

FRIS IT-Infrastructure

Service description

Date: 08/06/2018

Version: 1.9

Contents

1	Accessing the FRIS web services	4
1.1	Entity Access Services	4
2	Ingestion service	6
2.1	Current service status	6
2.2	Service operations	6
2.2.1	Operation: ingest	6
2.2.2	Operation: ingestBulk	6
2.2.3	Operation: getBulkResponse	7
2.2.4	Operation: deleteOrganisation	7
2.2.5	Operation: deletePerson	7
2.2.6	Operation: deleteProject	7
2.2.7	Operation: deleteResearchOutput	7
2.2.8	IngestResultType response format	7
2.3	Service security constraints	9
3	Changes service	12
3.1	Current service status	12
3.2	Service operations	12
3.2.1	Operation: getChanges request documentation	12
3.2.2	Operation: getChanges XML response documentation	12
4	Organisation service	14
4.1	Current service status	14
4.2	Service operations	14
4.2.1	Operation: getOrganisations request documentation	14
4.2.2	Operation: getOrganisations CERIF response documentation	16
4.2.3	Operation: getOrganisations FRIS XML response documentation	17
5	Person service	20
5.1	Current service status	20
5.2	Service operations	20
5.2.1	Operation: getPersons request	20
5.2.2	Operation: getPersons CERIF response documentation	22
5.2.3	Operation: getPersons FRIS XML response documentation	23
6	Project service	27
6.1	Current service status	27
6.2	Service operations	27
6.2.1	Operation: getProjects	28
6.2.2	Operation: getProjects CERIF response documentation	29
6.2.3	Operation: getProjects FRIS XML response documentation	30
7	Research output service	33
7.1	Current service status	33
7.2	Service operations	33
7.2.1	Operation: getResearchOutput	33
7.2.2	Operation: getResearchOutput CERIF response documentation	35
7.2.3	Operation: getResearchOutput FRIS XML response documentation	36
8	Journal Service	47
8.1	Current service status	47
8.2	Service operations	47

8.2.1	Operation: getJournals.....	48
8.2.2	GetJournals response.....	49
9	Classification Scheme Service	53
9.1	Current service status.....	53
9.2	Service operations	53
9.2.1	Operation: getClassificationSchemes FRIS XML response documentation..	53
9.2.2	Operation: getClassificationSchemes CERIF XML response documentation	55
10	Funding code service	58
10.1	Current service status	58
10.2	Service operations	58
10.2.1	Operation: getFundingCodes FRIS XML request documentation.....	58

1 Accessing the FRIS web services

The set of FRIS web services is comprised of a secured ingestion service where all data modification is handled and a number of public entity centric web services where all data access is handled. The content returned from the public web services is restricted to entities and relations to entities that are not marked confidential or hidden. The entity centric web services are available in two versions, one that delivers a CERIF¹ document and one that delivers a number of FRIS XML entities as response.

The CERIF versions of the web services use version 1.5 of the standard with a significant number of FRIS specific extensions and interpretations. Please request a copy of the "Integration Guide FRIS R3" if you need to use the CERIF based services.

The FRIS XML versions of the web services deliver XML representations of the underlying FRIS domain model and will for most service users be easier to parse and understand. The FRIS domain model is documented in chapter XX

All of the web services are SOAP document literal services and the current WSDL for the services is always available at the endpoint root:

Environment	Endpoint root
Staging	https://stfris3.researchportal.be/ws/
Production	https://fris3.researchportal.be/ws/

All of the FRIS web services support the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

1.1 Entity Access Services

All of the self-contained entities will have a specific web service that allows data access for that entity. Each of these will have a basic search operation called `getOrganisations`, `getPersons`, etc. which accepts a criteria object with entity specific limitations. A sample request:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns1:getOrganisations xmlns:ns1="http://fris.ewi.be/">
      <organisationCriteria xmlns="http://fris.ewi.be/criteria">
        <window>
          <pageSize>10</pageSize>
          <pageNumber>0</pageNumber>
          <orderings>
            <order>
              <id>entity.created</id>
              <direction>DESCENDING</direction>
            </order>
          </orderings>
        </window>
        <uuids>
          <uuid>c0669985-967c-47b7-8dfc-d8610bd36606</uuid>
          <uuid>1fc77569-3778-4828-8c38-195cb51584c6</uuid>
        </uuids>
      </organisationCriteria>
    </ns1:getOrganisations>
  </soap:Body>
</soap:Envelope>
```

¹ [Common European Research Information Format](#)

The window element is optional, but if omitted the service will default to a page size of 10 and start with page number 0 (page number is zero-indexed). Valid order id's for a particular entity will be available on the relevant entity web service through a separate operation called getOrderings.

The result element from a search contains, besides the actual entities, information on the total number of results, the chosen page size and number. A sample response from a CERIF entity service:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns1:getOrganisationsResponse xmlns:ns1="http://fris.ewi.be/">
      <queryResult xmlns="http://fris.ewi.be/response">
        <totalResults>4</totalResults>
        <pageSize>10</pageSize>
        <pageNumber>0</pageNumber>
        <CERIF xmlns="urn:xmlns:org:eurocris:cerif-1.5-1"
release="1.5" date="2013-09-27+02:00" sourceDatabase="fris">
          ...
        </CERIF>
      </queryResult>
    </ns1:getOrganisationsResponse>
  </soap:Body>
</soap:Envelope>
```

The returned CERIF format is described in the "Integration Guide FRIS R3" document.

Each entity service also provides a number of operations designed to make it easy to discover which values are valid options in the associated criteria.

2 Ingestion service

The ingestion service is responsible for all data modification requests. All interaction with the ingestion services must be over https and all requests are authenticated through a published WS Security Policy².

The FRIS ingestion service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

A detailed description of the ingestion service format is available in the “Integration Guide FRIS R3” document.

2.1 Current service status

Environment	Endpoint WSDL
Staging	https://stfriser3.researchportal.be/ws/IngestionService?wsdl
Production	https://friser3.researchportal.be/ws/IngestionService?wsdl

2.2 Service operations

Operation	Input	Output
ingest	ingest	ingestResponse
ingestBulk	ingestBulk	correlationId
getBulkResponse	getBulkResponse	ingestBulkresponse
deleteOrganisation	deleteOrganisation	deleteOrganisationResponse
deletePerson	deletePerson	deletePersonResponse
deleteProject	deleteProject	deleteProjectResponse
deleteResearchOutput	deleteResearchOutput	deleteResearchOutputResponse

The formal format specification is published as a part of the WSDL.

All response documents (except the correlationId) are of the IngestResultType and include operation status and error messages. The response format is described in more detail in chapter 2.2.7.

2.2.1 Operation: ingest

The “ingest” operation is used in an incremental update scenario to create or modify a managed entity as described in the “Integration Guide FRIS R3” document.

The “ingest” request document includes a CERIF representation of the entity to create or update.

The “ingest” response documents details whether the operation succeeded and if not, the reasons for its failure.

2.2.2 Operation: ingestBulk

The “ingestBulk” operation is used in a bulk update scenario to initialise the entire set of data managed by this data provider. Any existing data is replaced or deleted depending on the incoming data set. Note that the use of this operation is restricted and will fail if not pre-approved by a FRIS administrator.

² [WS Policy](#), [WS Security Policy](#)

The “ingestBulk” request document includes a full CERIF representation of the entire managed data set.

The response from the “ingestBulk” operation is a correlation id that is to be used when polling the “getBulkResponse” operation for an ingestion result, please refer to the “Ingestion guide FRIS R3” document for a detailed description on this setup.

2.2.3 Operation: getBulkResponse

This operation returns the result for a scheduled bulk ingestion, until the ingestion processing has completed the response status of the document will be “ONGOING”.

When the processing has completed this status will change to either “FAILED” or “SUCCESS” and the document will detail any reasons for its failure if applicable.

2.2.4 Operation: deleteOrganisation

The “deleteOrganisation” operation is used in the incremental update scenario to delete a managed entity. The delete is performed with cascade semantics where associations on dependent entities will be removed. If this results in entities that cannot validate any longer, the delete will fail and validation messages detailing the blocking dependent objects will be returned.

The “deleteOrganisation” request document includes the local identifier of the organisation to be deleted.

The “deleteOrganisation” response documents details whether the operation succeeded and if not, the reasons for its failure.

2.2.5 Operation: deletePerson

The “deletePerson” operation is used in the incremental update scenario to delete a managed entity. The delete is performed with cascade semantics where associations on dependent entities will be removed. If this results in entities that cannot validate any longer, the delete will fail and validation messages detailing the blocking dependent objects will be returned.

The “deletePerson” request document includes the local identifier of the person to be deleted.

The “deletePerson” response documents details whether the operation succeeded and if not, the reasons for its failure.

2.2.6 Operation: deleteProject

The “deleteProject” operation is used in the incremental update scenario to delete a managed entity. The delete is performed with cascade semantics where associations on dependent entities will be removed. If this results in entities that cannot validate any longer, the delete will fail and validation messages detailing the blocking dependent objects will be returned.

The “deleteProject” request document includes the local identifier of the project to be deleted.

The “deleteProject” response documents details whether the operation succeeded and if not, the reasons for its failure.

2.2.7 Operation: deleteResearchOutput

The “deleteResearchOutput” operation is used in the incremental update scenario to delete a managed entity. The delete is performed with cascade semantics where associations on dependent entities will be removed. If this results in entities that cannot validate any longer, the delete will fail and validation messages detailing the blocking dependent objects will be returned.

The “deleteResearchOutput” request document includes the local identifier of the research output to be deleted.

The “deleteResearchOutput” response documents details whether the operation succeeded and if not, the reasons for its failure.

2.2.8 IngestResultType response format

All operations in the ingestion service respond with an instance of a IngestResultType document.

The error messages can contain the following different types of messages:

Type	Description
SECURITY	If the data provider could not be resolved based on the supplied user or if the data provider is not allowed to perform bulk ingestion. Authentication errors will result in a SOAP Fault.
XSD	The submitted CERIF is checked against the XSD for validity. All violations will be returned as discrete error messages.
REFERENTIAL	The submitted entity identifiers are checked for referential integrity. If referred entities do not exist either in the submitted set or in the existing FRIS entities (only for incremental) all violations will be returned as discrete error messages.
INTERNAL_CHECK	The submitted set is checked against the set of FRIS business rules. All violations will be returned as discrete error messages. These rules are checked internally in the FRIS system.
BUSINESS_RULE	The submitted set is checked against the set of FRIS business rules. All violations will be returned as discrete error messages. These rules are checked in DataFlux.

The different message types shown above all correspond to the action performed against the submitted document and is performed in the order shown in the table.

At each stage we will process the entire set, thus returning all pertinent messages at a given stage. But since there is a natural progression between the stages the processing will stop after any erroneous stage and the messages collected up until that point are returned in the response.

Security error example:

```
<messages>
  <source>SECURITY</source>
  <level>FATAL</level>
  <message>Could not resolve data-provider for the user</message>
</messages>
```

XSD error example:

```
<messages>
  <source>XSD</source>
  <level>ERROR</level>
  <message>line 0: string value 'X' is not a valid enumeration value for cfTrans__Type in
namespace urn:xmlns:org:eurocris:cerif-1.5-1</message>
</messages>
```

The XSD error messages are taken directly from the XML processor.

Referential error example:

```
<messages>
  <source>REFERENTIAL</source>
  <level>ERROR</level>
  <message>Organisation(Data provider ID: <local id>): Associated Organisation (Data
provider ID:<unknown identifier>)(@relatedOrganisations.relatedTo) was unknown</message>
</messages>
```

Referential errors are when an entity is referred to for example in an embedded cfOrgUnitOrgUnit element but the supplied identifier was not present in the incoming set (bulk & incremental) or already present in the FRIS database (incremental only). The messages always start with the owner object and its identifier in the submitted set, after that the actual problem is stated; in this

case that the organisation referred to was unknown. As a part of the message there is typically a section that describes the FRIS property path to the problem object (@?), this can be used to pinpoint exactly which relation is referred to in case there are multiple paths to the entity type.

Business rule error example:

```
<messages>
  <source>BUSINESS_RULE</source>
  <level>ERROR</level>
  <message>Person (Data provider ID: <local id>): (@scienceDomains) Invalid number of
elements in collection, expected min 1 element(s)</message>
</messages>
```

The business rule validation messages are very similar to the referential error messages in structure. In the above example the problem is that the specified person did not have at least one science domain code assigned.

2.3 Service security constraints

The formal security policy definition is (also included in the service WSDL):

```
<wsp:Policy wsu:Id="UP_policy"
  xmlns:sp="http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702"
  xmlns:wsp="http://www.w3.org/ns/ws-policy"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-utility-1.0.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://docs.oasis-open.org/ws-sx/ws-
securitypolicy/200702 http://docs.oasis-open.org/ws-sx/ws-
securitypolicy/v1.2/errata01/os/schemas/ws-securitypolicy-1.2.xsd">
  <wsp:ExactlyOne>
    <wsp>All>
      <sp:TransportBinding xmlns:sp="http://docs.oasis-open.org/ws-
sx/ws-securitypolicy/200702">
        <wsp:Policy>
          <sp:TransportToken>
            <wsp:Policy>
              <sp:HttpsToken>
                <wsp:Policy/>
              </sp:HttpsToken>
            </wsp:Policy>
          </sp:TransportToken>
          <sp:AlgorithmSuite>
            <wsp:Policy>
              <sp:Basic256/>
            </wsp:Policy>
          </sp:AlgorithmSuite>
          <sp:Layout>
            <wsp:Policy>
              <sp:Lax/>
            </wsp:Policy>
          </sp:Layout>
        </wsp:Policy>
      </sp:TransportBinding>
      <sp:SupportingTokens>
        <wsp:Policy>
          <sp:UsernameToken sp:IncludeToken="http://docs.oasis-
open.org/ws-sx/ws-securitypolicy/200702/IncludeToken/AlwaysToRecipient">
            <wsp:Policy>
              <sp:HashPassword/>
            </wsp:Policy>
          </sp:UsernameToken>
        </wsp:Policy>
      </sp:SupportingTokens>
    </wsp>All>
  </wsp:ExactlyOne>
</wsp:Policy>
```

```

        </wsp:Policy>
    </sp:UsernameToken>
</wsp:Policy>
</sp:SupportingTokens>
</wsp:All>
</wsp:ExactlyOne>
</wsp:Policy>

```

Which amounts to a username/password authenticated scheme over HTTPS where the password is a SHA1 hash of the timestamp, nonce and password. The combination of SSL transport level security and the username/password authentication sufficiently ensures that a third party cannot snoop potentially confidential data, impersonate a data-provider or perform replay attacks against the FRIS systems.

With this policy in place a sample ingestion request would look like the following:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/">
    <wsse:Security xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
      soap:mustUnderstand="1">
      <wsse:UsernameToken wsu:Id="UsernameToken-7">
        <wsse:Username>internalProvider</wsse:Username>
        <wsse:Password Type="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-username-token-profile-
1.0#PasswordDigest">+vY88B2blyle7C45eN6nhruHbmc=</wsse:Password>
        <wsse:Nonce EncodingType="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-soap-message-security-
1.0#Base64Binary">MzAleXl/khsisVPZ483nFQ==</wsse:Nonce>
        <wsu:Created>2013-09-27T09:05:36.870Z</wsu:Created>
      </wsse:UsernameToken>
    </wsse:Security>
  </SOAP-ENV:Header>
  <soap:Body>
    <ns1:ingestBulk xmlns:ns1="http://fris.ewi.be/">
      <CERIF xmlns="urn:xmlns:org:eurocris:cerif-1.5-1" date="2013-
09-27+02:00" release="1.5" sourceDatabase="ignored">
        ...
      </CERIF>
    </ns1:ingestBulk>
  </soap:Body>
</soap:Envelope>

```

And a sample delete organisation request:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/">
    <wsse:Security xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-utility-1.0.xsd" soap:mustUnderstand="1">
      <wsse:UsernameToken wsu:Id="UsernameToken-3">
        <wsse:Username>pureProvider</wsse:Username>
        <wsse:Password Type="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-username-token-profile-
1.0#PasswordDigest">NV/qsZe8Y5ijt7rCC4DZrlUai7c=</wsse:Password>

```

```
        <wsse:Nonce EncodingType="http://docs.oasis-  
open.org/wss/2004/01/oasis-200401-wss-soap-message-security-  
1.0#Base64Binary">/ZgogbYMk/bEP+21MIp3vQ==</wsse:Nonce>  
        <wsu:Created>2013-11-28T14:45:44.111Z</wsu:Created>  
    </wsse:UsernameToken>  
</wsse:Security>  
</SOAP-ENV:Header>  
<soap:Body>  
    <ns1:deleteOrganisation xmlns:ns1="http://fris.ewi.be/">  
        <ns1:identifier>81785c7c-17f7-4101-8350-  
49df035bc825</ns1:identifier>  
    </ns1:deleteOrganisation>  
</soap:Body>  
</soap:Envelope>
```

3 Changes service

The FRIS R3 Changes Service is responsible for exposing the changes to entities in the FRIS system. The FRIS system only stores change events for two months, if you need to synchronise a data set that is older than that a full resynchronisation will be needed.

The changes service is inspired by the OAI-PMH protocol; each response will provide a resumption token that should be used on the next request. In addition, each request is automatically paged with a page size of 10.000 change events per request.

3.1 Current service status

Environment	Endpoint WSDL
Staging	https://stfrizr3.researchportal.be/ws/ChangesService?wsdl
Production	https://frizr3.researchportal.be/ws/ChangesService?wsdl

3.2 Service operations

Operation	Input	Output
getChanges	getChanges	getChangesResponse

The formal format specification is published as a part of the WSDL.

3.2.1 Operation: getChanges request documentation

The getChanges operation retrieves changes in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. If no limit is specified it will start from the beginning of the stored changes.

Element path	Type	Notes
resumeToken	string	The resumptionToken from the previous response
from	xs:dateTime	If no responseToken is supplied, a standard date time string can be supplied as the starting point for the first request
dataProviders	identifierList	Filter changes based on data provider names, can be negated
uuids	identifierList	Filter changes based on content UUID's. can be negated
changeType	changeType	Filter changes based on change type, can be one of: <i>CREATE, UPDATE, DELETE, DATA_SET_DISABLED, DATA_SET_ENABLED</i>
entityType	entityType	Filter changes based on entity type, can be one of: <i>ORGANISATION, PERSON, PROJECT, JOURNAL, RESEARCH_OUTPUT, FUNDING_CODE, CLASSIFICATION_SCHEME, DATA_PROVIDER</i>

3.2.2 Operation: getChanges XML response documentation

The XML query response document will contain the following elements:

Element path	Type	Notes
--------------	------	-------

changesResponse/@resumptionToken	string	The resumption token
change/@id	int	The change id
change/occurredOn	xs:dateTime	The date and time the change occurred on.
change/changeType	enum	The type of change, can be: CREATE, UPDATE or DELETE
change/entityType	enum	The entity type, can be: ORGANISATION, PERSON, PROJECT, JOURNAL, RESEARCH_OUTPUT or CLASSIFICATION_SCHEME
change/identifier	string	The FRIS identifier of the entity
change/dataProvider	string	The FRIS data provider name that owns the entity

Sample response:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <fris:getChangesResponse xmlns:crit="http://fris.ewi.be/criteria"
xmlns:resp="http://fris.ewi.be/response"
xmlns:fris="http://fris.ewi.be/">
      <resp:changesResponse resumptionToken="76692931">
        <fris:change id="76660514">
          <fris:occurredOn>2016-06-
10T07:35:21.212Z</fris:occurredOn>
          <fris:changeType>CREATE</fris:changeType>
          <fris:entityType>JOURNAL</fris:entityType>
          <fris:identifier>0aa7603b-defd-4633-8d5d-
4b08652ad6c9</fris:identifier>
          <fris:dataProvider>test_NA1</fris:dataProvider>
        </fris:change>
      </resp:changesResponse>
    </fris:getChangesResponse>
  </soap:Body>
</soap:Envelope>
```

4 Organisation service

The FRIS R3 Organisation Services is responsible for exposing public organisation data from the FRIS system. The organisation service is publicly accessible and will not expose any entities that have not been marked as public or any relations to such entities.

The FRIS organisation service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

4.1 Current service status

The organisation service is currently available at:

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfriser3.researchportal.be/ws/OrganisationService?wsdl
Staging	FRIS XML	https://stfriser3.researchportal.be/ws/OrganisationServiceFRIS?wsdl
Production	CERIF	https://friser3.researchportal.be/ws/OrganisationService?wsdl
Production	FRIS XML	https://friser3.researchportal.be/ws/OrganisationServiceFRIS?wsdl

4.2 Service operations

Both versions have identical operations and request documents.

Operation	Input	Output
getOrganisations	getOrganisations	getOrganisationsResponse
getOrderings	getOrderings	getOrderings
getDataProviders	getDataProviders	getDataProvidersResponse
getOrganisationTypeClassifications	getOrganisationTypeClassifications	getOrganisationTypeClassificationsResponse
getOrganisationActivityTypeClassifications	getOrganisationActivityTypeClassifications	getOrganisationActivityTypeClassificationsResponse
getAuthorityClassifications	getAuthorityClassifications	getAuthorityClassificationsResponse
getDisciplineClassifications	getDisciplineClassifications	getDisciplineClassificationsResponse
getElectronicAddressTypeClassifications	getElectronicAddressTypeClassifications	getElectronicAddressTypeClassificationsResponse
getPhysicalAddressCountryClassifications	getPhysicalAddressCountryClassifications	getPhysicalAddressCountryClassificationsResponse
getSubjectAreaClassifications	getSubjectAreaClassifications	getSubjectAreaClassificationsResponse

The formal format specification is published as a part of the WSDL.

All other operations than "getOrganisations" will not be described in detail since they're trivial helper operations that do not accept any parameters.

4.2.1 Operation: getOrganisations request documentation

The getOrganisations operation retrieves organisations in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. An

organisation must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale, only applicable for order on localised entity properties, like organisation title. Only "nl_BE" and "en_GB" values are allowed.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search.search	string	Free text search, accepts Lucene query syntax. Will search in Organisation name, acronym, data provider id and sources.
search.locale	locale	Optional locale, if no valid locale is supplied all localisations will be searched.
state	enumeration	Not applicable in the web service interface.
uuids	identifierList	A list of FRIS Organisation UUID values. Can be negated.
sources	sourceList	A number of authority/identifier limits against the entity external identifiers. The getAuthorityClassifications operation provides the valid authority values.
dataProviders	identifierList	A list of data provider names. Can be negated. The getDataProviders operation provides the valid data provider values.
dataProviderIds	identifierList	A list of data provider identifiers. Can be negated.
name	textSearchCriteria	Free text search in the Organisation name property.
acronym	string	Exact acronym match.
associatedOrganisations	identifierList	A list of related FRIS Organisation UUID's. Can be negated.

typeClassification	classificationCriteria	One or more Organisation type terms. Scheme id is optional. Can be hierarchical. The getOrganisationTypeClassifications operation provides the valid type values.
activityTypeClassification	classificationCriteria	One or more Organisation Activity type terms. Scheme id is optional. Can be hierarchical. The getOrganisationActivityTypeClassifications operation provides the valid type values.
discipline	classificationCriteria	One or more discipline terms. Scheme id is optional. Can be hierarchical. The getDisciplineClassifications operation provides the valid discipline values.
subjectArea	classificationCriteria	One or more subject area terms. Scheme id is optional. Can be hierarchical. The getSubjectAreaClassifications operation provides the valid subject area values.
classified	classificationCriteria	One or more generic terms. Scheme id is required. Currently NACE codes and VKBO RechtsVorm classifications are supported.
electronicAddress/value	string	The exact electronic address value.
electronicAddress/ electronicAddressType	classificationCriteria	One or more electronic address type terms. Scheme id is optional. Can be hierarchical. The getElectronicAddressTypeClassifications operation provides the valid electronic address type values.
physicalAddress/address	string	The exact street & building number.
physicalAddress/city	string	The exact city.
physicalAddress/country	classificationCriteria	One or more country terms. Scheme id is optional. The getPhysicalAddressCountryClassifications operation provides the valid electronic address type values.
keywords/keyword	keywordCriteria	A number of keyword criteria.
keyword	textSearchCriteria	Free text search in the Organisation keywords property.

4.2.2 Operation: getOrganisations CERIF response documentation

The CERIF XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.
queryResult/cerif	CERIF	The requested window of matching entities represented as CERIF elements.

The organisation CERIF XML representation is documented in the “Integration Guide FRIS R3” document.

4.2.3 Operation: getOrganisations FRIS XML response documentation

The FRIS XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/@totalResults	int	The total number of matching entities.
queryResult/@pageSize	int	The requested page size.
queryResult/@pageNumber	int	The requested zero-indexed page number.
queryResult/organisation	FRIS XML	The requested window of matching entities represented as FRIS XML elements.

The FRIS XML format is documented in chapter **Fout! Verwijzingsbron niet gevonden..** Sample response:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns3:getOrganisationsResponse
xmlns:ns2="http://fris.ewi.be/response" xmlns:ns3="http://fris.ewi.be/"
xmlns:ns4="http://fris.ewi.be/criteria">
      <queryResult total="1735" page-size="1" page-number="0">
        <ns3:organisation uuid="a9162bad-19b3-434b-b18d-
01659466ced4">
          <ns3:state>PUBLIC</ns3:state>
          <ns3:created>2014-08-09T14:30:35.113+02:00</ns3:created>
          <ns3:lastModified>2015-05-
15T14:28:19.892+02:00</ns3:lastModified>
          <ns3:dataProvider>provider-name</ns3:dataProvider>
          <ns3:dataProviderId>provider-id</ns3:dataProviderId>
          <ns3:sources>
            <ns3:source authority-scheme="Identifier Authority
Type" authority="DGC Id">source-id</ns3:source>
          </ns3:sources>
          <ns3:aliases/>
          <ns3:name>
            <ns3:texts>
              <ns3:text locale="en">organisation name</ns3:text>
            </ns3:texts>
          </ns3:name>
        </ns3:organisation>
      </queryResult>
    </ns3:getOrganisationsResponse>
  </soap:Body>
</soap:Envelope>
```

```

        <ns3:text locale="nl">organisation name</ns3:text>
    </ns3:texts>
</ns3:name>
    <ns3:acronym>acronym</ns3:acronym>
    <ns3:startDate>2014-10-
09T14:27:59.424+02:00</ns3:startDate>
    <ns3:endDate>2015-12-09T14:27:59.424+01:00</ns3:endDate>
    <ns3:organisationType schemeId="Organisation Type"
term="Office"/>
    <ns3:organisationActivityTypes>
        <ns3:type schemeId="Organisation Activity Type"
term="Research"/>
    </ns3:organisationActivityTypes>
    <ns3:nameVariants>
        <ns3:nameVariant>
            <ns3:texts>
                <ns3:text locale="en">name variant</ns3:text>
                <ns3:text locale="nl">name variant</ns3:text>
            </ns3:texts>
        </ns3:nameVariant>
        <ns3:nameVariant>
            <ns3:texts>
                <ns3:text locale="en">name variant</ns3:text>
                <ns3:text locale="nl">name variant</ns3:text>
            </ns3:texts>
        </ns3:nameVariant>
    </ns3:nameVariants>
    <ns3:relatedOrganisations>
        <ns3:organisationRelation>
            <ns3:associationType schemeId="Organisation to
Organisation Role" term="Child"/>
            <ns3:organisation uuid="3a6ebf3d-e0f7-4925-b694-
1351e6e13a4d">
                <ns3:name>
                    <ns3:texts>
                        <ns3:text locale="en">parent-name</ns3:text>
                        <ns3:text locale="nl">parent-name</ns3:text>
                    </ns3:texts>
                </ns3:name>
            </ns3:organisation>
            <ns3:startDate>2015-05-
06T14:27:59.424+02:00</ns3:startDate>
            <ns3:endDate>2015-11-
27T14:27:59.424+01:00</ns3:endDate>
        </ns3:organisationRelation>
    </ns3:relatedOrganisations>
    <ns3:physicalAddresses>
        <ns3:addressAssociation>
            <ns3:associationType schemeId="Physical Address to
Organisation Role" term="Postal Address"/>
            <ns3:physicalAddress>
                <ns3:dataProvider>provider</ns3:dataProvider>
                <ns3:dataProviderId>provider-
id</ns3:dataProviderId>
                <ns3:addressLine2>Apt #10036</ns3:addressLine2>
                <ns3:addressLine3>1216 Highland
Park</ns3:addressLine3>
                <ns3:city>Needmore</ns3:city>
                <ns3:postalCode>48560</ns3:postalCode>

```

```

                <ns3:country schemeId="ISO 3166-1 alpha 2 Country
Code" term="NL"/>
                </ns3:physicalAddress>
                <ns3:startDate>2014-12-
29T14:27:59.424+01:00</ns3:startDate>
                <ns3:endDate>2015-02-
04T14:27:59.424+01:00</ns3:endDate>
                </ns3:addressAssociation>
            </ns3:physicalAddresses>
            <ns3:electronicAddresses>
                <ns3:addressAssociation>
                    <ns3:associationType schemeId="Electronic Address to
Organisation Role" term="Contact Address"/>
                    <ns3:electronicAddress>
                        <ns3:addressType schemeId="Electronic Address
Type" term="Skype"/>
                            <ns3:value>diedisland@somemall.co.uk</ns3:value>
                        </ns3:electronicAddress>
                        <ns3:startDate>2014-08-
27T14:27:59.424+02:00</ns3:startDate>
                        <ns3:endDate>2015-03-
25T14:27:59.424+01:00</ns3:endDate>
                    </ns3:addressAssociation>
                </ns3:electronicAddresses>
                <ns3:classifications/>
                <ns3:researchActivity>
                    <ns3:texts>
                        <ns3:text locale="en">research activity</ns3:text>
                        <ns3:text locale="nl">research activity</ns3:text>
                    </ns3:texts>
                </ns3:researchActivity>
                <ns3:disciplines>
                    <ns3:discipline schemeId="Science Discipline Code"
term="B140"/>
                    <ns3:discipline schemeId="Science Discipline Code"
term="B100"/>
                </ns3:disciplines>
                <ns3:keywords>
                    <ns3:keyword locale="nl">from</ns3:keyword>
                    <ns3:keyword locale="nl">computer</ns3:keyword>
                    <ns3:keyword locale="nl">cold</ns3:keyword>
                    <ns3:keyword locale="en">days</ns3:keyword>
                    <ns3:keyword locale="en">came</ns3:keyword>
                </ns3:keywords>
            </ns3:organisation>
        </queryResult>
    </ns3:getOrganisationsResponse>
</soap:Body>
</soap:Envelope>

```

5 Person service

The FRIS R3 Person Service is responsible for exposing public person data from the FRIS system. The person service is publicly accessible and will not expose any entities that have not been marked as public or any relations to such entities.

The FRIS person service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

5.1 Current service status

The person service is currently available at:

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfriser3.researchportal.be/ws/PersonService?wsdl
Staging	FRIS XML	https://stfriser3.researchportal.be/ws/PersonServiceFRIS?wsdl
Production	CERIF	https://friser3.researchportal.be/ws/PersonService?wsdl
Production	FRIS XML	https://friser3.researchportal.be/ws/PersonServiceFRIS?wsdl

5.2 Service operations

Both versions have identical operations and request documents.

Operation	Input	Output
getPersons	getPersons	getPersonsResponse
getOrderings	getOrderings	getOrderings
getDataProviders	getDataProviders	getDataProvidersResponse
getAuthorityClassifications	getAuthorityClassifications	getAuthorityClassificationsResponse
getScienceDomainClassifications	getScienceDomainClassifications	getScienceDomainClassificationsResponse
getElectronicAddressTypeClassifications	getElectronicAddressTypeClassifications	getElectronicAddressTypeClassificationsResponse
getPhysicalAddressCountryClassifications	getPhysicalAddressCountryClassifications	getPhysicalAddressCountryClassificationsResponse
getSubjectAreaClassifications	getSubjectAreaClassifications	getSubjectAreaClassificationsResponse

The formal format specification is published as a part of the WSDL.

All other operations than "getPersons" will not be described in detail since they're trivial helper operations that do not accept any parameters.

5.2.1 Operation: getPersons request

The getPersons operation retrieves persons in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. A person must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.

window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Only applicable for order on localised entity properties, currently no person orderings require a locale. Only "nl_BE" and "en_GB" values are allowed.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search.search	string	Free text search, accepts Lucene query syntax. Will search in Person name, data provider id and sources.
search.locale	locale	Optional locale, if no valid locale is supplied all localisations will be searched.
state	enumeration	Not applicable in the web service interface.
uuids	identifierList	A list of FRIS Person UUID values. Can be negated.
sources	sourceList	A number of authority/identifier limits against the entity external identifiers. The getAuthorityClassifications operation provides the valid authority values.
dataProviders	identifierList	A list of data provider names. Can be negated. The getDataProviders operation provides the valid data provider values.
dataProviderIds	identifierList	A list of data provider identifiers. Can be negated.
name	textSearchCriteria	Free text search in the Person name property.
gender	enumeration	Person gender. Note that not all data providers supply gender information, in which case it is set to "UNKNOWN". Can be either of "FEMALE", "MALE" or "UNKNOWN".
associatedOrganisations	identifierList	A list of related FRIS Organisation UUID's. Can be negated.

associatedPersons	identifierList	A list of related FRIS Person UUID's. Can be negated.
scienceDomain	classificationCriteria	One or more science domain terms. Scheme id is optional. Can be hierarchical. The getScienceDomainClassifications operation provides the valid science domain values.
subjectArea	classificationCriteria	One or more subject area terms. Scheme id is optional. Can be hierarchical. The getSubjectAreaClassifications operation provides the valid subject area values.
classified	classificationCriteria	One or more generic terms. Scheme id is required. Currently there are no supported person classifications for this property.
electronicAddress/value	string	The exact electronic address value.
electronicAddress/ electronicAddressType	classificationCriteria	One or more electronic address type terms. Scheme id is optional. Can be hierarchical. The getElectronicAddressTypeClassifications operation provides the valid electronic address type values.
physicalAddress/address	string	The exact street & building number.
physicalAddress/city	string	The exact city.
physicalAddress/country	classificationCriteria	One or more country terms. Scheme id is optional. The getPhysicalAddressCountryClassifications operation provides the valid electronic address type values.
keyword	textSearchCriteria	Free text search in the Person keywords property.

5.2.2 Operation: getPersons CERIF response documentation

The CERIF XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.
queryResult/cerif	CERIF	The requested window of matching entities represented as CERIF elements.

The person CERIF XML representation is documented in the “Integration Guide FRIS R3” document.

5.2.3 Operation: getPersons FRIS XML response documentation

The FRIS XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/@totalResults	int	The total number of matching entities.
queryResult/@pageSize	int	The requested page size.
queryResult/@pageNumber	int	The requested zero-indexed page number.
queryResult/person	FRIS XML	The requested window of matching entities represented as FRIS XML elements.

The FRIS XML format is documented in chapter **Fout! Verwijzingsbron niet gevonden..** Sample response:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns3:getPersonsResponse xmlns:ns2="http://fris.ewi.be/response"
xmlns:ns3="http://fris.ewi.be/" xmlns:ns4="http://fris.ewi.be/criteria">
      <queryResult total="46" page-size="1" page-number="0">
        <ns3:person uuid="7a166f4f-d5b1-41a3-bac9-71cfa998821a">
          <ns3:state>PUBLIC</ns3:state>
          <ns3:created>2014-11-16T18:41:20.975+01:00</ns3:created>
          <ns3:lastModified>2015-05-
15T14:28:21.822+02:00</ns3:lastModified>
          <ns3:dataProvider>provider</ns3:dataProvider>
          <ns3:dataProviderId>provider-id</ns3:dataProviderId>
          <ns3:sources>
            <ns3:source authority-scheme="Identifier Authority
Type" authority="DGC Id">bbb77ba6-d7f1-4e36-a718-
e07370cd8006</ns3:source>
            <ns3:source authority-scheme="Identifier Authority
Type" authority="Research Gate">4c09ad7a-4b16-4154-86c0-
9aab57ba29c4</ns3:source>
          </ns3:sources>
          <ns3:aliases/>
          <ns3:name>
            <ns3:firstName>Ian</ns3:firstName>
            <ns3:lastName>Weaver</ns3:lastName>
          </ns3:name>
          <ns3:nameVariants>
            <ns3:nameVariant>
              <ns3:firstName>Ian</ns3:firstName>
              <ns3:lastName>Mathews</ns3:lastName>
            </ns3:nameVariant>
          </ns3:nameVariants>
          <ns3:gender>MALE</ns3:gender>
          <ns3:researchInterest>
            <ns3:texts>
              <ns3:text locale="en">research interest</ns3:text>
              <ns3:text locale="nl">research interest</ns3:text>
            </ns3:texts>
          </ns3:researchInterest>
        </ns3:person>
      </queryResult>
    </ns3:getPersonsResponse>
  </soap:Body>
</soap:Envelope>
```

```

        </ns3:text>
    </ns3:researchInterest>
    <ns3:researchExpertise>
        <ns3:texts>
            <ns3:text locale="en">research interest</ns3:text>
            <ns3:text locale="nl">research interest</ns3:text>
        </ns3:texts>
    </ns3:researchExpertise>
    <ns3:researchTechniques>
        <ns3:texts>
            <ns3:text locale="en">research techniques</ns3:text>
            <ns3:text locale="nl">research techniques</ns3:text>
        </ns3:texts>
    </ns3:researchTechniques>
    <ns3:relatedPersons/>
    <ns3:personOrganisations>
        <ns3:personOrganisation>
            <ns3:associationType schemeId="Assignment Role"
term="Member"/>
            <ns3:organisation uuid="0c56841b-cf50-440c-b1bc-
487a8f090626">
                <ns3:name>
                    <ns3:texts>
                        <ns3:text locale="nl">organisation
name</ns3:text>
                        <ns3:text locale="en">organisation
name</ns3:text>
                    </ns3:texts>
                </ns3:name>
            </ns3:organisation>
            <ns3:startDate>2014-08-
16T14:27:59.424+02:00</ns3:startDate>
            <ns3:person uuid="7a166f4f-d5b1-41a3-bac9-
71cfa998821a">
                <ns3:name>
                    <ns3:firstName>Ian</ns3:firstName>
                    <ns3:lastName>Weaver</ns3:lastName>
                </ns3:name>
            </ns3:person>
            <ns3:dataProvider>provider</ns3:dataProvider>
            <ns3:dataProviderId>provider-id</ns3:dataProviderId>
        </ns3:personOrganisation>
        <ns3:personOrganisation>
            <ns3:associationType schemeId="Assignment Role"
term="Responsible"/>
            <ns3:organisation uuid="8f01c989-879b-4f40-a131-
0025b01ab65f">
                <ns3:name>
                    <ns3:texts>
                        <ns3:text locale="nl">organisation
name</ns3:text>
                        <ns3:text locale="en">organisation
name</ns3:text>
                    </ns3:texts>
                </ns3:name>
            </ns3:organisation>
            <ns3:startDate>2014-09-
03T14:27:59.424+02:00</ns3:startDate>

```



```

71cfa998821a">
    <ns3:person uuid="7a166f4f-d5b1-41a3-bac9-
    <ns3:name>
      <ns3:firstName>Ian</ns3:firstName>
      <ns3:lastName>Weaver</ns3:lastName>
    </ns3:name>
  </ns3:person>
  <ns3:dataProvider>provider</ns3:dataProvider>
  <ns3:dataProviderId>provider-id</ns3:dataProviderId>
</ns3:personOrganisation>
</ns3:personOrganisations>
<ns3:scienceDomains>
  <ns3:scienceDomain schemeId="Science Domain Code"
term="151"/>
  <ns3:scienceDomain schemeId="Science Domain Code"
term="131"/>
</ns3:scienceDomains>
<ns3:physicalAddresses>
  <ns3:addressAssociation>
    <ns3:associationType schemeId="Physical Address to
Person Role" term="Work Address"/>
    <ns3:physicalAddress>
      <ns3:dataProvider>porovider</ns3:dataProvider>
      <ns3:dataProviderId>provider-
id</ns3:dataProviderId>
      <ns3:addressLine3>549 Merrimac
Circle</ns3:addressLine3>
      <ns3:city>Braselton</ns3:city>
      <ns3:postalCode>73034</ns3:postalCode>
      <ns3:country schemeId="ISO 3166-1 alpha 2 Country
Code" term="NL"/>
    </ns3:physicalAddress>
    <ns3:startDate>2014-07-
27T14:27:59.424+02:00</ns3:startDate>
  </ns3:addressAssociation>
</ns3:physicalAddresses>
<ns3:electronicAddresses>
  <ns3:addressAssociation>
    <ns3:associationType schemeId="Electronic Address to
Person Role" term="Work Address"/>
    <ns3:electronicAddress>
      <ns3:addressType schemeId="Electronic Address
Type" term="Telephone"/>
      <ns3:value>astone@mallbox.com</ns3:value>
    </ns3:electronicAddress>
    <ns3:startDate>2014-08-
12T14:27:59.424+02:00</ns3:startDate>
  </ns3:addressAssociation>
</ns3:electronicAddresses>
<ns3:classifications/>
<ns3:disciplines>
  <ns3:discipline schemeId="Science Discipline Code"
term="B140"/>
</ns3:disciplines>
<ns3:keywords>
  <ns3:keyword locale="nl">asked</ns3:keyword>
  <ns3:keyword locale="nl">world</ns3:keyword>
  <ns3:keyword locale="en">captain</ns3:keyword>
  <ns3:keyword locale="en">moved</ns3:keyword>

```

```
        </ns3:keywords>
      </ns3:person>
    </queryResult>
  </ns3:getPersonsResponse>
</soap:Body>
</soap:Envelope>
```

6 Project service

The FRIS R3 Project service is responsible for exposing public project data from the FRIS system. The project service is publicly accessible and will not expose any entities that have not been marked as public or any relations to such entities.

The FRIS project service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

6.1 Current service status

The project service is currently available at:

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfris3.researchportal.be/ws/ProjectService?wsdl
Staging	FRIS XML	https://stfris3.researchportal.be/ws/ProjectServiceFRIS?wsdl
Production	CERIF	https://fris3.researchportal.be/ws/ProjectService?wsdl
Production	FRIS XML	https://fris3.researchportal.be/ws/ProjectServiceFRIS?wsdl

6.2 Service operations

Both versions have identical operations and request documents.

Operation	Input	Output
getProjects	getProjects	getProjectsResponse
getOrderings	getOrderings	getOrderings
getDataProviders	getDataProviders	getDataProvidersResponse
getAuthorityClassifications	getAuthorityClassifications	getAuthorityClassificationsResponse
getProjectTypeClassifications	getProjectTypeClassifications	getProjectTypeClassificationsResponse
getScienceDomainClassifications	getScienceDomainClassifications	getScienceDomainClassificationsResponse
getDisciplineClassifications	getDisciplineClassifications	getDisciplineClassificationsResponse
getApplicationCodeClassifications	getApplicationCodeClassifications	getApplicationCodeClassificationsResponse
getTechnologyCodeclassifications	getTechnologyCodeclassifications	getTechnologyCodeclassificationsResponse
getFundingCodeClassifications	getFundingCodeClassifications	getFundingCodeClassificationsResponse
getSubjectAreaClassifications	getSubjectAreaClassifications	getSubjectAreaClassificationsResponse

The formal format specification is published as a part of the WSDL.

All other operations than "getProjects" will not be described in detail since they're trivial helper operations that do not accept any parameters.

6.2.1 Operation: getProjects

The getProjects operation retrieves projects in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. A project must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Only applicable for order on localised entity properties, currently only the "project.name" ordering requires a locale. Only "nl_BE" and "en_GB" values are allowed.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search.search	string	Free text search, accepts Lucene query syntax. Will search in Project name, data provider id and sources.
search.locale	locale	Optional locale, if no valid locale is supplied all localisations will be searched.
state	enumeration	Not applicable in the web service interface.
uuids	identifierList	A list of FRIS Project UUID values. Can be negated.
sources	sourceList	A number of authority/identifier limits against the entity external identifiers. The getAuthorityClassifications operation provides the valid authority values.
dataProviders	identifierList	A list of data provider names. Can be negated. The getDataProviders operation provides the valid data provider values.
dataProviderIds	identifierList	A list of data provider identifiers. Can be negated.
name	textSearchCriteria	Free text search in the Project name property.

acronym	string	The exact project acronym.
associatedOrganisations	identifierList	A list of related FRIS Organisation UUID's. Can be negated.
associatedPersons	identifierList	A list of related FRIS Person UUID's, will match against both external and internal person associations. Can be negated.
associatedProjects	identifierList	A list of related FRIS Project UUID's. Can be negated.
applicationCode	classificationCriteria	One or more application codes. Scheme id is optional. Can be hierarchical. The getApplicationCodeClassifications operation provides the valid application codes.
technologyCode	classificationCriteria	One or more technology codes. Scheme id is optional. The getTechnologyCodeClassifications operation provides the valid technology codes.
discipline	classificationCriteria	One or more discipline terms. Scheme id is optional. Can be hierarchical. The getDisciplineClassifications operation provides the valid discipline values.
subjectArea	classificationCriteria	One or more subject area terms. Scheme id is optional. Can be hierarchical. The getSubjectAreaClassifications operation provides the valid subject area values.
fundingCode	classificationCriteria	One or more funding code terms. Scheme id is optional. Can be hierarchical. The getFundingCodeClassifications operation provides the valid funding code values.
keyword	textSearchCriteria	Free text search in the Project keywords property.

6.2.2 Operation: getProjects CERIF response documentation

The CERIF XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.

queryResult/cerif	CERIF	The requested window of matching entities represented as CERIF elements.
--------------------------	-------	--

The person CERIF XML representation is documented in the "Integration Guide FRIS R3" document.

6.2.3 Operation: getProjects FRIS XML response documentation

The FRIS XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/@totalResults	int	The total number of matching entities.
queryResult/@pageSize	int	The requested page size.
queryResult/@pageNumber	int	The requested zero-indexed page number.
queryResult/project	FRIS XML	The requested window of matching entities represented as FRIS XML elements.

The FRIS XML format is documented in chapter **Fout! Verwijzingsbron niet gevonden..** Sample response:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns3:getProjectsResponse xmlns:ns2="http://fris.ewi.be/response"
xmlns:ns3="http://fris.ewi.be/" xmlns:ns4="http://fris.ewi.be/criteria">
      <queryResult total="50" page-size="1" page-number="0">
        <ns3:project uuid="24ecd2c0-e111-43f1-9c8b-30c6f2f31353">
          <ns3:state>PUBLIC</ns3:state>
          <ns3:created>2015-02-05T17:09:00.149+01:00</ns3:created>
          <ns3:lastModified>2015-05-
18T10:50:24.908+02:00</ns3:lastModified>
          <ns3:dataProvider>provider</ns3:dataProvider>
          <ns3:dataProviderId>provider-id</ns3:dataProviderId>
          <ns3:sources>
            <ns3:source authority-scheme="Identifier Authority
Type" authority="VABB">c448d04e-2fc5-4f36-ada9-27c938097563</ns3:source>
          </ns3:sources>
          <ns3:aliases/>
          <ns3:name>
            <ns3:texts>
              <ns3:text locale="nl">project name</ns3:text>
              <ns3:text locale="en">project name</ns3:text>
            </ns3:texts>
          </ns3:name>
          <ns3:acronym>acronym</ns3:acronym>
          <ns3:homepage>http://Wrightsville-
Industries.us</ns3:homepage>
          <ns3:startDate>2014-12-
07T10:47:32.260+01:00</ns3:startDate>
          <ns3:endDate>2016-04-09T10:47:32.260+02:00</ns3:endDate>
          <ns3:projectTypes>
            <ns3:type schemeId="Project Type"
term="Collaboration"/>
          </ns3:projectTypes>
        </ns3:project>
      </queryResult>
    </ns3:getProjectsResponse>
  </soap:Body>
</soap:Envelope>
```

```

        <ns3:projectAbstract>
          <ns3:texts>
            <ns3:text locale="nl">project abstract</ns3:text>
            <ns3:text locale="en">project abstract</ns3:text>
          </ns3:texts>
        </ns3:projectAbstract>
        <ns3:disciplines>
          <ns3:discipline schemeId="Science Discipline Code"
term="B110"/>
          <ns3:discipline schemeId="Science Discipline Code"
term="B110"/>
        </ns3:disciplines>
        <ns3:fwoDisciplines>
          <ns3:fwoDiscipline schemeId="FWODisciplineCode"
term="FWO-1"/>
        </ns3:fwoDisciplines>
        <ns3:applicationCodes>
          <ns3:applicationCode schemeId="Application Code"
term="O530"/>
        </ns3:applicationCodes>
        <ns3:technologyCodes>
          <ns3:technologyCode schemeId="Technology Code"
term="12"/>
        </ns3:technologyCodes>
        <ns3:projectOrganisations>
          <ns3:projectOrganisation>
            <ns3:associationType
schemeId="ProjectOrganisationRole" term="Owner"/>
            <ns3:organisation uuid="b2f105ca-647c-42e9-b192-
1dfa80a172e8">
              <ns3:name>
                <ns3:texts>
                  <ns3:text locale="nl">organisation
name</ns3:text>
                  <ns3:text locale="en">organisation
name</ns3:text>
                </ns3:texts>
              </ns3:name>
            </ns3:organisation>
          </ns3:projectOrganisation>
        </ns3:projectOrganisations>
        <ns3:relatedProjects/>
        <ns3:participants>
          <ns3:participant>
            <ns3:associationType schemeId="Assignment to Project
Role" term="Co-promotor"/>
            <ns3:assignment>
              <ns3:associationType schemeId="Assignment Role"
term="Member"/>
              <ns3:organisation uuid="9f02475b-eeae-4208-9ea1-
81ef99236a03">
                <ns3:name>
                  <ns3:texts>
                    <ns3:text locale="nl">organisation
name</ns3:text>
                    <ns3:text locale="en">organisation
name</ns3:text>
                  </ns3:texts>
                </ns3:name>
              </ns3:organisation>
            </ns3:assignment>
          </ns3:participant>
        </ns3:participants>
      </ns3:relatedProjects>
    </ns3:project>
  </ns3:projectList>

```

```

                </ns3:organisation>
                <ns3:startDate>2014-09-
28T10:47:32.260+02:00</ns3:startDate>
                <ns3:person uuid="0d28067d-8ac2-44de-9ce4-
19464ec961d5">
                    <ns3:name>
                        <ns3:firstName>Sarah</ns3:firstName>
                        <ns3:lastName>Snyder</ns3:lastName>
                    </ns3:name>
                </ns3:person>
                <ns3:dataProvider>provider</ns3:dataProvider>
                <ns3:dataProviderId>provider-
id</ns3:dataProviderId>
                </ns3:assignment>
                <ns3:startDate>2014-12-
12T10:47:32.260+01:00</ns3:startDate>
                <ns3:endDate>2016-01-
23T10:47:32.260+01:00</ns3:endDate>
                </ns3:participant>
            </ns3:participants>
            <ns3:projectFunding>
                <ns3:projectFunding>
                    <ns3:fundingCode schemeId="Funding Source Code"
term="4254"/>
                    <ns3:fundingRole schemeId="Funding Source to Project
Role" term="Principal Funding"/>
                    <ns3:startDate>2015-01-
02T10:47:32.260+01:00</ns3:startDate>
                    <ns3:endDate>2015-10-
15T10:47:32.260+02:00</ns3:endDate>
                </ns3:projectFunding>
            </ns3:projectFunding>
            <ns3:funding-identifiers>
                <ns3:funding-identifier authority-scheme="Funder
Identifier Type" authority="AIO Contract Id">4903731a-3848-42bb-922e-
8fd9f9f8d12c</ns3:funding-identifier>
            </ns3:funding-identifiers>
            <ns3:keywords>
                <ns3:keyword locale="nl">died</ns3:keyword>
                <ns3:keyword locale="nl">world</ns3:keyword>
                <ns3:keyword locale="en">dreams</ns3:keyword>
                <ns3:keyword locale="en">handled</ns3:keyword>
            </ns3:keywords>
        </ns3:project>
    </queryResult>
</ns3:getProjectsResponse>
</soap:Body>
</soap:Envelope>

```


7 Research output service

The FRIS R3 Research output service is responsible for exposing public research output data from the FRIS system. The research output service is publicly accessible and will not expose any entities that have not been marked as public or any relations to such entities.

The FRIS research output service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

7.1 Current service status

The project service is currently available at:

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfrs3.researchportal.be/ws/ResearchOutputService?wsdl
Staging	FRIS XML	https://stfrs3.researchportal.be/ws/ResearchOutputServiceFRIS?wsdl
Production	CERIF	https://frs3.researchportal.be/ws/ResearchOutputService?wsdl
Production	FRIS XML	https://frs3.researchportal.be/ws/ResearchOutputServiceFRIS?wsdl

7.2 Service operations

Operation	Input	Output
getResearchOutput	getResearchOutput	getResearchOutputResponse
getOrderings	getOrderings	getOrderings
getDataProviders	getDataProviders	getDataProvidersResponse
getAuthorityClassifications	getAuthorityClassifications	getAuthorityClassificationsResponse
getResearchOutputTypeClassifications	getResearchOutputTypeClassifications	getResearchOutputTypeClassificationsResponse
getDisciplineClassifications	getDisciplineClassifications	getDisciplineClassificationsResponse
getEvaluationPanelClassifications	getEvaluationPanelClassifications	getEvaluationPanelClassificationsResponse
getRefereeTypeClassifications	getRefereeTypeClassifications	getRefereeTypeClassificationsResponse
getSubjectAreaClassifications	getSubjectAreaClassifications	getSubjectAreaClassificationsResponse

The formal format specification is published as a part of the WSDL.

All other operations than "getResearchOutput" will not be described in detail since they're trivial helper operations that do not accept any parameters.

7.2.1 Operation: getResearchOutput

The getResearchOutput operation retrieves projects in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. A research output must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Only applicable for order on localised entity properties, currently only the "researchOutput.title" ordering requires a locale. Only "nl_BE" and "en_GB" values are allowed.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search.search	string	Free text search, accepts Lucene query syntax. Will search in research output title, data provider id and sources.
search.locale	locale	Optional locale, if no valid locale is supplied all localisations will be searched.
state	enumeration	Not applicable in the web service interface.
uuids	identifierList	A list of FRIS Research output UUID values. Can be negated.
sources	sourceList	A number of authority/identifier limits against the entity external identifiers. The getAuthorityClassifications operation provides the valid authority values.
dataProviders	identifierList	A list of data provider names. Can be negated. The getDataProviders operation provides the valid data provider values.
dataProviderIds	identifierList	A list of data provider identifiers. Can be negated.
title	textSearchCriteria	Free text search in the Research output title property.
type	classificationCriteria	One or more research output taxonomy type terms. Scheme id is optional. Can be hierarchical. The getResearchOutputTypeClassifications

		operation provides the valid research output type values.
associatedOrganisations	identifierList	A list of related FRIS Organisation UUID's. Can be negated.
associatedPersons	identifierList	A list of related FRIS Person UUID's, will match against both external and internal person associations. Can be negated.
associatedProjects	identifierList	A list of related FRIS Project UUID's. Can be negated.
discipline	classificationCriteria	One or more discipline terms. Scheme id is optional. Can be hierarchical. The getDisciplineClassifications operation provides the valid discipline values.
subjectArea	classificationCriteria	One or more subject area terms. Scheme id is optional. Can be hierarchical. The getSubjectAreaClassifications operation provides the valid subject area values.
evaluationPanel	classificationCriteria	One or more evaluation panel terms. Scheme id is optional. Can be hierarchical. The getEvaluationPanelClassifications operation provides the valid discipline values.
refereeType	classificationCriteria	One or more referee type terms. Scheme id is optional. The getRefereeTypeClassifications operation provides the valid discipline values.
artistic	Xs:boolean	Whether the research output is marked artistic or not
keyword	textSearchCriteria	Free text search in the research output keywords property.

7.2.2 Operation: getResearchOutput CERIF response documentation

The CERIF XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.
queryResult/cerif	CERIF	The requested window of matching entities represented as CERIF elements.

The research output CERIF XML representation is documented in the “Integration Guide FRIS R3” document.

7.2.3 Operation: getResearchOutput FRIS XML response documentation

The FRIS XML query response document will contain the following elements:

Element path	Type	Notes
queryResult/@totalResults	int	The total number of matching entities.
queryResult/@pageSize	int	The requested page size.
queryResult/@pageNumber	int	The requested zero-indexed page number.
queryResult/book queryResult/book-contribution queryResult/journal-contribution queryResult/non-written queryResult/patent	FRIS XML	The requested window of matching entities represented as FRIS XML elements. Note that each research output type has a separated element name and structure.

The FRIS XML format is documented in chapter **Fout! Verwijzingsbron niet gevonden..** Sample journal contribution response (not showing the other research output types):

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <fris:getResearchOutputResponse
xmlns:crit="http://fris.ewi.be/criteria"
xmlns:resp="http://fris.ewi.be/response"
xmlns:fris="http://fris.ewi.be/">
      <queryResult total="2" pageSize="10" pageNumber="0">
        <fris:journalContribution uuid="9ea21f94-1078-4083-b440-
9593d9b6c14c">
          <fris:rootOrganisationUuid>759d71ae-a160-45ba-80a7-
2328d2c00ff9</fris:rootOrganisationUuid>
          <fris:state>PUBLIC</fris:state>
          <fris:external>>false</fris:external>
          <fris:created>2017-05-18T08:21:28Z</fris:created>
          <fris:lastModified>2018-01-
29T08:24:05Z</fris:lastModified>
          <fris:hidden>>false</fris:hidden>
          <fris:dataProvider>UGent</fris:dataProvider>
          <fris:dataProviderId>872f15a0-08a7-11e7-8947-
0000000002ae</fris:dataProviderId>
          <fris:sources>
            <fris:source id="94535818" authorityScheme="Identifier
Authority Type" authority="Handle">http://hdl.handle.net/1854/LU-
1105574</fris:source>
            <fris:source id="94535817" authorityScheme="Identifier
Authority Type" authority="VABB Id">c:vabb:303875</fris:source>
            <fris:source id="94535816" authorityScheme="Identifier
Authority Type" authority="WoS Id">000274641200006</fris:source>
          </fris:sources>
          <fris:aliases>
            <fris:alias id="113496190"
dataProvider="UAntwerpen">62dcf09e-1746-4fc1-b1ed-
b3e6635f11ab</fris:alias>
        </fris:journalContribution>
      </queryResult>
    </fris:getResearchOutputResponse>
  </soap:Body>
</soap:Envelope>
```

```

</fris:aliases>
<fris:title id="94535814">
  <fris:texts>
    <fris:text locale="un">Cost effectiveness of
atorvastatin in patients with type 2 diabetes mellitus: a
pharmacoeconomic analysis of the collaborative Atorvastatin diabetes
study in the Belgian population</fris:text>
  </fris:texts>
</fris:title>
<fris:disciplines/>
<fris:participants>
  <fris:participant id="94535822">
    <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
    <fris:assignment id="78067323">
      <fris:associationType id="3952"
schemeId="Assignment Role"
schemeIdentifier="PERSON_ORGANISATION_ASSOCIATION" term="Member"/>
      <fris:organisation uuid="1ea85960-3513-4622-ac13-
e406e9c136bf">
        <fris:external>false</fris:external>
        <fris:hidden>false</fris:hidden>
        <fris:dataProvider>UGent</fris:dataProvider>
        <fris:dataProviderId>b97c1910-3709-11e6-a43e-
000000000144</fris:dataProviderId>
        <fris:sources/>
        <fris:aliases/>
        <fris:name>
          <fris:texts>
            <fris:text locale="en">Department of
Public health</fris:text>
            <fris:text locale="nl">Vakgroep
Maatschappelijke Gezondheidskunde</fris:text>
          </fris:texts>
        </fris:name>
        <fris:organisationActivityTypes/>
        <fris:nameVariants/>
        <fris:relatedOrganisations/>
        <fris:physicalAddresses/>
        <fris:electronicAddresses/>
        <fris:classifications/>
        <fris:disciplines/>
        <fris:subjectAreas/>
      </fris:organisation>
      <fris:startDate>2002-01-
01T00:00:00Z</fris:startDate>
      <fris:endDate>9999-12-31T23:59:59Z</fris:endDate>
      <fris:person uuid="c5f21180-5bd5-45ee-a5f1-
9564853c6f70">
        <fris:external>false</fris:external>
        <fris:hidden>false</fris:hidden>
        <fris:dataProvider>UGent</fris:dataProvider>
        <fris:dataProviderId>512531c2-378c-11e6-b517-
000000000144</fris:dataProviderId>
        <fris:sources/>
        <fris:aliases/>
        <fris:name>
          <fris:firstName>Lieven</fris:firstName>

```

```

        <fris:lastName>Annemans</fris:lastName>
    </fris:name>
    <fris:nameVariants/>
    <fris:relatedPersons/>
    <fris:personOrganisations/>
    <fris:scienceDomains/>
    <fris:physicalAddresses/>
    <fris:electronicAddresses/>
    <fris:classifications/>
    <fris:disciplines/>
    <fris:subjectAreas/>
</fris:person>
    <fris:dataProvider>UGent</fris:dataProvider>
    <fris:dataProviderId>Member:6c4d36f0-04b9-11e7-
a85c-0000000002ae</fris:dataProviderId>
    </fris:assignment>
    <fris:name id="94535823">
        <fris:firstName>Lieven</fris:firstName>
        <fris:lastName>Annemans</fris:lastName>
    </fris:name>
</fris:participant>
    <fris:participant id="94535824">
        <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
        <fris:person uuid="f1f6d9d1-f52d-49e3-911b-
118fe68035d9">
            <fris:external>true</fris:external>
            <fris:hidden>false</fris:hidden>
            <fris:dataProvider>UGent</fris:dataProvider>
            <fris:dataProviderId>873ef420-08a7-11e7-8947-
0000000002ae</fris:dataProviderId>
            <fris:sources/>
            <fris:aliases/>
            <fris:name>
                <fris:firstName>S</fris:firstName>
                <fris:lastName>Marbaix</fris:lastName>
            </fris:name>
            <fris:nameVariants/>
            <fris:relatedPersons/>
            <fris:personOrganisations/>
            <fris:scienceDomains/>
            <fris:physicalAddresses/>
            <fris:electronicAddresses/>
            <fris:classifications/>
            <fris:disciplines/>
            <fris:subjectAreas/>
        </fris:person>
    </fris:participant>
    <fris:participant id="94535825">
        <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
        <fris:person uuid="e5408111-51fe-41ea-8300-
bc974eafdd13">
            <fris:external>true</fris:external>
            <fris:hidden>false</fris:hidden>
            <fris:dataProvider>UGent</fris:dataProvider>

```

```

        <fris:dataProviderId>873f4240-08a7-11e7-8947-
0000000002ae</fris:dataProviderId>
        <fris:sources/>
        <fris:aliases/>
        <fris:name>
            <fris:firstName>K</fris:firstName>
            <fris:lastName>Webb</fris:lastName>
        </fris:name>
        <fris:nameVariants/>
        <fris:relatedPersons/>
        <fris:personOrganisations/>
        <fris:scienceDomains/>
        <fris:physicalAddresses/>
        <fris:electronicAddresses/>
        <fris:classifications/>
        <fris:disciplines/>
        <fris:subjectAreas/>
    </fris:person>
</fris:participant>
<fris:participant id="94535826">
    <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
    <fris:person uuid="9bb484da-3943-45fe-8b7d-
4d273cf0898e">
        <fris:external>true</fris:external>
        <fris:hidden>>false</fris:hidden>
        <fris:dataProvider>UGent</fris:dataProvider>
        <fris:dataProviderId>873f6951-08a7-11e7-8947-
0000000002ae</fris:dataProviderId>
        <fris:sources/>
        <fris:aliases/>
        <fris:name>
            <fris:firstName>Luc</fris:firstName>
            <fris:lastName>Van Gaal</fris:lastName>
        </fris:name>
        <fris:nameVariants/>
        <fris:relatedPersons/>
        <fris:personOrganisations/>
        <fris:scienceDomains/>
        <fris:physicalAddresses/>
        <fris:electronicAddresses/>
        <fris:classifications/>
        <fris:disciplines/>
        <fris:subjectAreas/>
    </fris:person>
</fris:participant>
<fris:participant id="94535827">
    <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
    <fris:person uuid="699086bf-8935-42d8-b5a4-
39e0de5c810e">
        <fris:external>true</fris:external>
        <fris:hidden>>false</fris:hidden>
        <fris:dataProvider>UGent</fris:dataProvider>
        <fris:dataProviderId>87400590-08a7-11e7-8947-
0000000002ae</fris:dataProviderId>
        <fris:sources/>

```

```

    <fris:aliases/>
    <fris:name>
      <fris:firstName>A</fris:firstName>
      <fris:lastName>Scheen</fris:lastName>
    </fris:name>
    <fris:nameVariants/>
    <fris:relatedPersons/>
    <fris:personOrganisations/>
    <fris:scienceDomains/>
    <fris:physicalAddresses/>
    <fris:electronicAddresses/>
    <fris:classifications/>
    <fris:disciplines/>
    <fris:subjectAreas/>
  </fris:person>
</fris:participant>
</fris:participants>
<fris:relatedResearchOutputs/>
<fris:researchOutputProjects/>
<fris:researchOutputType id="4065" schemeId="Research
Output Taxonomy Type" schemeIdentifier="RESEARCH_OUTPUT_TYPE"
term="Journal Article"/>
  <fris:subjectAreas/>
  <fris:keywords>
    <fris:keyword locale="un">PRIMARY
PREVENTION</fris:keyword>
    <fris:keyword locale="un">CARDS</fris:keyword>
    <fris:keyword locale="un">CARDIOVASCULAR-
DISEASE</fris:keyword>
    <fris:keyword locale="un">CORONARY-HEART-
DISEASE</fris:keyword>
    <fris:keyword locale="un">GUIDELINES</fris:keyword>
    <fris:keyword locale="un">EVENTS</fris:keyword>
    <fris:keyword locale="un">RISK ENGINE</fris:keyword>
  </fris:keywords>
  <fris:researchAbstract id="94535815">
    <fris:texts>
      <fris:text locale="un"><![CDATA[Background and
Objective: Patients with type 2 diabetes mellitus have a high risk of
developing cardiovascular (CV) disease. The clinical benefit of use of
statins in patients with type 2 diabetes has been demonstrated in several
randomized, controlled trials, including the CARDS clinical trial. Based
on the clinical CARDS data, the favourable cost effectiveness of
atorvastatin 10mg in patients with type 2 diabetes has been demonstrated
in countries such as the UK and France. This study aimed to estimate the
cost effectiveness in the Belgian setting of atorvastatin 10 mg compared
with no treatment for the primary prevention of CV events in type 2
diabetes patients without a history of CV disease. Methods: A Markov
model with 1-year cycles was developed to simulate the CV event and death
risk according to the therapeutic approach initiated. The transition
probabilities for CV events in the 'no statin treatment' group
were derived from the risk equations reported from the large UKPDS. Risk
reductions from the CARDS clinical trial were used to adjust these CV
event probabilities in the atorvastatin 10 mg treatment group. The
characteristics of type 2 diabetes patients without a CV history were
derived from the Belgian OCAPI survey. The public healthcare payers'
perspective was taken into account for costing. The direct medical costs
of CV events were based on the Public Health Authorities' hospital
database for acute care costs and on the literature for the follow-up

```


costs. The impact on the reimbursement system of generic entry to the market was considered in the drug cost. Costs were valued as at year 2009; costs and outcomes were discounted at 3% and 1.5%, respectively. Results: Based on a 5-year time horizon, atorvastatin was demonstrated to be cost effective with an incremental cost/quality-adjusted life-year (QALY) of (sic)16 681. Over a lifetime horizon (25 years), atorvastatin was demonstrated to be a cost-saving therapeutic intervention. At a threshold of (sic)30 000/QALY, atorvastatin had a 98.8% probability of being cost effective. Conclusion: Compared with 'no treatment', use of atorvastatin 10 mg as a primary prevention intervention in Belgian type 2 diabetes patients not only improves CV outcomes, but also appears to be cost saving over a lifetime horizon.]]</fris:text>

```
</fris:texts>
</fris:researchAbstract>
<fris:originalLanguage id="3451" schemeId="ISO 639-1:2002
Language Code" schemeIdentifier="LANGUAGE" term="en"/>
<fris:publicationCode id="76649809" schemeId="Publication
Codes" schemeIdentifier="PUBLICATION_CODE" term="A1.1"/>
<fris:events/>
<fris:journal uuid="5913191c-6d2a-4c81-83bb-7e13dccc7fdc">
  <fris:hidden>>false</fris:hidden>
  <fris:dataProvider>orbi</fris:dataProvider>

<fris:dataProviderId>oai_journal:orbi.ulg.ac.be:27247</fris:dataProviderI
d>

  <fris:sources/>
  <fris:aliases/>
  <fris:title>Clinical Drug Investigation</fris:title>
  <fris:issn>1173-2563</fris:issn>
  <fris:asjcCodes/>
  <fris:ecoomTypes>
    <fris:ecoomType id="76648433" schemeId="ECOOM Type"
schemeIdentifier="ECOOM_TYPE" term="R4"/>
  </fris:ecoomTypes>
  <fris:metrics/>
</fris:journal>
<fris:journalIssue>2</fris:journalIssue>
<fris:journalVolume>30</fris:journalVolume>
<fris:pages>133 - 142</fris:pages>
<fris:publicationDate>2010-01-01</fris:publicationDate>
<fris:publicationStatus id="3992" schemeId="Publication
Status Type" schemeIdentifier="PUBLICATION_STATUS" term="Published"/>
  <fris:publicationYear>2010</fris:publicationYear>
</fris:journalContribution>
<fris:journalContribution uuid="62dcf09e-1746-4fc1-b1ed-
b3e6635f11ab">
  <fris:rootOrganisationUuid>c3c886fc-f9f3-4645-b710-
206a8cfb404c</fris:rootOrganisationUuid>
  <fris:state>PUBLIC</fris:state>
  <fris:external>>false</fris:external>
  <fris:created>2017-04-27T11:11:41Z</fris:created>
  <fris:lastModified>2018-04-
03T08:42:47Z</fris:lastModified>
  <fris:hidden>>false</fris:hidden>
  <fris:dataProvider>UAntwerpen</fris:dataProvider>
  <fris:dataProviderId>c:irua:81948</fris:dataProviderId>
  <fris:sources>
    <fris:source id="105041494" authorityScheme="Identifier
Authority Type"
```

```

authority="Handle">http://hdl.handle.net/10067/819480151162165141</fris:s
ource>
    <fris:source id="105041493" authorityScheme="Identifier
Authority Type" authority="DOI">https://doi.org/10.2165/11531910-
000000000-00000</fris:source>
    <fris:source id="113078703" authorityScheme="Identifier
Authority Type" authority="WoS Id">000274641200006</fris:source>
</fris:sources>
<fris:aliases>
    <fris:alias id="113501744"
dataProvider="UGent">9ea21f94-1078-4083-b440-9593d9b6c14c</fris:alias>
</fris:aliases>
<fris:title id="84561538">
    <fris:texts>
        <fris:text locale="en">Cost effectiveness of
atorvastatin in patients with type 2 diabetes mellitus: a
pharmacoeconomic analysis of the collaborative atorvastatin diabetes
study in the Belgian population</fris:text>
    </fris:texts>
</fris:title>
<fris:disciplines/>
<fris:participants>
    <fris:participant id="84561543">
        <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
        <fris:person uuid="4b628151-9b37-4a15-bc6d-
fa6605b60429">
            <fris:external>true</fris:external>
            <fris:hidden>false</fris:hidden>
            <fris:dataProvider>UAntwerpen</fris:dataProvider>
</fris:participant>
</fris:participants>
<fris:dataProviderId>c:irua:81948/1</fris:dataProviderId>
    <fris:sources/>
    <fris:aliases/>
    <fris:name>
        <fris:firstName>L.</fris:firstName>
        <fris:lastName>Annemans</fris:lastName>
    </fris:name>
    <fris:nameVariants/>
    <fris:relatedPersons/>
    <fris:personOrganisations/>
    <fris:scienceDomains/>
    <fris:physicalAddresses/>
    <fris:electronicAddresses/>
    <fris:classifications/>
    <fris:disciplines/>
    <fris:subjectAreas/>
</fris:person>
</fris:participant>
<fris:participant id="84561544">
    <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
    <fris:person uuid="a9a49faf-7c06-4143-aaac-
e6e77bef1afc">
        <fris:external>true</fris:external>
        <fris:hidden>false</fris:hidden>
        <fris:dataProvider>UAntwerpen</fris:dataProvider>

```

```

<fris:dataProviderId>c:irua:81948/2</fris:dataProviderId>
  <fris:sources/>
  <fris:aliases/>
  <fris:name>
    <fris:firstName>S.</fris:firstName>
    <fris:lastName>Marbaix</fris:lastName>
  </fris:name>
  <fris:nameVariants/>
  <fris:relatedPersons/>
  <fris:personOrganisations/>
  <fris:scienceDomains/>
  <fris:physicalAddresses/>
  <fris:electronicAddresses/>
  <fris:classifications/>
  <fris:disciplines/>
  <fris:subjectAreas/>
</fris:person>
</fris:participant>
<fris:participant id="84561545">
  <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
  <fris:person uuid="443d4d7d-320b-4fbb-ac6c-
abc68b2d0daa">
    <fris:external>>true</fris:external>
    <fris:hidden>>false</fris:hidden>
  </fris:person>
</fris:participant>
<fris:dataProviderId>c:irua:81948/3</fris:dataProviderId>
  <fris:sources/>
  <fris:aliases/>
  <fris:name>
    <fris:firstName>K.</fris:firstName>
    <fris:lastName>Webb</fris:lastName>
  </fris:name>
  <fris:nameVariants/>
  <fris:relatedPersons/>
  <fris:personOrganisations/>
  <fris:scienceDomains/>
  <fris:physicalAddresses/>
  <fris:electronicAddresses/>
  <fris:classifications/>
  <fris:disciplines/>
  <fris:subjectAreas/>
</fris:person>
</fris:participant>
<fris:participant id="84561542">
  <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>
  <fris:assignment id="77094242">
    <fris:associationType id="3952"
schemeId="Assignment Role"
schemeIdentifier="PERSON_ORGANISATION_ASSOCIATION" term="Member"/>
    <fris:organisation uuid="e6849ce0-1777-45da-a2c7-
feaad191bd0e">
      <fris:external>>false</fris:external>
      <fris:hidden>>false</fris:hidden>
    </fris:organisation>
  </fris:assignment>
</fris:participant>

```

```

<fris:dataProvider>UAntwerpen</fris:dataProvider>

<fris:dataProviderId>21098</fris:dataProviderId>
  <fris:sources/>
  <fris:aliases/>
  <fris:name>
    <fris:texts>
      <fris:text locale="en">Laboratory
Experimental Medicine and Pediatrics (LEMP)</fris:text>
      <fris:text locale="nl">Laboratorium
Experimentele geneeskunde en Pediatrie (LEMP)</fris:text>
    </fris:texts>
  </fris:name>
  <fris:organisationActivityTypes/>
  <fris:nameVariants/>
  <fris:relatedOrganisations/>
  <fris:physicalAddresses/>
  <fris:electronicAddresses/>
  <fris:classifications/>
  <fris:disciplines/>
  <fris:subjectAreas/>
</fris:organisation>
<fris:startDate>2003-10-
01T00:00:00Z</fris:startDate>
  <fris:endDate>9999-12-31T00:00:00Z</fris:endDate>
  <fris:person uuid="ae0efc91-bf15-4966-95ce-
f62aeda884f7">
    <fris:external>>false</fris:external>
    <fris:hidden>>false</fris:hidden>

<fris:dataProvider>UAntwerpen</fris:dataProvider>

<fris:dataProviderId>03202</fris:dataProviderId>
  <fris:sources/>
  <fris:aliases/>
  <fris:name>
    <fris:firstName>Luc</fris:firstName>
    <fris:lastName>Van Gaal</fris:lastName>
  </fris:name>
  <fris:nameVariants/>
  <fris:relatedPersons/>
  <fris:personOrganisations/>
  <fris:scienceDomains/>
  <fris:physicalAddresses/>
  <fris:electronicAddresses/>
  <fris:classifications/>
  <fris:disciplines/>
  <fris:subjectAreas/>
</fris:person>
  <fris:dataProvider>UAntwerpen</fris:dataProvider>
  <fris:dataProviderId>03202/21098/2003-10-
01T00:00:00.000Z</fris:dataProviderId>
  </fris:assignment>
</fris:participant>
  <fris:participant id="84561546">
    <fris:associationType id="4016" schemeId="Written
Output Person Participant Role"
schemeIdentifier="WO_PERSON_PARTICIPANT_ROLE" term="Author"/>

```

```

    <fris:person uuid="c60c975e-c89f-41a4-a421-
5f22365c6b07">
        <fris:external>true</fris:external>
        <fris:hidden>>false</fris:hidden>
        <fris:dataProvider>UAntwerpen</fris:dataProvider>

<fris:dataProviderId>c:irua:81948/5</fris:dataProviderId>
    <fris:sources/>
    <fris:aliases/>
    <fris:name>
        <fris:firstName>A.</fris:firstName>
        <fris:lastName>Scheen</fris:lastName>
    </fris:name>
    <fris:nameVariants/>
    <fris:relatedPersons/>
    <fris:personOrganisations/>
    <fris:scienceDomains/>
    <fris:physicalAddresses/>
    <fris:electronicAddresses/>
    <fris:classifications/>
    <fris:disciplines/>
    <fris:subjectAreas/>
    </fris:person>
    </fris:participant>
</fris:participants>
<fris:relatedResearchOutputs/>
<fris:researchOutputProjects/>
<fris:researchOutputType id="4065" schemeId="Research
Output Taxonomy Type" schemeIdentifier="RESEARCH_OUTPUT_TYPE"
term="Journal Article"/>
    <fris:subjectAreas/>
    <fris:keywords/>
    <fris:researchAbstract id="84561539">
    <fris:texts>
        <fris:text locale="en"><![CDATA[Background and
Objective: Patients with type 2 diabetes mellitus have a high risk of
developing cardiovascular (CV) disease. The clinical benefit of use of
statins in patients with type 2 diabetes has been demonstrated in several
randomized, controlled trials, including the CARDS clinical trial. Based
on the clinical CARDS data, the favourable cost effectiveness of
atorvastatin 10 mg in patients with type 2 diabetes has been demonstrated
in countries such as the UK and France. This study aimed to estimate the
cost effectiveness in the Belgian setting of atorvastatin 10 mg compared
with no treatment for the primary prevention of CV events in type 2
diabetes patients without a history of CV disease. Methods: A Markov
model with 1-year cycles was developed to simulate the CV event and death
risk according to the therapeutic approach initiated. The transition
probabilities for CV events in the &#39;no statin treatment&#39; group
were derived from the risk equations reported from the large UKPDS. Risk
reductions from the CARDS clinical trial were used to adjust these CV
event probabilities in the atorvastatin 10 mg treatment group. The
characteristics of type 2 diabetes patients without a CV history were
derived from the Belgian OCAPI survey. The public healthcare payers&#39;
perspective was taken into account for costing. The direct medical costs
of CV events were based on the Public Health Authorities&#39; hospital
database for acute care costs and on the literature for the follow-up
costs. The impact on the reimbursement system of generic entry to the
market was considered in the drug cost. Costs were valued as at year
2009; costs and outcomes were discounted at 3% and 1.5%, respectively.

```

Results: Based on a 5-year time horizon, atorvastatin was demonstrated to be cost effective with an incremental cost/quality-adjusted life-year (QALY) of [Euro sign]16 681. Over a lifetime horizon (25 years), atorvastatin was demonstrated to be a cost-saving therapeutic intervention. At a threshold of [Euro sign]30 000/QALY, atorvastatin had a 98.8% probability of being cost effective. Conclusion: Compared with 'no treatment'; use of atorvastatin 10 mg as a primary prevention intervention in Belgian type 2 diabetes patients not only improves CV outcomes, but also appears to be cost saving over a lifetime horizon.]]</fris:text>

```

    </fris:texts>
  </fris:researchAbstract>
  <fris:originalLanguage id="3451" schemeId="ISO 639-1:2002
Language Code" schemeIdentifier="LANGUAGE" term="en"/>
  <fris:events/>
  <fris:journal uuid="5913191c-6d2a-4c81-83bb-7e13dccd7fdc">
    <fris:hidden>false</fris:hidden>
    <fris:dataProvider>orbi</fris:dataProvider>

<fris:dataProviderId>oai_journal:orbi.ulg.ac.be:27247</fris:dataProviderId>

    <fris:sources/>
    <fris:aliases/>
    <fris:title>Clinical Drug Investigation</fris:title>
    <fris:issn>1173-2563</fris:issn>
    <fris:asjcCodes/>
    <fris:ecoomTypes>
      <fris:ecoomType id="76648433" schemeId="ECOOM Type"
schemeIdentifier="ECOOM_TYPE" term="R4"/>
    </fris:ecoomTypes>
    <fris:metrics/>
  </fris:journal>
  <fris:journalVolume>30</fris:journalVolume>
  <fris:pages>133 - 142</fris:pages>
  <fris:publicationDate>2010-01-01</fris:publicationDate>
  <fris:publicationYear>2010</fris:publicationYear>
</fris:journalContribution>
</queryResult>
</fris:getResearchOutputResponse>
</soap:Body>
</soap:Envelope>

```

8 Journal Service

The FRIS R3 Journal service is responsible for exposing journal data from the FRIS system.

The Journal service is not publicly accessible and usage of the Journal master data requires approval by EWI since it includes licensed and copyrighted information from a number of sources. All interaction with the journal service must be over https and all requests are authenticated through a published WS Security Policy³. See chapter 2.3 for details on the service security constraints.

We have a publicly accessible version of the journal service that serves a limited journal representation.

The FRIS journal service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

As the journal service will deliver a FRIS XML representation the response format will be documented in this chapter.

As with the other entity centric web services there are two versions of the journal service, but since the actual journal representation is identical the only difference is the format of the helper method response documents.

8.1 Current service status

The journal service is currently available at:

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfrizr3.researchportal.be/ws/JournalService?wsdl
Staging	FRIS XML	https://stfrizr3.researchportal.be/ws/JournalServiceFRIS?wsdl
Production	CERIF	https://frizr3.researchportal.be/ws/JournalService?wsdl
Production	FRIS XML	https://frizr3.researchportal.be/ws/JournalServiceFRIS?wsdl

The public journal service is available at:

Environment	Response	Endpoint WSDL
Staging	FRIS XML	https://stfrizr3.researchportal.be/ws/JournalServicePublicService?wsdl
Production	FRIS XML	https://frizr3.researchportal.be/ws/JournalServicePublicService?wsdl

8.2 Service operations

Operation	Input	Output
getJournals	getJournals	getJournalsResponse
getOrderings	getOrderings	getOrderings
getDataProviders	getDataProviders	getDataProvidersResponse
getAuthorityClassifications	getAuthorityClassifications	getAuthorityClassificationsResponse
getAsjcClassifications	getAsjcClassifications	getAsjcClassificationsResponse
getCountryClassifications	getCountryClassifications	getCountryClassificationsResponse

The formal format specification is published as a part of the WSDL.

³ [WS Policy](#), [WS Security Policy](#)

All other operations than "getJournals" will not be described in detail since they're trivial helper operations that do not accept any parameters.

8.2.1 Operation: getJournals

The getJournals operation retrieves journals in the FRIS data set based on the supplied request criteria. The following tables will detail the parameters of the request document. A journal must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Not applicable for any journal ordering.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search.search	string	Free text search, accepts Lucene query syntax. Will search in journal title, alternate title, ISSN, electronic ISSN, publisher, data provider id and sources.
search.locale	locale	Optional locale. Not applicable since journal has no localised index properties.
state	enumeration	Not applicable in the web service interface.
uuids	identifierList	A list of FRIS Journal UUID values. Can be negated.
sources	sourceList	A number of authority/identifier limits against the entity external identifiers. The getAuthorityClassifications operation provides the valid authority values.
title	textSearchCriteria	Free text search in the Journal title and alternate title property.
issn	identifierList	A list of ISSN values, will be matched against ISSN and electronic ISSN property. Can be negated.
openAccess	classificationCriteria	One or more open access terms. Scheme id is optional.

		The <code>getOpenAccessClassifications</code> operation provides the valid open access types.
peerReviewed	classificationCriteria	One or more referee type terms. Scheme id is optional. The <code>getPeerReviewedClassifications</code> operation provides the valid peer review types.
asjc	classificationCriteria	One or more ASJC terms. Scheme id is optional. Can be hierarchical. The <code>getAsjcClassifications</code> operation provides the valid discipline values.
publicationCountry	classificationCriteria	One or more country terms. Scheme id is optional. The <code>getCountryClassifications</code> operation provides the valid country values.
keyword	textSearchCriteria	Free text search in the Journal keywords property.

The query response document will contain the following elements:

Element path	Type	Notes
<code>queryResult/totalResults</code>	int	The total number of matching entities.
<code>queryResult/pageSize</code>	int	The requested page size.
<code>queryResult/pageNumber</code>	int	The requested zero-indexed page number.
<code>queryResult/journals</code>	Journal	The requested window of matching entities represented as FRIS Journal XML elements. See subsequent chapter for detailed information.

8.2.2 GetJournals response

Since the CERIF standard does not support a comprehensive journal representation we've chosen to return an XML representation that is based directly on the internal FRIS Journal model. The XSD is available as part of the Journal service WSDL.

An example of the full non-public format:

```
<journal xmlns="http://fris.ewi.be/" uuid="1c4adf33-c223-47fd-989e-
fb32d556f2ec">
  <state>ACTIVE</state>
  <external>>false</external>
  <created>2014-01-27T12:19:59.320+01:00</created>
  <lastModified>2014-07-26T12:19:59.320+02:00</lastModified>
  <dataProvider>orbi</dataProvider>
  <dataProviderId>journal ORBI id</dataProviderId>
  <sources>
    <source authority="scopus" type="IDENTIFIER">journal Scopus
id</source>
    <source authority="doaj" type="IDENTIFIER">journal DOAJ
id</source>
```

```

</sources>
<aliases>
  <alias>alias</alias>
</aliases>
<title>journal title</title>
<alternateTitle>journal alternate title</alternateTitle>
<issn>6619-8831</issn>
<electronicIssn>7109-3641</electronicIssn>
<journalHomepage>http://journal-homepage.com</journalHomepage>
<publisher>publisher name</publisher>
<publicationLocation>Brussels</publicationLocation>
<publicationCountry schemeId="iso3166-1" term="be"/>
<startYear>1994</startYear>
<endYear>2010</endYear>
<sherpaRoMEO>
  <color schemeId="sherpa-romeo-color" term="green"/>
  <preprintArchiving>pre-print archiving
information</preprintArchiving>
  <preprintRestrictions>pre-print restrictions
information</preprintRestrictions>
  <postprintArchiving>post-print archiving
information</postprintArchiving>
  <postprintRestrictions>post-print restrictions
information</postprintRestrictions>
  <postprintConditions>post-print conditions
information</postprintConditions>
  <postprintCopyright>post-print copyright
information</postprintCopyright>
</sherpaRoMEO>
<peerReviewed schemeId="referee-type" term="peer-reviewed" />
<openAccess schemeId="open-access-type" term="not-open-access" />
<creativecommonsLicense schemeId="creative-commons" term="CC-BY"/>
<asjcCodes>
  <asjc schemeId="Scopus ASJC Code" term="1102"/>
</asjcCodes>
<localized-keywords>
  <keywords locale="nl_BE">
    <keyword>good</keyword>
    <keyword>write</keyword>
  </keywords>
  <keywords locale="en_GB">
    <keyword>code</keyword>
    <keyword>numbers</keyword>
  </keywords>
</localized-keywords>
<metrics>
  <decimal-metric type="snip" year="2014">
    <value>0.000</value>
  </decimal-metric>
  <decimal-metric type="ipp" year="2014">
    <value>0.000</value>
  </decimal-metric>
  <decimal-metric type="sjr" year="2014">
    <value>0.100</value>
  </decimal-metric>
  <integer-metric type="vabb-code" year="2014">
    <value>1</value>
  </integer-metric>
</metrics>

```

</journal>

Element path	Type	Notes
@uuid	string	The FRIS UUID of the journal.
state	enumeration	Will always be active for the journals returned from the journal service.
external	boolean	Will always be true for journals returned from the journal service.
created	dateTime	The date and time the entry was created in the FRIS system.
lastModified	dateTime	The date and time the entry was last updated in the FRIS system.
dataProvider	string	The data-provider responsible for this entry.
dataProviderId	string	The data-provider identifier for this entry.
sources	sequence	A number of secondary sources for this entry (the primary source being the dataProvider/dataProviderId).
sources/source/@authority	string	The authority of this source (federated identifier).
sources/source/@type	enumeration	The type of this source, may be "IDENTIFIER", "URL" or other.
sources/source	string	The identifier of this source.
aliases/alias	sequence	Any number of FRIS journal UUID's that can be considered aliases of this entry.
title	string	The official title of the journal.
alternateTitle	string	An abbreviated or alternate title of the journal.
issn	string	The ISSN of the journal.
electronicIssn	string	The electronic ISSN of the journal if applicable.
journalHomepage	string	The URL to the journal homepage if applicable.
publisher	string	The name of the publisher
publicationLocation	string	The location this journal is published.
publicationCountry	classification	The country this journal is published.
startYear	int	The year that this journal started publishing, if available.
endYear	int	The year that this journal stopped publishing, if available.
sherpaRoMEO		The Sherpa RoMEO information of this journal.
//color	classification	The Sherpa RoMEO color.
//preprintArchiving	string	The pre-print archiving information for this journal.
//preprintRestrictions	string	The pre-print restrictions information for this journal.
//postprintArchiving	string	The post-print archiving information for this journal.

//postprintRestrictions	string	The post-print restrictions information for this journal.
//postprintConditions	string	The post-print conditions information for this journal.
//postprintCopyright	string	The post-print copyright information for this journal.
peerReviewed	classification	Peer reviewed type.
openAccess	classification	Open access type.
creativecommonsLicense	classification	The Creative Commons license if applicable.
asjcCodes/asjc	classification	A number of Scopus ASJC codes describing the subject areas of the journal.
localized-keywords/keywords/keyword	string	A number of free keywords describing the subject areas of the journal.
localized-keywords/keywords/@locale	string	The locale for which the keywords are applicable.
metrics	decimal-metric or integer-metric	Any number of metric values, value is either a decimal or integer
metric/@type	classification	The metric type classification term for this metric value
metric/@year	int	The year this metric is applicable to

9 Classification Scheme Service

The FRIS R3 Classification Scheme service is responsible for exposing classification data from the FRIS system. There are two versions of the Classification Scheme service, the difference being what format the response is delivered in, either CERIF XML or FRIS XML.

The FRIS Classification Scheme service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

9.1 Current service status

The classification scheme service is currently feature complete and deployed to the staging environment.

Environment	Response	Endpoint WSDL
Staging	CERIF	https://stfrir3.researchportal.be/ws/ClassificationSchemeService?wsdl
Staging	FRIS XML	https://stfrir3.researchportal.be/ws/ClassificationSchemeServiceFRIS?wsdl
Production	CERIF	https://frir3.researchportal.be/ws/ClassificationSchemeService?wsdl
Production	FRIS XML	https://frir3.researchportal.be/ws/ClassificationSchemeServiceFRIS?wsdl

9.2 Service operations

Operation	Input	Output
getClassificationSchemes	getClassificationSchemes	getClassificationSchemesResponse
getAllClassificationSchemes	getAllClassificationSchemes	getAllClassificationSchemesResponse
getOrderings	getOrderings	getOrderingsResponse

The formal format specification is published as a part of the WSDL.

In the subsequent chapters we will only detail the getClassificationSchemes operation since the other two are trivial.

9.2.1 Operation: getClassificationSchemes FRIS XML response documentation

The FRIS getClassificationSchemes operation retrieves classification scheme information based on the supplied request criteria. The following tables will detail the parameters of the request document. A classification scheme must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id.

		The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Not applicable for any classification scheme ordering.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
schemeld	string	Any classification scheme with the specified schemeld.
term	string	Any classification scheme that contains a classification with the specified term.

The query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.
queryResult/classificationScheme	ClassificationScheme	The requested window of matching entities represented as FRIS Classification Scheme XML elements. See subsequent chapter for detailed information.

The FRIS Classification Scheme XSD is available as part of the Classification Scheme service WSDL. An example of the format:

```
<classificationScheme targetNamespace="http://fris.ewi.be/">
  <description>
    <texts>
      <text locale="en">Scheme description text</text>
      <text locale="nl">Scheme description text</text>
    </texts>
  </description>
  <schemeId>External scheme identifier</schemeId>
  <containedClassifications>
    <classification term="parent term">
      <description>
        <texts>
          <text locale="nl">Parent description text</text>
          <text locale="en">Parent description text</text>
        </texts>
      </description>
    </classification>
    <classification term="child term">
      <description>
        <texts>
          <text locale="nl">Child description text</text>
          <text locale="en">Child description text</text>
        </texts>
      </description>
    </classification>
  </containedClassifications>
</classificationScheme>
```

```

        </texts>
    </description>
    <parent>parent term</parent>
</classification>
</containedClassifications>
</classificationScheme>

```

Element path	Type	Notes
schemeld	string	The external scheme identifier of the classification scheme.
description/texts/text/@locale	string	The locale for which the classification scheme description text is applicable.
description/texts/text	string	The classification scheme description text.
containedClassifications		The contained classifications for the classification scheme.
containedClassifications/classification/@term	string	The contained classification term.
containedClassifications/classification/parent	string	The contained classification parent term.
containedClassifications/classification/description/texts/text/@locale	string	The locale for which the contained classification description text is applicable.
containedClassifications/classification/description/texts/text/	string	The contained classification description text.

9.2.2 Operation: getClassificationSchemes CERIF XML response documentation

The CERIF getClassificationSchemes operation retrieves classification scheme information based on the supplied request criteria. The following tables will detail the parameters of the request document. A classification scheme must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale.

		Not applicable for any classification scheme ordering.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
schemeld	string	Any classification scheme with the specified schemeld.
term	string	Any classification scheme that contains a classification with the specified term.

The query response document will contain the following elements:

Element path	Type	Notes
queryResult/totalResults	int	The total number of matching entities.
queryResult/pageSize	int	The requested page size.
queryResult/pageNumber	int	The requested zero-indexed page number.
queryResult/CERIF	CERIF	The requested window of matching entities represented as CERIF cfClassScheme XML elements.

The FRIS Classification Scheme XSD is available as part of the Classification Scheme service WSDL. An example of the format:

```
<CERIF release="1.5" date="2015-07-09+02:00" sourceDatabase="fris"
targetNamespace="urn:xmlns:org:eurocris:cerif-1.5-1-FRIS">
  <cfClassScheme>
    <cfClassSchemeId>External scheme identifier</cfClassSchemeId>
    <cfDescr cfTrans="o" cfLangCode="en">Scheme description
text</cfDescr>
    <cfDescr cfTrans="o" cfLangCode="nl">Scheme description
text</cfDescr>
    <cfClass>
      <cfClassId>parent term</cfClassId>
      <cfDescr cfTrans="o" cfLangCode="nl">Contained parent
classification description text</cfDescr>
      <cfDescr cfTrans="o" cfLangCode="en">Contained parent
classification description text</cfDescr>
    </cfClass>
    <cfClass>
      <cfClassId>child term</cfClassId>
      <cfDescr cfTrans="o" cfLangCode="nl">Contained child
classification description text</cfDescr>
      <cfDescr cfTrans="o" cfLangCode="en">Contained child
classification description text</cfDescr>
    <cfClass_Class>
      <cfClassId2>parent term</cfClassId2>
      <cfClassSchemeId2>External scheme
identifier</cfClassSchemeId2>
      <cfClassId1>child term</cfClassId1>
      <cfClassSchemeId1>External scheme
identifier</cfClassSchemeId1>
      <cfClassId>broader</cfClassId>

```



```

        <cfClassSchemeId>iso25964-1</cfClassSchemeId>
    </cfClass_Class>
</cfClass>
</cfClassScheme>
</CERIF>

```

Element path	Type	Notes
cfClassSchemeId	string	The schemeld of the classification scheme.
cfDescr/@cfLangCode	string	The locale for which the classification scheme description text is applicable.
cfDescr	string	The classification scheme description text.
cfClass		The contained classifications for the classification scheme.
cfClass/cfClassId	string	The contained classification term.
cfClass/cfDescr/@cfLangcode	string	The locale for which the contained classification description text is applicable.
cfClass/cfDescr/	string	The contained classification description text.
cfClass/cfClass_Class/cfClassId2	string	The contained classification parent term.

10 Funding code service

The FRIS R3 Funding Code service is responsible for exposing funding code data from the FRIS system. There is only one version of the funding code service delivering FRIS XML.

The FRIS Funding code service supports the FastInfoSet XML protocol and it is strongly recommended that this be used due to its superior performance characteristics.

10.1 Current service status

The funding code service is currently feature complete and deployed to the staging and production environment.

Environment	Response	Endpoint WSDL
Staging	FRIS XML	https://stfriser3.researchportal.be/ws/FundingCodeServiceFRIS?wsdl
Production	FRIS XML	https://friser3.researchportal.be/ws/FundingCodeServiceFRIS?wsdl

10.2 Service operations

Operation	Input	Output
getFundingCodes	getFundingCodes	getFundingCodesResponse
getOrderings	getOrderings	getOrderingsResponse

The formal format specification is published as a part of the WSDL.

10.2.1 Operation: getFundingCodes FRIS XML request documentation

The FRIS getClassificationSchemes operation retrieves classification scheme information based on the supplied request criteria. The following tables will detail the parameters of the request document. A classification scheme must satisfy all specified limits to be returned, though if a single limit supports multiple values any match will satisfy that particular limit.

Element path	Type	Notes
window/pageSize	int	The number of results returned, defaults to 10.
window/pageNumber	int	The zero-indexed page number, defaults to 0.
window/orderings/order	order	A number of orderings.
window/orderings/order/id	string	The ordering id. The getOrderings operation provides the valid order id values.
window/orderings/order/locale	locale	The ordering locale. Not applicable for any funding code ordering.
window/orderings/order/direction	enumeration	The order direction, either "ASCENDING" or "DESCENDING", defaults to "ASCENDING".
search		Free text search, accepts Lucene query syntax. Will search in funding code,

		acronym, description, definition and example.
codes/identifier	string	A list of funding codes. Can be negated.
associatedOrganisations/identifier	string	A list of associated FRIS Organisation UUID's. Can be negated.

The query response document will contain the following elements:

Element path	Type	Notes
@total	int	The total number of matching entities.
@pageSize	int	The requested page size.
@pageNumber	int	The requested zero-indexed page number.
fundingCode	FundingCode	The requested window of matching entities represented as FRIS Funding Code XML elements. See subsequent chapter for detailed information.

The FRIS Funding Code XSD is available as part of the Funding Code service WSDL. An example of the format:

```
<fris:fundingCode code="114578">
  <fris:description id="73023560">
    <fris:texts>
      <fris:text locale="en">PhD Fellowship</fris:text>
      <fris:text locale="nl">Aspirant</fris:text>
    </fris:texts>
  </fris:description>
  <fris:definition>The PhD fellowship is a grant (*) subject to the
National Social Security system by virtue of Art. 15, paragraph 2 of the
Royal Decree of 28 November 1969, exempt from income tax pursuant to Art.
90, paragraph 2 of the Income Tax Code 1992 (**) with a duration of two
years,
renewable once for two years. The aim of the PhD fellowship is to
carry out a research project under the direct supervision of an academic
superivsor with the aim to obtain a PhD degree. Link
</fris:definition>
  <fris:example>SCK-CEN, VITO, L'Oreal-Unesco</fris:example>
  <fris:deprecatedDate>9999-12-02</fris:deprecatedDate>
  <fris:allowedValue>true</fris:allowedValue>
  <fris:moneyStreamCode id="73023555" schemeId="Funding Money Stream"
term="Second Money Stream"/>
  <fris:fundingOrganisationAssociations>
    <fris:fundingOrganisationAssociation id="73023565">
      <fris:associationType id="73021130" schemeId="Funding
Organisation Role" term="Legal Party"/>
      <fris:organisation uuid="58f0d6d9-48e6-4cf6-a1e5-
69a57c3fb0a1">
        <fris:dataProvider>fris</fris:dataProvider>
        <fris:dataProviderId>Research Foundation
Flanders</fris:dataProviderId>
        <fris:name>
          <fris:texts>
            <fris:text locale="nl">Research Foundation
```

```
Flanders</fris:text>
      <fris:text locale="en">Research Foundation
Flanders</fris:text>
      </fris:texts>
      </fris:name>
      </fris:organisation>
      </fris:fundingOrganisationAssociation>
</fris:fundingOrganisationAssociations>
<fris:policyLevels>
  <fris:policyLevel id="73023557" schemeId="Funding Policy Level"
term="Flemish"/>
</fris:policyLevels>
<fris:researchTypes>
  <fris:researchType id="73020823" schemeId="Funding Research Type"
term="Directed Research"/>
</fris:researchTypes>
</fris:fundingCode>
```