



Date : 10/06/2006

## Processing metadata for electronic journals: the example of the German Union Catalogue of Serials

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**Meeting:** 123 Cataloguing

**Simultaneous Interpretation:** Yes

WORLD LIBRARY AND INFORMATION CONGRESS: 72ND IFLA GENERAL CONFERENCE AND COUNCIL  
20-24 August 2006, Seoul, Korea  
<http://www.ifla.org/IV/ifla72/index.htm>



## Processing metadata for electronic journals: the example of the German Union Catalogue of Serials

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World Library and Information Congress / 72nd IFLA General Conference and Council, Seoul, August 2006

### Abstract

The German Union Catalogue of Serials (Zeitschriftendatenbank, in short ZDB) is one of the largest databases for continuing resources worldwide. It contains over 1.2 million titles of continuing resources of any type and almost 7 million holdings representing more than 4200 libraries in Germany and Austria. ZDB records are the basis for information on continuing resources in most regional and local library systems in Germany. The majority of the titles recorded in ZDB are still originally catalogued. The emergence of various forms of electronic resources led ZDB to develop new mechanisms to deal with the metadata. Two cases will be exemplified:

- Integration of information for journal aggregator databases into ZDB:
  - The company EBSCOHost provides ZDB with title records and with the information about which title belongs to which aggregator database. This information is delivered to regional library networks which then can create local “holdings” for individual libraries which have subscribed to specific products. This process provides direct access for users via the local electronic catalogue.
- Identifying e-journals with national licenses:
  - The leading German science organisation, the German Research Foundation, has started a programme financing so-called national licenses for electronic resources. Within this programme the metadata for e-journal backfiles are centrally integrated into ZDB based on title lists provided by publishers. Thus the data are available for secondary use in regional and local library catalogues. This procedure ensures that the creation of title records is done only once and that the creation of availability information or holdings records can be done automatically.

## Introduction

Dear colleagues, I am delighted to be here representing the German Union Catalogue of Serials and I would like to thank the Cataloguing Section of IFLA for giving me the opportunity to talk to you during this conference.

The theme of this session is “Cataloging Partnerships: Principles, Projects, and Publishers”.

In my presentation I first want to provide you with some facts about the German Union Catalogue of Serials (or in German: Zeitschriftendatenbank, in short ZDB; I will use this abbreviation during my presentation). Then I will talk about the integration of journal aggregator information into ZDB and about the centralised addition of license and access information to e-journal backfiles within the framework of a German programme for national licenses.

## Some facts about the German Union Catalogue of Serials (Zeitschriftendatenbank/ZDB)



### Some facts about ZDB I

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- ZDB = Zeitschriftendatenbank = German Union Catalogue of Serials
- ZDB started in the 1970s as cataloguing automation project
- Now national network

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The German Union Catalogue of Serials ZDB looks back on a history of more than thirty years, a history which has been a rather successful one. During these thirty years ZDB has developed from a cataloguing automation project supported by only a few libraries to a national network with an extensive and reliable database, now firmly established in Germany.



## Some facts about ZDB II

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- Contents: continuing resources of any type:
  - journals, newspapers, series, databases
  - of all periods, countries and languages
  - of different physical formats (paper, microfilm, electronic publication)
- Records consist of title description and holdings
- Some figures:
  - 1.2 mio. titles
  - 50.000 records for electronic resources
  - Approx. 7 mio. holdings of 4200 libraries in Germany and Austria

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ZDB contains entries for continuing resources of any type, that is journals, newspapers, series, databases (continuing integrating resources) of all periods, countries and languages in different physical formats (paper, microfilm, electronic publication). Records consist of title descriptions and holding information for individual libraries.

In April 2006 there were over 1.2 million title entries in ZDB and almost 7 million holdings representing over 4200 libraries. As far as we know, this means that ZDB is the world's largest database for continuing resources.



## Some facts about ZDB III

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- Responsible body: Berlin State Library (Staatsbibliothek zu Berlin)
  - Editorial board for bibliographic control
  - Representation and promotion
- Technical partner: German National Library (Die Deutsche Bibliothek)
  - System host
  - Data services

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Currently two institutions share responsibility for ZDB: the Staatsbibliothek zu Berlin (Berlin State Library) which founded ZDB 30 years ago is the responsible managing body for ZDB. It maintains editorial boards for bibliographic control and promotes and represents ZDB in the library public. Five years ago Die Deutsche Bibliothek (the German National Library) took over the technical operation of the database, i.e. it serves as system host and maintains the data distribution services ZDB provides to library networks, individual libraries and other library-related services.

The two libraries work together on further development of the database and its services.





## Functions and Services of ZDB I

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- Tool for shared cataloguing of continuing resources
  - Newly created records are immediately available to all participating libraries
  - Each record has a unique ID number used for update purposes and data exchange
- National union catalogue for journals and other continuing resources
  - Provides availability information to the serials stocks of German academic libraries

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In the following I would like to describe the major functions and services of ZDB in more detail:

- *ZDB is a tool for shared cataloguing of continuing resources.*

Most German academic libraries belong to one of the six regional library networks. In all those library networks and their member libraries ZDB is used as a cataloguing master database. New title records for continuing resources are primarily entered into the central ZDB database and then copied into the regional union catalogue. This way every new title has to be catalogued only once, new records are immediately available to other libraries. ZDB thus contributes to division of labour among German libraries

This workflow also makes sure that each new title is assigned a particular and unique ID number which is transferred into the regional catalogue. This ID number is used to clearly identify a record and thus to provide for frictionless updating.

- *ZDB is the national union catalogue for journals and other continuing resources held by academic libraries in Germany.*

The term “union catalogue” here refers to the fact that ZDB contains information about the holdings for journals etc. of basically every academic library in Germany. This is a feature unique for ZDB. As already mentioned there are several regional library networks in Germany, all with their own separate catalogues. Only for continuing resources do we have one common database that allows an immediate overview for all titles and holdings in German libraries. Holdings are maintained by the ZDB member libraries; they are responsible for their accuracy and completeness.



## Functions and Services of ZDB II

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- Authority file for continuing resources
  - From 2007 on national ISSN Register
- Source for information on continuing resources in regional and local catalogues
  - Weekly data distribution services, offline and via OAI-based procedures

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- *The title descriptions in ZDB serve as an authority file for the cataloguing of continuing resources.*

In Germany ZDB is considered as authority file for continuing resources. In order to guarantee the quality in the database and to support the authority character of the title descriptions there is a rather strict management in terms of the standard new entries have to comply with and especially in terms of correcting entries. This is also important because of the wide secondary use of ZDB data in other systems – consistency of the data is a high value. To provide for this only the central editorial office located in the Staatsbibliothek zu Berlin can make major changes or delete records. Participant libraries can use a special mailing function within the database to communicate with the around 25 editors.

From 2007 on ZDB will also serve as the national ISSN register, and International Standards Serials Numbers (ISSN) to new German titles are assigned on the basis of ZDB records.

- *ZDB data are the basis for information on continuing resources in regional library networks and local OPACs and are therefore widely replicated and regularly distributed to other library and information systems.*

There is a lot of data exchange between ZDB and other library databases. Principal partners are the regional library networks which receive title and possibly holding updates on a regular weekly basis. The networks then distribute the data to the local systems of their member libraries. The distribution of data is so far done mainly offline, using a special German exchange format called MAB.

In order to facilitate and accelerate data distribution online procedures using the OAI (Open Archive Initiative) protocols have been developed and will soon replace offline data exchange.



## Functions and Services of ZDB III

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- Basis for interlibrary lending and document delivery
  - Standardized structure of holding information permits automated processing
- Contribution to coordinated library policies on an regional and national level
  - Collection management
  - Preservation and digitization activities

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- *ZDB is the basis for interlibrary loan and document delivery services in Germany and generally speaking provides availability information about continuing resources.*

A function that ZDB has filled from its beginning is being a tool for interlibrary lending. Until ten years ago a microfiche edition of ZDB was used in most libraries to find out where a certain journal was located and the ILL slip could be sent to. Today of course microfiches have been replaced by electronic catalogues. Currently the German library networks work intensively on realizing inter-network online ILL. The fact that title information for continuing resources is identical in all regional catalogues ensures that ILL orders for article copies can be assigned properly. Besides holding data in ZDB have a machine readable structure, another prerequisite for automated processing of orders.

- *Because of its comprehensive character the ZDB database can contribute to coordinated library policies in Germany.*

Currently the Deutsche Forschungsgemeinschaft (German Research Foundation) is evaluating the special collections system it is funding. In terms of journals ZDB provides information such as how many libraries have subscribed to a title, do these libraries participate in interlibrary lending and document delivery and so forth. ZDB has prepared a tool that allows easy extraction of relevant statistics.

A second example is the area of preservation of library materials. Libraries making microfilm or digital masters of a printed work are supposed to enter a description of the master into ZDB. This can avoid multiple microfilming or digitization of a work and supplies an overview on preservation activities in German libraries.

## Integration of information provided by vendors into ZDB



### Dealing with aggregator databases

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- Electronic journals are usually not subscribed to individually, but as part of a package or an aggregator database
- Relevant for users are the individual journals in an aggregation
  - Records for each title are needed
- Contents of aggregations and libraries subscriptions to aggregations change frequently
  - Manual processing is very costly

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Now I would like to approach the actual topic of my presentation: how metadata provided by publishers are used to create bibliographic and holdings records in the ZDB database.

The appearance of electronic journals and along with it the development of products like aggregator databases confronted ZDB with some problems that asked for new solutions:

- Unlike print journals e-journals are very often sold as a package or as a part of an aggregation. What about the bibliographic and holdings information for a single title?
- Relevant for users are not (only) bibliographic records for the databases/aggregations themselves, but for the individual journals contained in those aggregations. That means records for each title in an aggregation are necessary.
- Because of the vast amounts of titles contained in those aggregations and even more because of the fact that subscriptions change rapidly it is hardly possible for individual libraries to create and update bibliographic and holdings records for individual titles.



### The example of EBSCOhost I

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- Since 2002 cooperation between ZDB and EBSCOhost
- EBSCOhost provides title data in MARC 21 format
  - Titles contain EBSCO-ID and ZDB-ID if existing
  - Title data are transformed to ZDB format and checked against ZDB titles
  - EBSCO titles without ZDB-ID are edited, an updated ID-list goes back to EBSCOhost

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## The example of EBSCOhost II

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- EBSCOhost provides also files with product information to allocate the journals to different aggregators/databases
  - Files are in the German exchange format MAB and imported offline into ZDB
  - ZDB creates „virtual holdings“, i.e. a holding record represents an aggregator

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Various ZDB member libraries have subscriptions to databases containing aggregations of electronic journals like e.g. Business Source Premier by EBSCOHost. Therefore some years ago a cooperation between ZDB and this vendor was established. EBSCOhost provides two sets of data. One set consists of title information and is provided in the MARC format. A special feature is that title records not only contain ID-numbers of EBSCO, but also ID number of ZDB. Using a Visual Basic script, the title data are converted to the ZDB format. These data are then checked against the ZDB database. The ZDB ID-number serves an “anchor” for this update procedure. New EBSCO titles are catalogued manually. EBSCOhost then receives an updated list with new ZDB ID numbers.

The second set of data provided by EBSCOhost comes in the German exchange format MAB. It contains information about which journal title is part of which aggregator. These data are directly imported into ZDB. They are used to create a virtual holding that is added to a title. The main purpose of this model is to identify all journals contained in a specific aggregation.



## Advantages and disadvantages I

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- Pros:
  - In ZDB only one title record per journal
  - Centralised service for libraries ⇒ division of labour
  - „Virtual holding“ records are used by regional and local library systems to create records for local catalogues ⇒ users can search for journals and access them directly

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The method just described has both advantages and disadvantages:  
On the positive side is

- the fact that it allows ZDB to remain a bibliographic database without duplicate records for the same journal

- ZDB can provide a centralised service for a number of libraries which themselves do not have to deal with the problem of creating records for the contents of aggregations. This is a contribution to efficient cooperation among library systems.
- Regional and local library systems use the “virtual holdings” to create records for local catalogues. This way users can search for individual journals in the catalogue and usually access them directly.



## Advantages and disadvantages II

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- Cons:
  - Processing the title files is fairly slow and requires a lot of editorial work
  - Aggregator databases contain not only journals, but also monographic titles ⇒ ZDB so far is restricted to records for continuing resources

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Disadvantages are:

- Dealing with two files in two different formats is somewhat toilsome. Especially processing the title data involves a lot of manual editorial work.
- ZDB is more and more confronted with the fact that many aggregator databases not only contain journals but also monographic titles. ZDB member libraries so far insist that only continuing resources should be recorded in ZDB. That means that not all the metadata for the materials in an aggregation can be integrated into ZDB. This devalues the service.

## National licenses in Germany



## The National Licenses Programme of the German Research Foundation

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- Since 2005 the German Research Foundation funds national licenses for databases, full-text collections and e-journals backfiles
- Goal: to improve the provision with digital media
- License contracting done by 7 libraries
- Access for all German universities and other academic institutions

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Since last year the German Research Foundation provides funds for national licenses for databases, full-text collections and backfile archives of electronic journals. The German Research Foundation is the largest German institution for promotion and support of science and academic institutions, namely universities. It also funds projects in libraries.

The principal objective of the national license programme is to improve general access of researchers to digital content. German libraries with special collections were called to suggest electronic products for national licenses. The libraries with successful proposals then were responsible for the negotiations with publishers and vendors. They did not form a consortium for this purpose, but acted individually.

A clear condition for all negotiations from part of the German Research Foundation was that licenses should encompass access to a product for the members of all German universities and other academic institutions.



## Journal backfiles with national licenses for Germany I

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- Licenses for 14 collections, e.g.
  - Springer Online Journals Archive 1860-2000
  - Wiley InterScience Backfile Collection 1832-2000
  - Elsevier Journals Backfile on ScienceDirect 1934-1994
  - Oxford Journals Digital Archive 1829-1995

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National licenses for over 50 products were negotiated, among them licenses for 14 backfile archives for electronic journals. The time period covered varies from backfile to backfile. One condition in the negotiations was that the publishers should provide metadata.



## Journal backfiles with national licenses for Germany II

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- Metadata for individual journals titles are integrated into ZDB
- Metadata for articles are collected in a special database

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The German Research Foundation, the licensing libraries and ZDB agreed upon a concept that metadata for individual journal titles should be integrated into ZDB. A special database hosted by a regional library network is being built to incorporate all the metadata for journal articles. It will integrate ZDB title information and ID

numbers into the articles records. Using the ZDB ID number, links to ZDB records in the ZDB database itself or in regional or local catalogues can be generated.



## Integration of titles with national licenses into ZDB I

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- Publishers provided Excel files with information about the journals contained in the various backfiles
- Approx. 3000 titles
- Most of the journals already have records in ZDB

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How do the journals metadata come into ZDB? Publishers usually delivered Excel files containing title information, ISSN, the first and last issue/volume of a journal in the backfile and specific URLs. All in all the backfiles contain approximately 3000 journals. Most of them already have records in ZDB.



## Integration of titles with national licenses into ZDB II

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- Information to be added:
  - Code for national license for selection purposes
  - Access and administrative information (accessible time span, URLs, responsible library etc.)
  - Allocation to a collection/backfile

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They had to be amended with codes for the national license, with access and administrative information such as title-specific URLs, the accessible time period etc. Also “virtual holdings” were created to allocate a title to a specific backfile. This is necessary to allow the distribution of the complete journal metadata of a backfile and to create holdings for local catalogues.



## Integration of titles with national licenses into ZDB III

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- Method:
  - Semi-manual procedure:
    - Excel files are transformed into Word files
    - the content of those files is imported into the ZDB cataloguing database using a Visual Basic script
    - Missing title records are created manually

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The procedure to get the information into ZDB was much like the one already described for EBSCO aggregators. In a semi-manual procedure the Excel files from the publishers were transformed in Word files to get the data in a sequential order and to add the specific information such as codes. With the help of a Visual Basic script the information was then imported into the ZDB database. Missing titles were catalogued.



## Integration of titles with national licenses into ZDB IV

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- Advantages:
  - Central recording of the data
  - Through the regular data services of ZDB the data are distributed to all regional and local library systems in Germany
  - Titles with national licenses can easily be selected
  - Use of digital media with national licenses is enhanced by wide replication of the records

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It is obvious to process the metadata for digital collections and products with a national license in a centralised way. ZDB in its function as national database for continuing resources was predestined to take up this activity. Through its regular data services it is ensured that the data are distributed to all regional and local library systems and that users have the opportunity to access those journals from any electronic library catalogue. Libraries can decide which of the backfiles with national licenses they want to offer their users. Through the coding in ZDB the data for the journals belonging to an individual backfile can easily be selected to be transferred to local library systems.

The German Research Foundation has made a major financial commitment by funding national licenses. A wide replication of the records enhances a wide use of these electronic collections and therefore helps to justify this investment.



## Next steps

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- ZDB needs to explore possibilities to reduce editorial work when processing information from vendors/publishers
- ZDB will check whether its strict limitation to records for continuing resources should be given up in order to provide better services concerning electronic products
- ZDB needs to develop mechanisms to create automatically license records for individual libraries and individual journal titles

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As pointed out before the procedures for integrating bibliographic information provided by vendors and publishers into ZDB have weaknesses. Because the supply of digital media is still growing quickly and new kinds of products are created, ZDB has to look into those weaknesses and look for solutions.

There are three areas for activity:

- ZDB needs to explore possibilities to reduce editorial work when processing information from vendors and publishers.
- We need to check whether the strict limitation of ZDB to records for continuing resources should be given up to be able to provide better services concerning electronic products.
- ZDB needs to develop mechanisms to create automatically license records for individual libraries for individual journal titles. Such records, that can be compared to holding records for a printed work, would have so far to be created manually. Most libraries do not want to do this.

The overall objective is – as it has always been for ZDB – to give good services to libraries and users!



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It is our objective to give  
good services  
to libraries and users!

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Thank you!