zetoc SOAP: a Web Services Interface for a Digital Library Resource

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zetoc SOAP

- zetoc, and reason for Web Services
- SOAP Web Services protocol
- zetoc SOAP interface, XML elements
- Alternative response format
- Authentication
- Implementation
- Standardisation initiatives

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A2Z Project

- zetoc SOAP development part of A2Z project
- Funded by JISC as part of AAA programme
- zetoc data provided by British Library

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zetoc

- Current awareness and document delivery service
- British Library's electronic table of contents of journal articles and conference papers
- 20000 current journals, 16000 proceedings per year
- 20 million records from 1993 - updated daily
- Available to UK academia, NHS, and others

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zetoc Services

- Web search: document delivery:
  - British Library
  - Inter-Library Loan
  - OpenURL Resolver
- Z39.50 search
- OpenURL 'link-to' resolver
- Email alert

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Why a Web Services Interface?

- A2Z (Akenti access to zetoc) Project
- Main purpose: Digital certificate authentication in eScience and JISC Information Environment
- Z39.50 inappropriate for eScience
- Workflow of composite services

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What is SOAP?

- W3C server-to-server protocol
- Request and response messages: XML
- Wrapped in SOAP XML envelope
- Understood by both servers
- Interface defined by WSDL file
- Implementation independent
- zetoc SOAP over CGI

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zetoc search request and response

- Replicates web search interface
- Set of brief results returned
- Fixed number of records
- Response includes:
  - total hits
  - next record number
- Search includes: Start position in result set

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Address http://zetoc.mimas.ac.uk/zetoc/wzgw?f=f&form=journal&id=1049630   Go   Links

New Search   History

zetoc Journal Search

Enter your search terms in the form below. You do *not* need to enter terms in every field.

Search   Reset Form

Field	Value	Example
All fields:		eg, "smart structures" Burke
Article Title:	magnesium	eg, Smart Structures and Materials Systems eg, "ability grouping"
Author(s):	"Apps P J"	eg, Bowden eg, "Bathurst R J"
Journal Title:	materialia	eg, American Economic Review
ISSN:	1359-6462	eg, 00357596
Volume/Issue:	48 5	eg, 82 5 to search for Volume 82 Issue 5
Page(s):	475	eg, 254 for the start or end page eg, 254-257 for the start and end pages
Year published:	2003	eg, 1995- eg, 1997-1999 eg, -1999

Search   Reset Form

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Address http://zetoc.mimas.ac.uk/zetoc/wzgw?id=1049630&f=f&form=conference&ersn=7   Go Links

New Search | History

zetoc Conference Search

Enter your search terms in the form below. You do *not* need to enter terms in every field.

Search | Reset Form

All fields:		eg, "smart structures" Burke
Paper Title:	learners	eg, Smart Structures and Materials Systems eg, "ability grouping"
Author(s):	"Apps A"	eg, Bowden eg, "Bathurst R J"
Keywords:		eg, liquid matter
Conference:	dublin core	conference name, description, sponsor, venue and/or date
ISBN:	8884530431	eg, 0444881786

Search | Reset Form

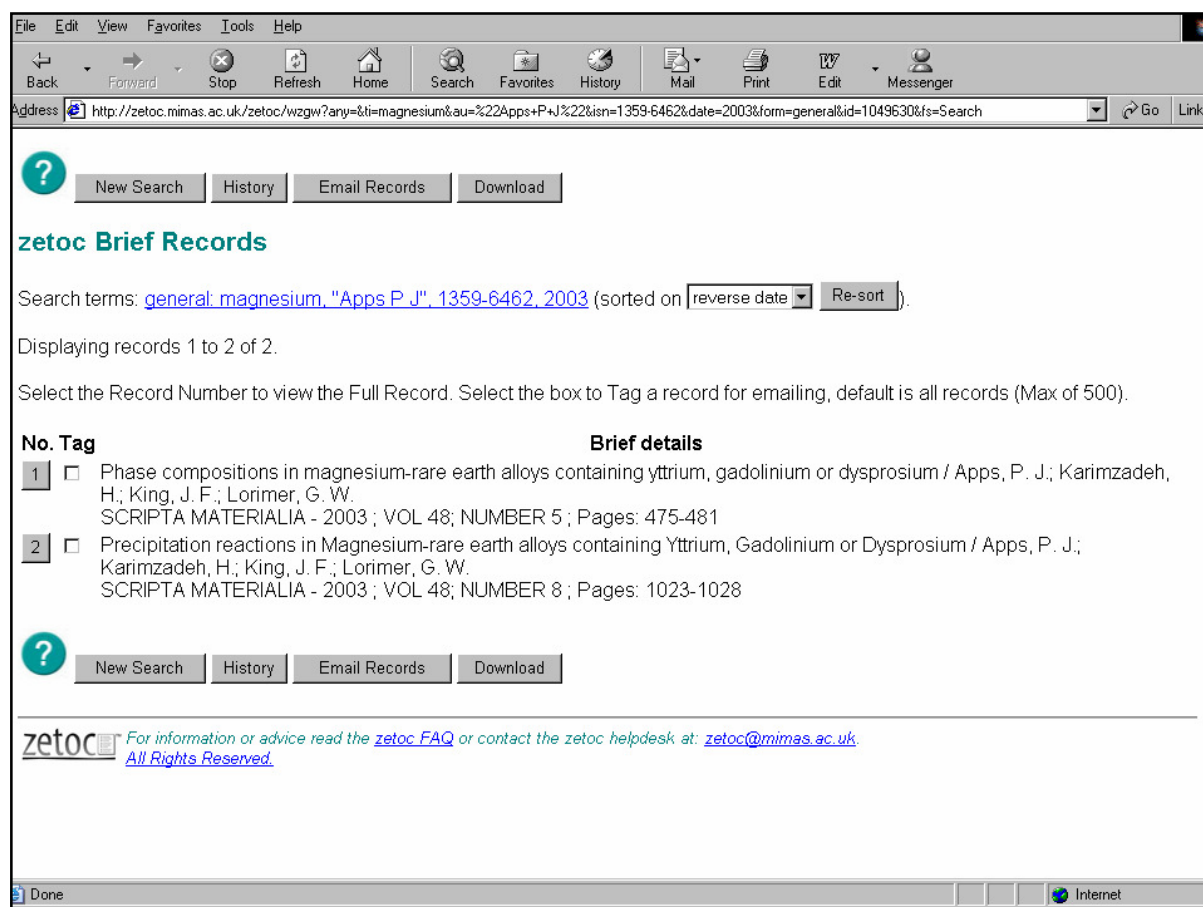zetoc *For information or advice read the zetoc FAQ or contact the zetoc helpdesk at: zetoc@mimas.ac.uk.*
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zetoc full record: identifier request

- Identifier request
- Full record response
- Returns full details including:
- citation details split into separate fields

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Address http://zetoc.mimas.ac.uk/zetoc/wzgw?fs=Search&any=RN125218404&ti=&au=&isn=&date=&form=general&id=1049630   Go Links

Displaying record 1 of 1.

1. □ Author(s):   Apps, P. J.; Karimzadeh, H.; King, J. F.; Lorimer, G. W.
       Article Title: Phase compositions in magnesium-rare earth alloys containing yttrium, gadolinium or dysprosium

       Journal Title: SCRIPTA MATERIALIA
       ISSN: 1359-6462
       Year: 2003
       Volume/Issue: VOL 48; NUMBER 5
       Page(s):   475-481
       Publication frequency: Fortnightly: 15-30 issues per year

       Publisher: Great Britain : Elsevier Science B.V., Amsterdam.
       Language: English
       Dewey Class: 669
       LC Class: TT273
       BLDSC shelfmark: 8212.970000

       ZETOC ID: RN125218404

Further Options:

- More information about this article
- Request a copy from your Institution's Library (*for research/private study*)
- Buy from the British Library, Boston Spa (*includes copyright fee*)

[?]   New Search | History | Email Records | Download | Brief Records

Done   Internet

Properties in request / response

- Standard namespaces where possible
- Dublin Core
  - eg. dc:title, dc:creator, dcterms:issued
- dcterms:bibliographicCitation for brief citation details
- Z39.50 Bath Profile
  - search: any; conferenceName

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Search management

- Taken from SRW:
  - srw:numberOfRecords - hits
  - srw:startRecord - requested start position
  - srw:nextRecordPosition - next after set returned
  - srw:recordPosition - record number

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Journal Article Citation Details

- OpenURL journal metadata format
  - jtitle - journal title
  - issn
  - spage, pages
  - volume, issue for search
- zetoc:volissue for combined volume / issue in response

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Conference Paper Citation Details

- No open standard available?
- From OpenURL Book Metadata
  - isbn, spage
- Conference details as string in
  - zetoc:conf
- Sponsors
  - zetoc:sponsors

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Alternative Identifier Response

- Simple Dublin Core record including
  - title, creator
- By-reference pointer as value of dc:relation to retrieve full XML record
- This pointer an OpenURL
- Advantage: returns interoperable record
- Disadvantage: further retrieval needed

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OpenURL

- Standard way of passing description of resource
- Enables link to appropriate copy of article
- Also for server-to-server communication

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Example OpenURL

http://zetoc.mimas.ac.uk/openurl/linkto?

url_ver=Z39.88-2004

&url_ctx_fmt=info:ofi/fmt:kev:mtx:ctx

&rft_val_fmt=info:ofi/fmt:kev:mtx:dc

&rft.identifier=RN125218404

&svc_val_fmt=info:ofi/fmt:kev:mtx:dc

&svc.format=text/xml

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Authentication

- zetoc available to UK H&FE and NHS
- Some others (UK, Irish) by subscription
- Authenticate:First machine domain or IP; Failing that by Athens
- zetoc SOAP authenticates by machine
- Would replace by 'black box' for A2Z
- zetoc terms and conditions still apply

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Implementation

- gSOAP / C++
- Developed by Prof Robert van Engelen at Florida State, USA
- SourceForge - GNU licence
- Serializes between XML and C++ public data
- Generates WSDL file
- zetoc database is Livelink Discovery Server
- Existing C++ modules perform search

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Standard Web Services Interfaces

- Many Web Services application interfaces are proprietary
- New NISO initiative VIEWS:
  - Vendor Initiative for Enabling Web Services
- Interoperability between disparate web services applications in libraries

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SRW (Search - Retrieve - Web)

- From Z39.50 community
- Common Query Language
  - Simplest form based on simple Dublin Core, eg query within dc.title
- Definition of fields within result set
  - Support for simple Dublin Core result encouraged

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SRW for Metasearch

- SRW can provide metasearch via web services using DC for interoperability
- Recommended within JISC IE
- zetoc needs more than simple DC for citation details
  - OpenURL by-reference pointer a possible solution
- Possible to define more complex result sets
  - Is this better than a proprietary solution?

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Conclusion

- zetoc SOAP was small part of short A2Z project
- Lack of time to fully investigate standard solutions such as SRW
- Useful experience and prototype for future web services implementations
- Web Services increasingly important

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zetoc Details

http://zetoc.mimas.ac.uk

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