

1 Federated Search

A key technology to offer transparent search to Natural Europe metadata repositories is the **ARIADNE Federated Search Service**. This service relies on Simple Query Interface (SQI) that is designed to support many types of search technologies (Ternier, Massart et al, 2008).

The basic requirements captured by SQI are the following:

- SQI is neutral in terms of results format and query languages. The repositories connecting via SQI can be of highly heterogeneous nature: therefore, SQI makes no assumptions about the query language or results format.
- SQI supports Synchronous and Asynchronous Queries in order to allow heterogeneous networks to connect to each other. In the *synchronous* scenario, the target returns the query results to the source. Results retrieval is therefore initiated by the source through the submission of the query and through other methods allowing the source to access the query results.

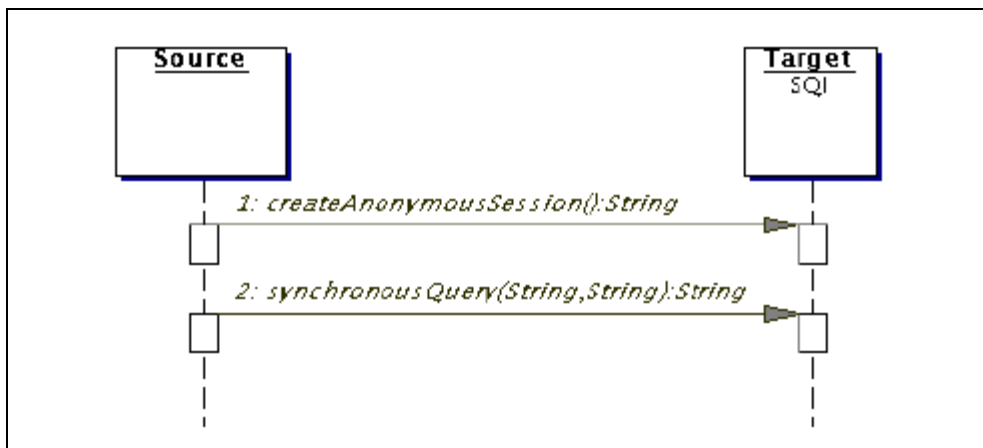


Figure 2.12: Synchronous Query Mode used for querying a single Repository

Once a session has been established between the source and the target, the query interface at the target awaits the submission of a search request. A number of methods allow for the configuration of the interface at the target. According to the SQI specification the following query parameters can be set:

- the query language (`setQueryLanguage`),
- the number of results returned within one results-set (`setResultsSetSize`),
- the maximum number of query results1 (`setMaxQueryResults`),
- the maximum duration of query execution (`setMaxDuration`),
- and the results format (`setResultsFormat`)

The provided bindings that implement the Simple Query Interface (SQI) support both SOAP and REST protocols. Some guidelines for using the search service are presented below.

1.1 SOAP service

Regarding the SOAP binding, the following two addresses are required in order to use the service:

- **SessionManagement:**

[http://{SERVER_NAME}
}/{REPOSITORY_NAME}/services/SqiSessionManagement?wsdl](http://{SERVER_NAME}/{REPOSITORY_NAME}/services/SqiSessionManagement?wsdl)

Example:

<http://83.212.96.219:8080/cultural/services/SqiSessionManagement?wsdl>

- **Target:**

[http://{SERVER_NAME}
}/{REPOSITORY_NAME}/services/SqiTarget](http://{SERVER_NAME}/{REPOSITORY_NAME}/services/SqiTarget)

Example: <http://83.212.96.219:8080/cultural/services/SqiTarget>

The main steps for using the service are:

1. Obtain an anonymous session by calling the session management service method: *createAnonymousSession*. The obtained token will be used in the following method calls.
2. Specify the results format required (e.g. "lom") with this method from the target service: *setResultsFormat*.
3. State and execute your query to the target with the method: *synchronousQuery*. By default the result set size will be 12 and the query language will be PLQL Level 1 that mixes exact and approximate search criteria (Ternier, Massart et al. 2008).

1.2 REST service

Regarding the REST binding, the following address and parameters are required to call the service:

Target: [http://{SERVER_NAME}
}/{REPOSITORY_NAME}/api/SqiTarget](http://{SERVER_NAME}/{REPOSITORY_NAME}/api/SqiTarget)

Parameters:

- query: expressed as "plql level 1"
- size: the cardinality of the result set
- start: a number indicating the starting point of results
- lang: the query language, e.g. plql
- format: the metadata format supported

By default the result set size is 12 and the query language will be PLQL level 1

Example:

<http://83.212.96.219:8080/cultural/api/sqitarget?query=sea&start=1&size=2&lang=plql1&format=lom>

References

Ternier, S., Massart, D., Campi, A., Guinea, S., Ceri, S., Duval, E.: Interoperability for searching learning object repositories, the prolearn query language. D-Lib Magazine 14(1/2) (January/February 2008)