



ARIADNE

Repository Services

REST Interface

Version 0.4
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History

Version	Date	Changes
0.1	27.04.2010	Initial incomplete document by Frans Van Assche
0.2	30.04.2010	Update by Frans Van Assche after discussion with Gonzalo Parra and Bram Vandeputte
0.3	06.05.2010	Update by Frans Van Assche adding a URL query string binding and provides an example resultset
0.4	19.05.2010	Update by Frans Van Assche small adjustments

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Introduction

This document describes the REST interface to the repository service. Figure 1.1 depicts the overall architecture. A web app would interface with the ARIADNE Javascript Library which uses AJAX. This Library in turn interfaces to the Repository services. MOODLE uses the repository services directly. Later this architecture can be extended for widgets according to certain widget protocols (W3C, Yahoo). In iTEC (or perhaps already in the ROLE project) this will be explored. This document describes interface number 2 from figure 1.1. The interface is intended to work for:

- Stateful as well as stateless repository services. The repository service may cache or not any result set.
- Synchronous or asynchronous. This depends on how the api is used. In AJAX one has the choice.
- The interface abstracts from any session management or credentials, but there is no reason why this can not be implemented on top of it. For example in a similar way as the SlideShare api.

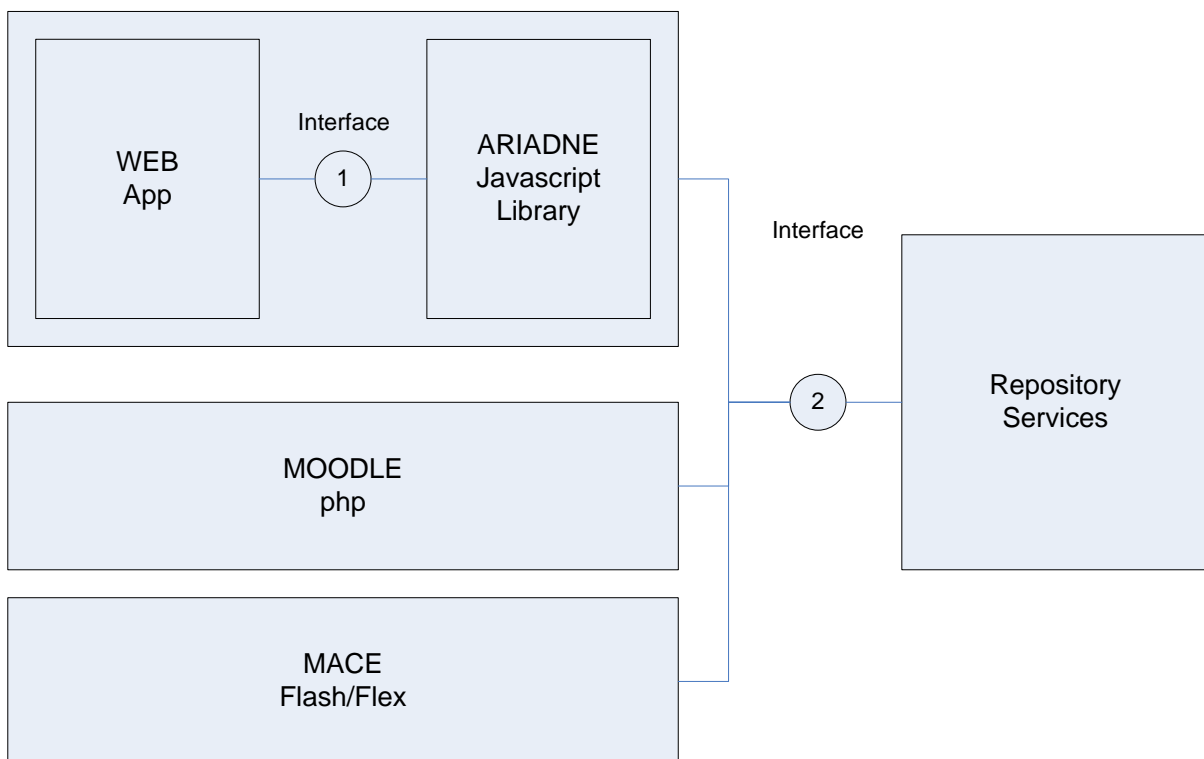


Figure 1.1: The ARIADNE Finder APIs

Query

Table 2.1 gives the overall conceptual model.

ARIADNE QUERY for REST INTERFACE

Nr	Name	Description	Multiplicity	Order	Value space	Data type	Note	Example
1	Clause	A set of clauses constituting the query	0..* (10)	Unordered			This is a container. The set of clauses will be interpreted as specifying a conjunction (i.e. a Boolean AND)	{"language":"VSQL","expression":"hydroelectric power plant"}
1.1	Language	The formal language used in this clause.	1	Unspecified	VSQL anyOfFacet identifier	VocabularyTerm	VSQL is the very simple query language. It is a subset of PLQL 0 but where an 'and' is assumed between the words.	"VSQL" "anyOfFacet" "alOff" "anyOff" "noneOff"
1.2	Expression	The string that needs to be parsed according to the language given in 1.1	1	Unspecified		CharacterString (smallest permitted maximum: 100 char)		"hydroelectric power plant"
2	Facet	The facets that should be included in the result	0..* (10)	Unordered	collection context format language Irt provider	VocabularyTerm		["language","format"]
3	Offset	Offset for the result list	0..1	Unspecified		Positive integer	The default is 0	121
4	Size	Size of the result list	0..1	Unspecified		Positive integer	The default is 0	12
5	IdListOffset	Offset for the identifier list	0..1	Unspecified		Positive integer	The default is 0. The result will contain a list of identifiers that can be used to obtain a new list of results	61
6	IdListSize	Size the identifier list	0..1	Unspecified		Positive integer	The default is 0	240
7	UiLanguage	This element specifies the language of the user interface. This is used for example for providing the facet value names in the correct language.	0..1	Unspecified	1. use a 2 letter code from ISO 639-1. 2. use a 3 letter code from ISO 639-2 only if there isn't 2 letter code. 3. Add the ISO Country code [ISO3166] when necessary, separated by a dash. 4. use IANA registered language tags, prefixed with i-	CharacterString (smallest permitted maximum: 100 char)	This element corresponds with the Dublin Core element DC.Language.	"fr", "en-GB"

					5. use SIL Ethnologue 3-letter codes, prefixed with x-E- 6. make up a name for token languages prefixed with x-T-7. make up a name, prepended with x- for user defined languages. 8. 'x-none' is used when appropriate.			
8	PreferredLanguage	The languages the user understand. This is used for determining in which language the result(s) should be shown.	0..* (10)	Ordered	See 7	See 7	See 7	"fr", "en-GB"
9	Sortkey		0..1	Unspecified	popularity rating relevance	VocabularyTerm		"popularity"
10	RankFactor	This element provides input for personalised ranking. For instance one might favour LO coming from some providers, or LOs in Spanish.	0..* (10)	Unordered			This is a container	
10.1	Condition	Condition that when met will cause the ranking to be influenced by the number in 10.2	1	Unspecified			This is a container	"language": "es"
10.1.1	Language	Condition language	1	Unspecified				"language"
10.1.2	Expression	Condition expression	1	Unspecified				"es"
10.2	Number	Number to add to the ranking	1	Unspecified			Note one can also provide a negative number, disavouring a result when a condition is met	
11	ResultInfo	This element holds the name of the information sets in the result list	0..1	Unspecified	detail display count	VocabularyTerm	'display' could for example indicate a limited set of attributes to be displayed, while 'detail' could give the full LOM; 'count' only gives the total number of results	"display"

12	ResultFormat	This element holds the name of one of the standard formats for the results.	0..1	Unspecified	json xml	VocabularyTerm		"json"
----	--------------	---	------	-------------	-------------	----------------	--	--------

Example Jason Binding

Table 2.2 gives an example query in JSON syntax which can be used in the REST interface.

```
{
  "clause": [
    {
      "language": "VSQL"
      "expression": "hydroelectric power plant",
    },
    {
      "language": "anyOfFacet"
      "expression": "language:de|en",
    },
    {
      "language": "anyOfFacet"
      "expression": "lrt:simulation",
    }
  ],
  "facets": [
    "language",
    "format",
    "context",
    "lrt"
  ],
  "idListOffset": 60,
  "idListSize": 240,
  "preferredLanguages": [],
  "resultFormat": "json",
  "resultInfo": "display",
  "resultListOffset": 120,
  "resultListSize": 12,
  "resultSortkey": "",
  "uiLanguage": "en"
}
```

Figure 2.2: Example standard search query

When passing parameters over http the json string is put as a query parameter 'json=...'. In addition the engine that should execute it must be given. For example: 'engine=LuceneSolr'. A full example is given in Figure 2.3.

```
json={"clause":[{"language":"VSQL","expression":"university"}, {"language":"anyOfFacet","expression":"language:de|es"}, {"language":"anyOfFacet","expression":"lrt:simulation"}],"uiLanguage":"en","preferredLanguages":[],"facets":["language","format","context","lrt"],"resultInfo":"display","resultListOffset":0,"resultListSize":12,"idListOffset":0,"idListSize":12,"resultFormat":"json","resultSortkey":""}&engine=InMemory
```

Figure 2.3: Example standard search query: full query string

URL Binding

clause	- Search clauses. Each clause exists of a key separated by a colon from one or more values. The key may be the indication of a language like 'vsq1' or it may be an
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	<p>attribute like 'context'. Subelements of the key are separated by a colon. If the value is a disjunction then the elements of the disjunction are separated by .</p> <p>Example: clause=vsq1:magic+land&clause=anyOfFacet:language:en fr nl&clause= anyOfFacet:lrt:image</p>
info	<p>- What metadata to return. Multiple instances are allowed</p> <p>Example: info=elementset:display&info=facet:language&info=facet:lrt&info=facet:context Default: count</p>
format	<p>- Format of the results. One value: json, xml Default: xml</p>
sortkey	<p>- Sort key of the results. One value: natural, popularity, rating - Default: natural</p>
rankfactor	<p>- A factor that will influence the ranking. Example: rankfactor=language:es:add:10</p>
uilanguage	<p>- User interface language One value</p>
preflanguages	<p>- Preferred languages. Multiple values are allowed separated by </p>
offset	<p>- Use this value to continue paging (return by query). - Default: 0</p>
size	<p>- Total number of results to return. No more than 50 allowed. Default: 10</p>
idlistoffset	<p>- Use this value to continue paging (return by query). - Default: 0</p>
idlistsize	<p>- Total number of identifiers to return. No more than 500 allowed. Default: the value of the limit attribute</p>
engine	<p>- What engine to use. Default: LuceneSolr ?</p>

Result

A full conceptual model is not yet elaborated but underneath you find the JSON result example currently implemented.

```

{"result": {
  "error": "",
  "errorMessage": "",
  "facets": [
    {
      "field": "language",
      "numbers": [
        {
          "count": 2,
          "val": "de"
        },
        {
          "count": 638,
          "val": "en"
        }
      ]
    }
  ]
}

```

```

    {
      "count": 2,
      "val": "es"
    },
    {
      "count": 9,
      "val": "fr"
    },
    {
      "count": 5,
      "val": "it"
    }
  ]
},
{
  "field": "format",
  "numbers": [
    {
      "count": 1,
      "val": "application/x-toolbook"
    },
    {
      "count": 16,
      "val": "gif/jpeg"
    },
    {
      "count": 343,
      "val": "html"
    },
    {
      "count": 148,
      "val": "text/html"
    }
  ]
},
{
  "field": "context",
  "numbers": [
    {
      "count": 4,
      "val": "continuous formation"
    },
    {
      "count": 46,
      "val": "higher education"
    },
    {
      "count": 4,
      "val": "postgrade"
    },
    {
      "count": 4,
      "val": "professional formation"
    },
    {
      "count": 4,
      "val": "technical school"
    },
    {
      "count": 4,
      "val": "university"
    },
    {
      "count": 4,

```

```

        "val": "vocational training"
    }
]
},
{
    "field": "lrt",
    "numbers": [
        {
            "count": 3,
            "val": "exam"
        },
        {
            "count": 1,
            "val": "excercise"
        },
        {
            "count": 18,
            "val": "figure"
        },
        {
            "count": 6,
            "val": "graph"
        },
        {
            "count": 37,
            "val": "narrative text"
        },
        {
            "count": 343,
            "val": "other"
        },
        {
            "count": 3,
            "val": "problem statement"
        },
        {
            "count": 6,
            "val": "questionnaire"
        },
        {
            "count": 6,
            "val": "self assesment"
        },
        {
            "count": 2,
            "val": "simulation"
        },
        {
            "count": 1,
            "val": "slide"
        },
        {
            "count": 1,
            "val": "table"
        },
        {
            "count": 88,
            "val": "web page"
        }
    ]
}
]
},
{idList": [
    1869,

```

```

1872,
1877,
1878,
1879,
1880,
1881,
1983,
2007,
2020,
2076,
2077
],
"metadata": [
  {
    "description": "Derrida points out four basic historical principles of
architecture which architects must deconstruct&#046;",
    "identifier": "oai:oaicat.ariadne.org:10053.lo",
    "keywords": "Deconstruction&#044;Deconstructivism",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=10053.lo",
    "title": "Derrida and the Basic Truths of Architecture"
  },
  {
    "description": "Sight is no longer architecture&#039;s priveleged
sense&#046; Man and his dimension are no longer its measure&#046;",
    "identifier": "oai:oaicat.ariadne.org:10056.lo",
    "keywords": "Deconstruction&#044;Deconstructivism&#044;
Visiocentrism&#044;Antropocentrism",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=10056.lo",
    "title": "Deconstruction of &quot;Visiocentrism&quot; and
&quot;Antropocentrism&quot;&#046;"
  },
  {
    "description": "The paragraph synthesis that which is meant by digital
architecture&#046;",
    "identifier": "oai:oaicat.ariadne.org:10062.lo",
    "keywords": "Deconstruction&#044; Deconstructivism&#044; Digital
architecture&#046;",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=10062.lo",
    "title": "Computer and Design Process"
  },
  {
    "description": "The paragraph defines the reason behind the differences
between the angularity of the deconstruction forms and the fluidity of the
digital architecture forms&#046;",
    "identifier": "oai:oaicat.ariadne.org:10064.lo",
    "keywords": "Deconstruction&#044; Deconstructivism&#044; Digital
architecture&#046;",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=10064.lo",
    "title": "Form in Deconstruction and Digital Architecture&#058; the
Differences"
  },
  {
    "description": "Digital architecture&#044; like deconstruction&#044;
opens to the zero degree of meaning of the architectural forms&#046;",
    "identifier": "oai:oaicat.ariadne.org:10065.lo",
    "keywords": "Deconstruction&#044; Deconstructivism&#044; Digital
architecture&#046;",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=10065.lo",
    "title": "Digital Architecture and the Form&#045;Meaning Relationship"
  }
]

```

```

    },
    {
      "description": "Paragraph explains how digital architecture tends to incorporate&#044; in a homogeneous whole&#044; the context&#039;s contrasting elements&#046;",
      "identifier": "oai:oaicat.ariadne.org:10066.lo",
      "keywords": "Deconstruction&#044; Deconstructivism&#044; Digital architecture&#044; Context",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=10066.lo",
      "title": "Digital Architecture and the Relationship with the Context"
    },
    {
      "description": "A paragraph explains why in digital architecture structure and ornament are often combined together&#046;",
      "identifier": "oai:oaicat.ariadne.org:10067.lo",
      "keywords": "Deconstruction&#044; Deconstructivism&#044; Digital architecture&#044; Decoration&#044;Structure",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=10067.lo",
      "title": "Digital Architecture and the Structure&#047;Ornament Dialectic Couple"
    },
    {
      "description": "The architecture in iron and glass of the of the XIX century and typologies&#046;",
      "identifier": "oai:oaicat.ariadne.org:11509.lo",
      "keywords": "iron&#044; glass&#044; structural material",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=11509.lo",
      "title": "The architecture in iron and glass of the XIX century"
    },
    {
      "description": "dECOI &#044; Ether &#047; l&#046; Case study&#046;",
      "identifier": "oai:oaicat.ariadne.org:11685.lo",
      "keywords": "evocative&#044; trigger&#044; design&#044; architecture&#044; dECOI",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=11685.lo",
      "title": "dECOI&#044; Ether&#047;l"
    },
    {
      "description": "This learning object describes the place and gives geographical and historical knowledge about the architecture of the given context",
      "identifier": "oai:oaicat.ariadne.org:11864.lo",
      "keywords": "Place&#044; Structure of Places",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=11864.lo",
      "title": "Descriptions of the Place"
    },
    {
      "description": "Multiple choice tests about sustainable design and construction&#046;",
      "identifier": "oai:oaicat.ariadne.org:12443.lo",
      "keywords": "architectural trends&#046;sustainable architecture&#044; preliminaries&#047;general conditions&#044; creative process design",
      "location": "http://winds-app.fit.fraunhofer.de/cgi-bin/WebObjects/windsoai.woa/wa/showContent?id=12443.lo",
      "title": "End of unit test"
    },
    {
      "description": "Multiple choice tests about sustainable design and construction&#046;",

```

```
    "identifier": "oai:oaicat.ariadne.org:12444.1o",
    "keywords": "architectural trends&#046;sustainable architecture&#044;
preliminaries&#047;general conditions&#044; creative process design",
    "location": "http://winds-app.fit.fraunhofer.de/cgi-
bin/WebObjects/windsoai.woa/wa/showContent?id=12444.1o",
    "title": "Question 1"
  }
],
"nrOfResults": 702,
"processingTime": "38"
}}
```

Figure 3.1: Example result in json

Appendix A: Wikipedia interface

* list=search (sr) *

Perform a full text search

This module requires read rights.

Parameters:

srsearch	- Search for all page titles (or content) that has this value.
srnamespace	- The namespace(s) to enumerate Values (separate with ' '): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 100, 101, 108, 109 Default: 0
srwhat	- Search inside the text or titles. One value: title, text
srinfo	- What metadata to return. Values (separate with ' '): totalhits, suggestion Default: totalhits suggestion
srprop	- What metadata to return. Values (separate with ' '): size, wordcount, timestamp, snippet Default: size wordcount timestamp snippet
srredirects	- Include redirect pages in the search.
sroffset	- Use this value to continue paging (return by query). - Default: 0
srlimit	- How many total pages to return. No more than 50 (500 for bots) allowed. Default: 10

Examples:

<http://en.wikipedia.org/w/api.php?action=query&list=search&srsearch=paris>

<http://en.wikipedia.org/w/api.php?action=query&list=search&srwhat=text&srsearch=paris>

<http://en.wikipedia.org/w/api.php?action=query&generator=search&gsrsearch=paris&prop=info>