObject xsi:type="rim:ExtrinsicObjectType"
            id="4edf26e5-d0de-4f90-a173-c9f8d4e3b9c3">
            <rim:Slot name="DocumentMetadata">
                <rim:SlotValue xsi:type="rim:AnyValueType">
                    <ERat:dataset xmlns:cccev="https://data.europe.eu/semanticassets/ns/cv/cccev_v2.0.0#"
                        xmlns:ERat="http://data.europa.eu/r5r/"
                        xmlns:cbc="https://data.europe.eu/semanticassets/ns/cv/common/cbc_v2.0.0#">
                        <ERt:description>Document of Compliance (DOC)</description>
                        <ERt:title>ISMCompliance</title>
                        <!-- DocumentReference-->
                        <ERat:distribution>
                            <ERat:accessURL>file:/attachments/SeaWindDOC2.pdf</ERat:accessURL>
                            <ERt:description>Document of Compliance (DOC)</ERt:description>
                            <ERat:mediaType>application/pdf</ERat:mediaType>
                        </ERat:distribution>
                        <!-- Creator is an Agent OrganizationType-->
                        <creator xmlns:cagv="https://semic.org/sa/cv/cagv/agent-2.0.0#"
                            xmlns="http://purl.org/ER/terms/" xsi:type="cagv:OrganizationType">
                            <!--AgentIdentifier-->
                            <cbc:id>5555</cbc:id>
                            <cbc:name>Greek Maritime Authority Agency</cbc:name>
                            <cagv:location>
                                <locn:address xmlns:locn="http://www.w3.org/ns/locn#">
                                    <locn:postName>ELTA post Office</locn:postName>
                                </locn:address>
                            </cagv:location>
                        </creator>
                        <identifier xmlns="http://purl.org/ER/terms/">077SM/16</identifier>
                        <!-- DocumentNumber -->
                        <identifier xmlns="http://purl.org/ER/terms/">DOC-555</identifier>
                        <!-- Release date -->
                        <issued xmlns="http://purl.org/ER/terms/">2019-05-15T10:20:15</issued>
                        <language xmlns="http://purl.org/ER/terms/">DE</language>
                        <modified xmlns="http://purl.org/ER/terms/">2020-05-15T10:20:15</modified>
                        <!-- PeriodofTime is now temporal-->
                        <temporal xmlns="http://purl.org/ER/terms/">
                            <startDate xmlns="http://purl.org/ER/terms/">2020-01-02</startDate>
                            <endDate xmlns="http://purl.org/ER/terms/">2022-05-05</endDate>
                        </temporal>
                        <!-- LegalResource ReferenceFramework-->
                        <ERat:qualifiedRelation>
                            <relation xmlns="http://purl.org/ER/terms/" xsi:type="cccev:ReferenceFrameworkType">
                                <description xmlns="http://purl.org/ER/terms/">Safety of Life at Sea</description>
                                <title xmlns="http://purl.org/ER/terms/">SOLAS 1974</title>
                                <identifier xmlns="http://purl.org/ER/terms/">RE238918378</identifier>
                            </relation>
                        </ERat:qualifiedRelation>
                    </ERat:Dataset>
                </rim:SlotValue>
```

```
            </rim:Slot>

            <!-- The attached Document Provided as Evidence. Points to an AS4 attachment -->
            <rim:RepositoryItemRef xlink:href="cid:attachment123@example.toop.eu"
                xlink:title="Ship certificate document"/>
        </rim:RegistryObject>

    </rim:RegistryObjectList>
```

Business Rules

In order to facilitate interoperability for the Once-Only Principle, OOTS defined a set of business rules which should be applied in each transaction. For each business rule, a corresponding Schematron rule is described. The business rules are sets of rules that clarify the content of instances by stating mandatory fields, fixed values (like code lists), the dependency between fields in the same object and dependency between different objects. The business rules are grouped into two main sections depending on their scope:

- Rules working on a single object:
  - Check mandatory fields, fixed values and dependencies between fields;
  - Check the use of a mandatory set of values on specific fields (code lists).
- Rules working on more than one object:
  - Check information constraints (e.g. file reference checks), including " Multidimensional" checks crossing the barrier between different objects, i.e. metadata versus physical object instances, or "Cross-referencing" checks between the content value.

Each rule has an error level that can be stated as one of the following:

- *warning*: offering recommendations to improve the quality of the instance or regain full validity;
- *fatal*: the rule point to a major issue of consistency or data correctness.

The table below collects a set of business rules affecting the creation of instances. The rule ID is used to identify the rule and can be used as an error code. MUST rules correspond to an error level that can is flagged as *fatal*, while SHOULD rules correspond to an error level that is flagged as a *warning*. The "checked by" column describes the type of business rule.

rule ID	flag	Schematron message	Checked by
br_check_country_countrycode	ERROR	The country code must always be specified using the correct code list.	Business Rules Schematron
br_check_currency_code	ERROR	A currency type code code must always be specified using the correct code list.	Business Rules Schematron
br_check_distribution_format	ERROR	A distribution format code must always be specified using the correct code list.	Business Rules Schematron

br_check_doc_mytetype	warning	A mediaType code SHOULD always be specified using the correct code list.	Business Rules Schematron
br_check_error_code	ERROR	An 'error code' code must always be specified using the correct code list.	Business Rules Schematron
br_check_error_data_element_response	ERROR	An 'error code' code must always be specified using the correct code list.	Business Rules Schematron
br_check_error_origin	ERROR	An error origin code must always be specified using the correct code list.	Business Rules Schematron
br_check_error_protocol_exception	ERROR	A protocol exception code must always be specified using the correct code list.	Business Rules Schematron
br_check_error_severity	ERROR	An error origin code must always be specified using the correct code list.	Business Rules Schematron
br_check_gender_code	warning	A gender type code code must always be specified using the correct code list.	Business Rules Schematron

br_check_id_countrycode	Warning	The country code in the [first /second] part of an eIDAS identifier must always be specified using the correct code list. **NOTE:** this applies only if the identifier has the format XX/YY/12345, where XX and YY are two country codes. If this is the case: 1. The first part is the Nationality Code of the identifier. This is one of the ISO 3166-1 alpha-2 codes, followed by a slash ("/")). 2. The second part is the Nationality Code of the destination country or international organisation. This is one of the ISO 3166-1 alpha-2 codes, followed by a slash ("/"). 3. The third part is a combination of readable characters. This uniquely identifies the identity asserted in the country of origin but does not necessarily reveal any discernible correspondence with the subject's actual identifier (e.g. username, fiscal number, etc.).	Business Rules Schematron
br_check_identifier_code	warning	An identifier type code SHOULD always be specified using the correct code list.	Business Rules Schematron
br_check_language_code	ERROR	A language code must always be specified using the correct code list.	Business Rules Schematron
br_check_localizedstring_unique_lang	ERROR	When there are several LocalizedStrings, they all need to have a different language ID.	Business Rules Schematron
br_check_query_definition	ERROR	A query definition code must always be specified using the correct code list.	Business Rules Schematron
br_check_sic_code	warning	A standard industrial classification code should always be specified using the correct code list.	Business Rules Schematron
br_invalid_euid_length	warning	The LEI code length should be 20.	Business Rules Schematron

br_legal_person_scheme_id_not_unique	ERROR	Each alternative LegaEntityID must have a different schemeID.	Business Rules Schematron
br_mandatory_specs_id	ERROR	Rule: The message MUST have the specification identifier "toop-edm:v2.1".	Business Rules Schematron
br_natural_person_scheme_id_not_unique	ERROR	Each alternative PersonID must have a different schemeID.	Business Rules Schematron
br_request_concept_id_not_unique	ERROR	In a QueryRequest, two or more concepts cannot share the same ID.	Business Rules Schematron
br_request_qname_id_not_unique	ERROR	In a QueryRequest, two or more concepts at the same level (with a common parent) cannot share the same Qname.	Business Rules Schematron
br_wrong_uuid_format	ERROR	Rule: The UUID MUST be created following the UUID Version 4 specification.	Business Rules Schematron
mandatory_attr_schemeid	ERROR	The schemeID attribute is mandatory.	EDM Structure Schematron
mandatory_doc_res_itemref_or_distribution	ERROR	The RegistryObjectList in a Document Response must contain a rim:RepositoryItemRef or a dcat:distribution.	EDM Structure Schematron
mandatory_legal_or_natural_person	ERROR	The Query must contain either ONE LegalPerson or ONE NaturalPerson.	EDM Structure Schematron

mandatory_person_scheme_id	ERROR	The schemeID attribute is mandatory.	EDM Structure Schematron
mandatory_query_concept_or_distribution_request_list	ERROR	The Query must contain either a ConceptRequestList, a DistributionRequestList, or an id (for two-step queries).	EDM Structure Schematron
mandatory_request_or_response	ERROR	The message must contain a Request or a Response. Please check if the namespace is correct.	EDM Structure Schematron
mandatory_response_requestId	ERROR	The QueryResponse must contain a requestId attribute. UNCHECKED: Use the same value that was used in the corresponding QueryRequest @id.	EDM Structure Schematron
misplaced_data_provider	ERROR	A QueryRequest must not contain information about the DataProvider.	EDM Structure Schematron
misplaced_request_id	ERROR	A QueryRequest cannot contain a requestId, which is used to link the QueryResponse to the correct QueryRequest.	EDM Structure Schematron
one_data_provider	ERROR	At maximum one DataProvider must be present in a Response.	EDM Structure Schematron
req_concept_query	ERROR	The value of the queryDefinition attribute in the Query element must always be "ConceptQuery" for Concept Queries, and include a ConceptRequestList.	EDM Structure Schematron

req_document_query	ERROR	The value of the queryDefinition attribute in the Query element must always be 'DocumentQuery' when requesting Document Evidence, and include a DistributionRequestList.	EDM Structure Schematron
req_getobjectbyid_query	ERROR	The value of the queryDefinition attribute in the Query element must always be 'urn:oasis:names:tc:ebxml-regrep:query:GetObjectById' when requesting an object by Id (in Step 2), and include an Id slot.	EDM Structure Schematron
res_card_DataProvider	ERROR	The DataProvider in a Response is mandatory if there is no fatal error.	EDM Structure Schematron
cardinality_concept_value	ERROR	Each concept must contain exactly ONE value or at least ONE concept.	EDM Structure Schematron
(cardinality checks)	ERROR	(All other cardinality checks).	EDM Structure Schematron
br_response_qname_id_not_unique	ERROR	A QueryResponse cannot have two concepts with the same ID and Qname on different levels (without a common parent).	(unchecked)
br_suggested_vat_id	warning	The preferred identifier is the national VAT number.	(unchecked)
gc_check_process_id	ERROR	A process identifier must always be specified using the correct code list.	(unchecked)
response_option_type	ERROR	Must be "LeafClassWithRepositoryItem" when requesting Concepts or documents but "ObjectRef" when requesting a list of available documents in two-step Document-Based Queries.	QUERY XSD

Code Lists and Identifiers

Deprecated

To be removed: This page will be replaced by one in the common data and metadata models of WP4

The following description illustrates the code lists and identifiers' constraints of the Exchange Data Model.

Code Lists

A number of information elements' potential values are constrained to be those defined in a list of codes known as Code lists. The specific code lists used in business transactions must be common between business partners in order to achieve interoperability.

The following table lists the code lists to be used in the Exchange Data Model. The concept name identifies the name of the element which needs to consider the codes according to the Data Exchange Model specification. For each code list, a corresponding issuer agency is identified including a hyperlink to the corresponding Genericode (gc) file. While the ListID uniquely identifies the code list, the genericode files can be used for the implementation. The rule ID indicates by which rule the code list is used.

File Name	Concept Name	Issuer Agency	ListID	rule ID
BinaryObjectMimeCode-2.2.gc	dcat:mediaType cccev:documentType	United Nations Economic Commission for Europe	BinaryObjectMimeCode	br_check_doc_mytetype
CountryIdentificationCode-2.2.gc	locn:adminUnitL1 cvb:AddressAdminUnitFirstline	International Organization for Standardization	CountryIdentificationCode	br_check_country_countrycode
CurrencyCode-2.2.gc	cccev:amount	International Organization for Standardization	CurrencyCode	br_check_currency_code
DataElementResponseErrorCode-CodeList.gc	cccev:error	OOTS (The Once-Only Principle Project)	DataElementResponseErrorCode	br_check_error_data_element_response
DistributionFormat-CodeList.gc	dcat:format	OOTS (The Once-Only Principle Project)	DistributionFormatCode	br_check_distribution_format
ErrorCode-CodeList.gc	rs:Exception/@code	OOTS (The Once-Only Principle Project)	ErrorCode	br_check_error_code
ErrorOrigin-CodeList.gc	rim:Slot "Origin"	OOTS (The Once-Only Principle Project)	ErrorOrigin	br_check_error_origin

ErrorSeverity-CodeList.gc	rs:Exception/@severity	OOTS (The Once-Only Principle Project)	ErrorSeverity	br_check_error_severity
Gender-CodeList.gc	cvb:PersonGenderCode	HL7 (Health Level 7)	Gender	br_check_gender_code
IdentifierType-CodeList.gc	cvb:PersonID cvb:LegalEntityID	OOTS (The Once-Only Principle Project)	IdentiferTypeCode	br_check_identifier_code
LanguageCode-2.2.gc	rim:Slot "Procedure" dcat:Dataset/language cccev:documentDescription cccev:localeCode dcat:Dataset/title dcat:Dataset/description dcat:qualifiedRelation/title dcat:qualifiedRelation/description cccev:text	UBL (Universal Business Language)	LanguageCode	br_check_language_code br_check_localizedstring_unique_lang
ProcotolException-CodeList.gc	rs:Exception/xsi:type	EBRS (OASIS ebXML RegRep Version 4.0)	ProtocolExceptionCode	br_check_error_protocol_exception
QueryDefinition-CodeList.gc	queryDefinition	OOTS (The Once-Only Principle Project)	QueryDefinitionCode	br_check_query_definition
StandardIndustrialClassCode-CodeList.gc	cvb:LegalEntityID	UNSTATS (United Nations Statistics Division)	StandardIndustrialClassificationCode	br_check_sic_code

Identifiers

Exchange Data Model Specification describes the following rules on the use of identifiers.

Concept Name	Usage Description	rule ID
query:QueryRequest/id	A universally unique identifier for an instance of this document. A Document Universal Unique Identifier enables referencing of the document instance for various purposes, including referencing a QueryResponse to a QueryRequest.	br_wrong_uuid_format

rim:Slot "Specification Identifier"	Identifies the specification of the document, including content and rules that apply to the transaction. Identifying the customisation/ implementation guide/contextualisation of the syntax message. Enables the receiver to apply the correct validation to the received document.	br_mandatory_res_specs_id
rim:Slot "EvidenceRequester"/ cagv:Agent/ cbc:ID	This property represents a formally-issued Identifier for the Agent or Evidence Requester. The preferred identifier is the national VAT number.	
Specification Identifier	As defined for xsd:date	
rim:Slot "DataSetIdentifier"	An identifier to refer to the concept within the corresponding syntax adopted by the Semantic Mapping Service. Rule (gc_check_concept_code): Compulsory use of the IDs defined in the list “Concepts & Namespaces”.	
Data Request Identifier	This property contains the main identifier for the Dataset in the context of the Catalogue. It is retrieved through the EvidenceProvider Discovery in the DSD when quering a Data Set Type. The DataSetIdentifier is also used as a subset of the "DocumentTypeIdentifier" in the AS4 header.	
cccev:concept /cccev:id	A universally unique identifier assigned by the Evidence Requester to identify the concept uniquely within the system of the Evidence Requester. It is recommended to use this element in order to correlate responses to a given ConceptRequest.	br_request_concept_id_not_unique
cvb:LegalEntityLegalID	The identifier given to the legal entity by the authority with which it is registered. Legal entities may have any number of identifiers. This property refers to the primary legal entity identifier. Additional identifiers, e.g. those needed for record matching, may be added as secondary identifiers. The element can also be used for the identifier retrieved via eIDAS if this is the main legal entity identifier. According to eIDAS, a legal person unique identifier consists of the national code of the identifier, the nationality code of the destination and the unique identity number in the country of origin. Please use the IdentifierType to specifiy the identifier scheme.	br_check_identifier_code br_legal_person_scheme_id_not_unique br_invalid_lei_length br_check_sic_code br_check_id_countrycode

cvb:LegalEntityID	A formally-issued identifier for the legal entity, other than the one that confers legal status upon it. Legal entities may have any number of identifiers. This property refers to secondary identifiers of the legal entity such as VAT, Tax Reference Number, Business Codes, Legal Entity Identifiers, EORI, SEED Standard Industrial Classification or any other alternative legal identifier needed for record matching. In the case of OOTS this is usually retrieved via eIDAS. According to eIDAS, a legal person unique identifier consists of the national code of the identifier, the nationality code of the destination and the unique identity number in the country of origin. Please use the IdentifierType to specify the identifier scheme.	br_check_identifier_code br_legal_person_scheme_id_not_unique br_invalid_lei_length br_check_sic_code br_check_id_countrycode
cvb:PersonID	At least one identifier must be present. Ideally the PersonID created according to the eIDAS Rules must be present. An eIDAS person identifier consists of the national code of the identifier, the nationality code of the destination and the unique identiy number in the country of origin.	br_check_identifier_code br_natural_person_scheme_id_not_unique
rim:Slot "id"	The rim:Slot "id" is used in combination with the queryDefinition "ObjectByID" to request a specific document instance from the Evidence Provider. The element is used in a two-step process where the Evidence Provider has already sent one or more specific identifiers of a dataset to the Evidence Requester.	mandatory_query_concept_or_distribution_request_list
query:QueryResponse/ requestID	A reference to the universally unique identifier of the corresponding QueryRequest.	br_wrong_uuid_format
rim:Slot "EvidenceProvider"/cbc:id	This property represents a formally-issued Identifier for the Agent or Evidence Provider. The preferred identifier is the national VAT number.	
rim:RegistryObject rim:ObjectRef	The universal unique identifier for the RegistryObject or ObjectRef.	br_wrong_uuid_format
dcat:Dataset/ identifier	This property contains the main identifier for the Dataset in the context of the Catalogue.	
cccev:documentURI	This property contains a URI that gives access to a Distribution of the Dataset. The resource at the access URI may contain information about how to get the Dataset. The documentURI is also used in a two-step process where the Evidence Provider has sent one or more specific Document URIs to the Evidence Requester, which may be retrieved during a second OOTS Request.	
creator/cbc:id	The identifier of the creator of the document.	
dcat:qualifiedRelation/ identifier	The identifier of the related resource.	

xlink:href	An internal reference in the repository that points to the document instance that is requested by the Evidence Requester from the Evidence Provider. The references points to a specific Distribution of the Dataset.	
rim:Slot "ErrorProvider"/cbc:id	An identifier that identifies the Error Provider. The preferred identifier is the national VAT number.	

eDelivery Configuration

Contents

Four Corner Topology in OOTS

The OASIS ebMS3 and AS4 specifications are specifications for point-to-point message exchange between two Message Service Handlers. However, eDelivery AS4 is also used in situations where Access Points exchange messages on behalf of other parties. This message exchange pattern is also followed in OOTS. The four parties are conventionally referred to using *Cn* labels, where *C* stands for "corner", and the *n* is one of the digits 1 to 4:

- *C1* is the original sender party, which can be:
  - The Evidence Requester that submits an Evidence Request Query;
  - The Evidence Provider submitting an Evidence Response asynchronously to an Evidence Request Query.
- *C2* is an Access Point that sends messages on behalf of *C1*.
- *C3* is an Access Point that receives messages on behalf of *C4.*
- *C4* is the final recipient party, which can be:
  - the Evidence Provider that receives the Evidence RequestQuery;
  - the Evidence Requester receiving an Evidence Response asynchronously to an Evidence Request Query.

Routing Metadata

Party Identification

When used in a Four Corner topology, the sender and receiver of the ebMS messages are the Access Points that act on behalf of the Evidence Requester and Provider. This implies that the ebMS message header by default contains the Access Point identifiers as sender and receiver. Using an eDelivery AS4 profile enhancement, however, the outer

corners, i.e. the *Evidence Requester* and *Provider*, can be included in the ebMS message header. In these enhancements, the ebMS3 message property mechanism includes the identifiers of C1 and C4. This allows the use of arbitrary property-value pairs in an AS4 message and is independent of payload format or structure.

When used in a Four Corner typology:

- A property named **originalSender** MUST be added to the message that identifies the original sender (C1) Party;
- A property named **finalRecipient** MUST be added to the message that identifies the final recipient (C4) Party.

For the identification of the Access Points in the ebMS message header, i.e. the values to be used in the `//To/PartyId` element are extracted from the DSD Response as shown in the table below. As the sender of the message in a Four Corner architecture, needs to "find" the Access Point used by the receiving party, the receiving AP's identifier is determined on runtime.
As specified in section 5.2.2.4 of [EBMS3], the `type` attribute is required if the party identifier is not a URI. Unless otherwise specified for specific domain profiles, the value *urn:oasis:names:tc:ebcore:partyid-type:unregistered* SHOULD be used.

DSD Derived Routing Metadata

The OOTS eDelivery architecture consists of multiple statically pre-configured Access Points. Although the configuration of the APs is static, the receiving endpoint is dynamically provided using the DSD Response. Using a DSD lookup, the Evidence Requester is able to extract the necessary metadata to match with a pre-existing p-mode. The following table specifies the P-Mode parameters that are mapped from specific DSD Access Service Metadata Elements.

AS4 PMode Parameter	Corresponding Structure in DSD XML	Implementation Notes
PMode[].BusinessInfo.Properties[finalRecipient]	`//DataServiceEvidenceType/AccessService/EvidenceProvider/Identifier`	URL encoding MUST NOT be used.
PMode[].Responder.Party	`//DataServiceEvidenceType/AccessService/Identifier`	

Table 1: Pmode Attribute Mappings

Static Routing Metadata

The above section defines how the sender should configure its AS4 gateway's P-Mode parameters related to the receiver to set up the message exchange with the receiver. Besides these dynamically set parameters, there are also P-Mode parameters on both the sender and receiver side, which relate to the parties themselves or which values are predefined by the eDelivery profile and independent of the counterparty. These parameters can, therefore, be statically configured. The next two paragraphs specify the statically configured P-Mode parameters, which are profiled specifically for the OOTS eDelivery architecture.

Sender

For the Sender, the following P-Mode parameters can be statically configured:

- **PMode[].Initiator.Party** : TBD.
- **PMode[].Initiator.Party/@type**: fixed value: *urn:oasis:names:tc:ebcore:partyid-type:unregistered* unless specified otherwise by a domain.
- **PMode[].Initiator.Role** : MUST be set to fixed value *http://sdg.europa.eu/edelivery/gateway.*
- **PMode[].BusinessInfo.Properties[originalSender]**: the identifier of the competent authority that is sending the message. Note: When the AP services multiple competent authorities, this parameter can also be set dynamically to prevent that, for each competent authority, a separate P-Mode is needed (which only differs for this parameter).
- **PMode[].BusinessInfo.Properties[originalSender]/@type** : not used.
- **PMode[].BusinessInfo.Service:** Follows the rules of the ebXML Messaging Protocol Binding for RegRep Version 1.0
- **PMode[].BusinessInfo.Action:** Follows the rules of ebXML Messaging Protocol Binding for RegRep Version 1.0
- **PMode.MEP**: fixed value : http://www.oasis-open.org/committees/ebxml-msg/one-way.

Receiver

For the Receiver, the following P-Mode parameters can be statically configured:

- **PMode[].Responder.Party** : TBD.
- **PMode[].Responder.Party/@type:** fixed value: *urn:oasis:names:tc:ebcore:partyid-type:unregistered* unless specified otherwise by a domain.
- **PMode[].Responder.Role** : MUST be set to fixed value *http://sdg.europa.eu/edelivery/gateway.*
- **PMode[].BusinessInfo.Properties[finalRecipient]** : the identifier of the competent authority for whom the AP is receiving the message.
- **PMode[].BusinessInfo.Properties[finalRecipient]/@type** : not used.
- **PMode[].Security.X509.Encryption.Certificate** : the AP's Certificate.
- **PMode[].BusinessInfo.Service:** Follows the rules of the ebXML Messaging Protocol Binding for RegRep Version 1.0.
- **PMode[].BusinessInfo.Action:** Follows the rules of ebXML Messaging Protocol Binding for RegRep Version 1.0.
- **PMode[].Security.X509.Signature.Certificate**: the AP's Certificate. Like the sender's certificate, the AP MUST use the *Binary Security Token Reference* to include the messages' certificate.
- **PMode.MEP**: fixed value : http://www.oasis-open.org/committees/ebxml-msg/one-way.

Reverse Routing for Evidence Provider Submission to Evidence Requester

The evidence provider needs to send back the response to the Evidence Requester using eDelivery AS4. To properly route the message back to the Evidence Requester, the Evidence provider access services must apply reverse routing of the received message. Reverse routing is achieved by applying the following rules:

- The Responder Party information of the request message becomes the Initiator Party of the response message
- The OriginalSender of the request message becomes the FinalRecipient of the response message
- The Initiator Party information of the request message becomes the Responder Party of the response message
- The FinalRecipient of the request message becomes the OriginalSender of the response message

The rest of the pmode attributes remain the unchanged

Message Exchange Pattern

The use of eDelivery is limited to the One Way MEP. OOTS eDelivery messages shall not include a *RefToMessageId* header.

A message containing an evidence request shall contain a unique, previously unused value for the *ConversationId* header.

A message containing an evidence response shall use as value for the *ConversationId* header the value used in the corresponding evidence request.

Payload Routing Metadata

When the message exchanged between two Access Points is an EDM Response, it can contain multiple ebMS payloads, one being the main ebXML RegRep response document and the other business attachments referenced from the ebXML RegRep response. To facilitate the processing of the EDM Response by the receiving Access Point, the ebMS header should indicate which payload contains the main ebXML RegRep document and which the attachments. Therefore the sending AP MUST set a part property named *MimeType* for each payload included in the message. The value of the property MUST be the MIME type of the payload, which for the ebXML RegRep document is defined as *application/x-ebrs+xml*.