

**Canadian National Site Licensing Project:
Getting Ready for CNSLP
At
The University of Saskatchewan Library**

By

**David Fox
and
Vinh-The Lam**

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Abstract

The Canadian National Site Licensing Project (CNSLP) is a national effort by a consortium of 64 Canadian university libraries to provide access to full text electronic journals. The first part of this paper describes the organization, funding structure, and activities, including license negotiations, of the CNSLP. The second part of this paper deals with the technical and operational issues related to electronic journal management. It describes the process developed at the University of Saskatchewan for incorporating the CNSLP material into the Library's collections and finding tools. An assessment of the jake utility as a reliable source of metadata is also presented.

Keywords: Electronic journals -- Electronic journal management -- National site licensing -- CNSLP -- University of Saskatchewan -- jake

David Fox is Head, Information Technology Services Division, University of Saskatchewan Library, e-mail: david.fox@usask.ca.

Vinh-The Lam is Head, Technical Services Division, University of Saskatchewan Library, email: vinhthe.lam@usask.ca.

Their mailing address is: Main Library/Murray Building, University of Saskatchewan, 3 Campus Drive, Saskatoon, SK S7N 5A4 Canada.

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INTRODUCTION

The Canadian National Site Licensing Project (CNSLP) is a national strategy formulated by a consortium of 64 Canadian university libraries to *"dramatically increase the quantity, breadth and depth of the most current research literature available to Canadian academic researchers, and to provide expanded and equitable access to that content through electronic formats and network access / delivery mechanisms."*¹ It is a three-year (2001-2003) 50-million-Canadian-dollars project funded by the Canada Foundation for Innovation (CFI), the 64 universities and the provincial governments. The CNSLP has signed pan-Canadian licenses with 7 vendors (Academic Press, ACS -- American Chemical Society, AMS -- American Mathematical Society, IoP -- Institute of Physics, ISI -- Institute for Scientific Information, RSC -- Royal Society of Chemistry, and Springer-Verlag), and, as a result, is providing access to approximately 700 full text journal titles, 2 full text reviewing journals and 3 citation indexing tools covering over 8,500 journal titles. The University of Saskatchewan Libraries is one of the 64 participating libraries of the CNSLP. This paper provides background information

regarding the CNSLP, such as organizational structure, funding, and license negotiation, and describes the efforts at the University of Saskatchewan Library in getting ready for the implementation of the CNSLP content.

CANADIAN NATIONAL SITE LICENSING PROJECT

The Concept

For the academic libraries of North America and Western Europe, the 1990s was a bad decade. The combined effect of decreasing funding and increasing costs had a negative impact on collections and services. The use of consortia for cost sharing was the response to the situation. Consortia were first created for interlibrary loans and union catalogs. They were subsequently given a new role: negotiating licenses for electronic journals². The situation of Canadian academic libraries was no exception. It was characterized by a decrease in government funding, a steep increase in costs and a serious decline of the Canadian dollar³. These financial constraints had serious effects on the quality of the library collections, especially serials, in supporting research. Most academic libraries, including the University of Saskatchewan Library, had to go through many painful annual serials cancellations. The predicament of academic libraries was not unknown to the federal government. To stop the erosion of Canadian research capabilities, the federal government, in its 1997 budget, created the CFI, whose "*goal is to strengthen the capability of Canadian universities, colleges, research hospitals, and other not-for-profit institutions to carry out world-class research and technology development.*"⁴ The Canadian academic library community seized the opportunity and submitted to the CFI a joint proposal, seeking financial support for the CNSLP, which

was to be administered at the University of Ottawa. This national initiative was aimed at providing academic researchers in all 64 Canadian universities with "desktop" access to electronic scholarly journals and research databases in science, technology, medicine and the environment. It would help individual institutions achieve secured access to a much more expanded body of electronic resources at a much lower cost than could be achieved through institution-specific or regionally-based licenses. The project also guaranteed equal access to the same body of electronic journals for all institutions, regardless of the sizes of their collections and user populations. As a condition of CFI seed funding, all 64 university libraries were committed to sustaining the project beyond the initial three-year pilot period.

Organizational Structure

The CNSLP proposal was approved by CFI and the CNSLP began its activities in mid-1999. A Steering Committee was formed with the following members:

- 4 university library directors, one from each of the 4 regions of Canada
- 1 university vice-president, with research responsibility
- 2 representatives from the university research community
- 1 senior representative from the Association of Universities and Colleges of Canada (AUCC)
- 1 senior officer from the contact institution (University of Ottawa)
- Chair of the CNSLP Advisory Board (ex-officio)
- Executive Director of the Canadian Association of Research Libraries (CARL) (ex-officio)

- Project Leader, representing the administrative unit that houses the project at the contact institution (ex-officio)

- CNSLP Executive Director (ex-officio)

The Steering Committee was given a broad mandate with various appointing authorities to make sure that the CNSLP would be managed according to the following principles:

- governance and management structures will ensure accountable decision making through consensus, and equitable sharing of costs and benefits among participating institutions;

- the project will serve as a prototype for broader application or replication beyond the science, engineering, health and environment fields.⁵

To conduct the day-to-day operations and administration of the project, the CNSLP Steering Committee appointed a Management Sub-Committee with the following members:

- 1 university library director from the 4 library directors on the Steering Committee

- Executive Director of CARL

- Project Leader (Chair)

- CNSLP Executive Director⁶

The CNSLP Steering Committee also appointed a Negotiations Resource Team with the following members:

- 1 university library director from the CNSLP Steering Committee (Chair)

- 4 librarians, one from each region, with electronic collections / services and negotiations experience

- CNSLP Executive Director

- 1 representative from the Canada Institute for Scientific and Technical Information (CISTI)

- 1 representative from the National Library of Canada (NLC)

- 1 technical or systems advisor

- 1 financial advisor⁷

An Advisory Board was also appointed by the CNSLP Steering Committee to advise and assist with:

- strategic planning for the project, to ensure a smooth transition to long-term sustainability following termination of the CFI funding

- new directions and partnerships for the project

- research, industry, political and international benchmarks for project evaluation and success

- project promotion and profile

The membership of the Advisory Board includes:

- 7 to 10 individuals, drawn from industry, research, academic, political and digital library sectors

- Chair of the CNSLP Steering Committee

- CNSLP Executive Director⁸

The CNSLP Executive Director was hired toward the end of 1999. The project implementation plan submitted by the Executive Director to the Steering Committee,

identifying major activities to be undertaken by committees, the Executive Director, and the participating institutions during the period January 2000 to June 2001, was approved by the Steering Committee at its meeting of March 22-23, 2000.

Funding Structure

The total budget for the three-year CNSLP pilot project was 50 million Canadian dollars, with CFI contributing 40% (20 million) and participating institutions the remaining 60% (30 million). Participant contributions were calculated according to a project impact index as constructed from aggregated institutional data and information reported by the Canadian Association of University Business Officers and provided through the Association of Universities and Colleges of Canada. The criteria selected reflected the distribution of the academic research community: all ranks faculty, graduate students, and sponsored research. *“In addition, in order to establish a national threshold for participation in the pilot project, 25% of total project benefits, CFI contributions and matching fund costs are allocated equally among the four regions (i.e. Atlantic, Quebec, Ontario, West), with the remaining 75% allocated proportionally according to the three criteria above”.*⁹

The proportional contributions by the 4 regions are as follows:

- Ontario: 35%
- Quebec: 27%
- West: 26%
- Atlantic: 12%

In absolute figures, the participating institutions contributed 18.1 million and their provincial governments 11.9 million¹⁰.

License Negotiations

In March 2000, the CNSLP Steering Committee approved a formal two-step license procurement process, consisting of:

- an open Pre-Qualification Bid, to elicit general content, functionality, technical and pricing information from vendors, followed by
- a detailed Request for Proposal (RFP) issued to pre-qualified vendors

In May 2000, the CNSLP Steering Committee approved the principles for licensing electronic resources, which reflected the overall goals of the CNSLP and outlined the criteria that would guide the project's preliminary evaluation of vendor offerings, with the understanding that specific requirements for products under consideration would be addressed through the formal procurement process. The criteria to be used in the evaluation of vendor products would fall into the following categories:

- access rights
- archiving and preservation
- authentication of users
- authorized use of licensed resources
- copyright and intellectual property rights
- functionality, including accessibility
- methods of license enforcement
- pricing strategies
- privacy and confidentiality

- provisions for third party usage
- remedies for unacceptable performance from vendors
- statistical and other usage / management reports
- termination rights, including residual rights to licensed information

A total of 42 vendors participated in the Pre-Qualification Bid. The Negotiations Resource Team evaluated their bids and 23 vendors were selected in July 2000. The RFP Phase I was issued to these 23 vendors on August 21, 2000. Proposals were received from 21 vendors on the RFP competition closing date of September 14, 2000. The Negotiations Resource Team began meeting on September 16, 2000 to evaluate the bids, using the following scoring criteria:

- vendor capability (7%)
- technical support services (7%)
- products (29%)
- licensing approach (14%)
- usage information reporting (7%)
- annual price increase limits (7%)
- demand (29%)

The Negotiations Resource Team presented the final results of the RFP evaluation to the Steering Committee on October 16, 2000. The Steering Committee approved these results in the form of a prioritized list of Preferred Bidders, in the order determined by each vendor's *value proposition*, along with a maximum budget allocation. Negotiations then proceeded with 11 vendors. Agreements for three-year licenses (2001-2003) were reached with the following 7 vendors:

- Academic Press – IDEAL service
- American Chemical Society – ACS Web Editions
- American Mathematical Society – MathSciNet
- Institute for Scientific Information (ISI) – Web of Science
- Institute of Physics Publishing – IOP Journals
- Royal Society of Chemistry – RSC Electronic Journals
- Springer-Verlag – LINK service

All vendors retained by CNSLP agreed to:

- sign the CNSLP model license agreement, with unique or specific amendments dealt with in separate amending letters
- offer a three-year agreement, with fixed pricing in Canadian dollars
- hold annual price increases significantly lower than prevailing rates
- commit to a price increase cap in Year 4, at license renewal
- offer an “unbundled” pricing model (i.e. unbundling print subscriptions from electronic access). Several vendors will, for the first time, implement an electronic-based pricing model, with print subscriptions treated as an optional add-on at a deep discounted rate.¹¹

The Impact

The CNSLP had a tremendous impact on participating university libraries across Canada. It is too soon to determine the impact on research activities of academic institutions as a whole, but the impact on their libraries’ organization and services is obvious. First, the impact came from the tight schedule of implementation, which varied from one library to another but, in general, fell between four and six months. Second, the

impact came from the fairly large number of electronic journals (about 700) to which the libraries would have to provide access. Organizational and especially technical issues generated by the planned implementation had to be resolved. The next part of this paper describes the concerted efforts taken at the University of Saskatchewan Library to get ready for the CNSLP implementation.

GETTING READY FOR THE CNSLP AT THE UNIVERSITY OF SASKATCHEWAN LIBRARY

Background

In the year 2000 the University of Saskatchewan (UofS) Library was well behind the curve with respect to the implementation of commercial electronic journal (e-journal) services. At that time the library had only one paid e-journal subscription, to the *Journal of Biological Chemistry (JBC Online)*. As a result, the UofS had more to gain from CNSLP than many of its sister institutions. For the UofS the five e-journal services¹² acquired by CNSLP represented entirely new resources. By contrast, half to two-thirds of the other CNSLP participants already subscribed to these services.

For other participants the CNSLP represented an opportunity to divert funds already committed to CNSLP products to other purposes for a three-year period. Other participants already had the CNSLP titles incorporated into their finding tools - the catalogue, e-journal database, etc. The CNSLP represented an opportunity for the UofS to catch up to its peers in the provision of electronic content. But it meant that we were

starting from square one, and had to develop a system that would enable us to quickly integrate the CNSLP titles and to manage them on an ongoing basis.

Starting point

Prior to the CNSLP, in addition to the single paid subscription to *JBC Online* noted previously, the library had an e-journal database with about 2,000 titles obtained for free or in conjunction with paid print subscriptions. The library catalogue contained a handful of 856 links to these e-journals.

In October 2000 the library established the “Getting Ready for CNSLP Committee” (GRCNSLP). The immediate goal of GRCNSLP was to add the CNSLP content to the e-journal database and the catalogue in an integrated way, as soon as possible after the products became available. (In October 2000, due to the secrecy surrounding the CNSLP negotiations, we didn’t know what we were going to get, or the volume. We were hoping for a significant amount of full text content, but didn’t know whether it would be hundreds of titles, or thousands of titles, and from which publishers). We were going to have to build a system in advance to incorporate unknown content.

We expected to have to find or create our own MARC records. The provision of catalogue records was not part of the CNSLP contract, and none of the vendors offered to supply records voluntarily. Eventually, in February of 2001, the arrangement was made for the National Library of Canada (NLC) to provide record sets for the CNSLP titles. However, in the fall of 2000, without any guaranteed source of records on the horizon the UofS prepared to go it alone.

As it turned out, the MARC record files provided by NLC were not complete. There were some gaps that had to be filled in by means of additional searching or original

coding. Not all CNSLP participants used the MARC files from NLC. Some libraries that have adopted a “single record policy” reported that they decided against using the NLC records, and opted for hand coding instead.

Although we had already developed a process to retrieve MARC copy on our own, we did use the NLC records, customizing them to our own specifications. UofS may be in a minority in employing multiple records for different physical formats. However, a major advantage to the multiple-record approach is that it facilitates batch loading and unloading of records sets.

The larger goal of GRCNSLP was to build a system to incorporate other full text e-journal and “article aggregator” services, to provide users with a single place to look for e-journals, and to work towards the principle of one-time data entry. Our initial assumptions were that the solution would be some sort of automated batch load process, and that we would need a way to manipulate and customize records for our local needs.

Early in the proceedings GRCNSLP debated whether we should continue to maintain the e-journal database (EJDB). The argument was put forward that the catalogue is the “official” library database and contains our print serial holdings. Would it not be better to develop the catalogue as the “single place to look” for e-journal content? On the other hand, the EJDB initially included many more e-journal titles than the catalogue, and was expected to be the vehicle for generating catalogue records for the CNSLP titles. The EJDB included many records for full text titles in article aggregator services. It was important to provide information about these titles, but due to concerns about the accuracy of title lists from the aggregator vendors there was reluctance to enter these titles in the catalogue. In the end we decided to maintain both the EJDB and the

catalogue for the time being. As things have developed, the catalogue and the EJDB have become increasingly interdependent. The question of one database versus two is seldom raised any more. The focus has shifted to developing a process for one-time data entry to keep the content of the two databases synchronized.

GRCNSLP considered two options for obtaining MARC copy for the CNSLP titles: using jake or local development. jake stands for **j**ointly **a**dministered **k**nowledge **e**nvironment (surely one of the most grandiose acronyms in the library world!). jake is an open source database of e-journal metadata, along with software tools for searching and manipulating this information. It originated at Yale University, and has been replicated at Simon Fraser University and by Openly Informatics, a commercial enterprise. jake is intended to be a universal source of e-journal metadata to support acquisitions, cataloguing, and search applications. It contains lists of publications from over 194 different databases. It includes basic information for each publication: title, ISSN, sources, and jakeID. It features a utility written by SFU Library's Mark Jordan for generating skeletal MARC records. These records include ISSN, title, LC & Dewey call numbers, LC subject headings, 856 link, and a jakeID number. (See Figure 1 for an example)

```
000 00313nms 22001097a 4500
005 20010530193329.0
022 $a0092-5853
050 00 $aJA1.M5
082 00 $a320/.05
245 00 $aAmerican Journal of Political Science$h[computer file]
590 ## $aDerived from jake, http://jake.med.yale.edu/ using jakeid
9612.
650 #0 $aPolitical science
```

Figure 1. A skeletal MARC record generated from jake data.

When we evaluated jake in the fall of 2000 we found numerous shortcomings. The database lists were incomplete and out of date. Canadian sources (e.g. the Canadian Business and Current Affairs databases) were not included. The MARC records were too brief for our liking. We considered jake to be a clever idea that had not matured to the point to be usable.

60-70% coverage of database titles was not good enough for our purposes, and we were skeptical that jake's deficiencies would be overcome in time for us to use it for the GRCNSLP project.

Table 1 shows a comparison of full text coverage of the CNSLP products in the three versions of jake vs. the UofS EJDB data derived directly from the vendor lists. The UofS EJDB figures for IDEAL are for only the Academic Press titles that were negotiated by the CNSLP, whereas the jake figures for IDEAL include titles from other publishers. There is no easy way in jake to separate the IDEAL titles by publisher.

Table 1. UofS EJDB vs. jake: Full-Text Coverage of CNSLP Titles (May 30, 2001)

Vendor	UofS EJDB	jake (Yale)	jake (SFU)	Openly jake
Springer	398	261	261	261
IDEAL	204 (Academic Press only)	243	219	243
ACS	31	0	0	0
IOP	38	0	0	0
RSC	23	0	0	0

Table 2 shows a comparison of full text coverage of five non-CNSLP products in the three versions of jake vs. the UofS EJDB data derived directly from the vendor lists.

Table 2. UofS EJDB vs. jake: Full-Text Coverage of non-CNSLP Titles (May 30, 2001)

Vendor	UofS EJDB	jake (Yale)	jake (SFU)	Openly jake
JSTOR	213	110	110	110
Project Muse	164	103	106	103
CBCA FT Business	81	0	0	0
CBCA FT Education	190	0	0	0
CBCA FT Reference	140	0	0	0

It is evident that for both CNSLP and non-CNSLP products we were able to identify many more titles by going directly to the vendor lists than by using jake. In view of the uneven coverage of full text titles in jake we concluded that we would be better off to develop our own local system for harvesting e-journal metadata from the vendor sites. In effect we have created our own local version of jake, limited to just the sources that the University of Saskatchewan receives. As a tongue-in-cheek comment on the silliness of the jake acronym, we call our system DARRYL (after programmer Darryl Friesen, who developed it).

DATABASE
ACCESS (for)
RECORD
RETRIEVAL (in)
YOUR
LIBRARY

DARRYL E-journal Management System Features

The e-journal user interface features browse and display by title, publisher, vendor, database, and subject; Quick Search (exact title); Advanced Search (title and subject keyword with Boolean operators, phrase search); and a list of recent additions to the database (last 30 days).

The administrative module supports the following staff functions:

Data retrieval functions

- scripts for harvesting e-journal data from vendor sites
- scripts for harvesting MARC records from LC, AMICUS

E-journals administrative interface

- add/edit/delete: titles, vendors, publishers
- reports:
 - Titles Missing Publisher
 - Pending/Incomplete Titles
 - URL Validation Report
 - Database Information

Process: Initial Load

The process involved harvesting data from e-journal lists at the vendor sites. Data elements captured included title, ISSN, and coverage information. Using the ISSN as a key we searched for MARC records in LC, and AMICUS via Z39.50. Our programmer developed a script to search batches of ISSNs in a single session. The retrieved MARC records were loaded into the EJDB. Then came the process of human review.

GRCNSLP reviewed the MARC data and specified modifications to meet local standards. A local MARC tag, 916, was inserted to identify the database and the vendor to which the title belongs to facilitate batch manipulation of records at a future date. An example of the format of the 916 tag would be:

916 \$aEJDB\$bAcademic Press\$cIDEAL

where subfield \$a identifies the library's electronic journals database, subfield \$b the vendor, and subfield \$c the vendor's database.

After a final review, seven hundred MARC records for the CNSLP titles were generated and batch loaded into the catalogue on March 30, 2001. The MARC records generated from the UofS EJDB are fuller than those created by jake (see Figure 2 for an example).

```

005 20010420135618.0
006 m d
007 cr cnu
008 010420cuuuu9999 s eng nas a
022 0022-3808
040 CaSSU|beng
099 ELECTRONIC JOURNAL
245 04 The journal of political economy|h[computer file]
260 [Chicago]|bUniversity of Chicago Press
299 |bThe journal of political economy (Online)
506 Access restricted to University of Saskatchewan students,
faculty and staff
538 Mode of access: World Wide Web via Internet
650 0 Economics|vPeriodicals
856 |2http|uhttp://library.usask.ca/ejournals/
full.phtml?issn=0022-3808|zView the online version
902 cat
912 net2
916 EJDB|bGale Group|cBusiness Index ASAP
916 EJDB|bGale Group|cExpanded Academic ASAP
916 EJDB|bJSTOR|cJSTOR
916 EJDB|bUMI|cABI/Inform Global
916 EJDB|bUniversity of Chicago Press|c(direct from publisher)
930 |1ELECTRONIC JOURNAL|gCurrently received (coverage varies)

```

Figure 2. A MARC record generated from the UofS EJDB

Integrating the EJDB and the Catalogue

Note that multiple 916 tags are used in cases where a title is available from more than one database. Note also that instead of having multiple 856 tags linking directly to each source, the catalogue record contains a single 856 link to a linking page in the EJDB. In effect the EJDB acts as a linking server. This design feature was a conscious decision by GRCNSLP. The committee opted to simplify catalogue maintenance by

storing changeable information, such as the journal URL and holdings information, in the EJDB record rather than the catalogue record. The corresponding linking page is found in Figure 3.

Electronic Journals

Electronic Journals

Journal of political economy

Publisher: University of Chicago Press
ISSN: 0022-3808
Print Holdings: [View UofS Holdings](#)
Subject Heading: Economics

This title is available from the following 5 sources.

Access	Database	Full Text Coverage
direct	(direct from publisher or agent)	
direct	JSTOR	1892-2000
indirect	ABI/Inform Global	August 1996 -
indirect	Business Index ASAP	February 1997 -
indirect	Expanded Academic ASAP	June 1992 -

Legend:

Direct Access	Click for access to the electronic journal
Indirect Access	Click for access to a database containing articles from the electronic journal

Figure 3. Example of a linking page in the EJDB

The *View UofS Holdings* link on the EJDB linking page links back to the catalogue record for this title. In effect the catalogue and the EJDB have become seamless extensions of each other. A user may start with either tool and be directed to all sources of full text for an e-journal.

Loading and Maintenance Issues

The policy of multiple records for different physical formats facilitates batch loading and removal of data. Tag 916 facilitates the merging of duplicate records from different e-journal collections. It is expected that periodic updates to the record sets for each collection will be required.¹³ The plan is to re-harvest the lists of e-journal titles

from the vendor sites on a regular basis – quarterly or semi-annually - and to batch load additions and changes into the catalogue. The catalogue bibliographic record number stored in the EJDB record facilitates matching and overlay. The challenge will be to devise a system to retain corrections and enhancements that have been made to these records by cataloguers in between updates. The solution will probably involve some combination of automated harvesting plus human review.

Outcomes

We have developed a robust system for retrieving and batch loading e-journal record sets into the catalogue and the EJDB. Using this process we loaded seven hundred CNSLP e-journal records in a single day. We have also loaded records for the e-journal collections of the Canadian National Research Council, Project Muse, BioOne, and JSTOR. Our e-journal database now contains more than 5,100 titles.

We have developed a process for making decisions and solving problems relating to managing access to electronic journals. One of the intangible and lasting benefits of the project was the establishment of closer ties between the Cataloguing and Information Technology Divisions of the library. Staff from diverse backgrounds came together to contribute their expertise and to solve technical problems.

The decision to keep the full text titles from article aggregator services and most free e-journals out of the catalogue has dictated that, for the time being, we will have to maintain both the catalogue and the EJDB. This decision will likely be reviewed from time to time. It may be that the article aggregator services are an evolutionary step that may eventually be replaced by true full text services.

Next Steps

The focus of future development will be on integrated maintenance of the catalogue and EJDB based on the principle of one-time data entry. An effort will be made to incorporate direct access to articles using the Open URL standard.

CONCLUSION: LOCAL IMPACT

A study conducted at Drexel University in 2000 by Carol Montgomery and JoAnne Sparks¹⁴ found that converting to electronic journals lowered unit costs for content but led to higher staff and infrastructure costs. Savings in circulation, shelving, print reserve, and document delivery were more than offset by increased costs for systems, license administration, cataloguing, and information services. Significant retraining of staff and “re-engineering” of technical processes was necessary. Nevertheless the study concluded with the comment: “We plan to stay the course – to aggressively continue with our transition to electronic journals”.

The Drexel study essentially captures the current thinking at the University of Saskatchewan also. The CNSLP provided the UofS Library staff an opportunity to develop a robust system to help us implement a large number of e-journals in a short space of time. What is required now is to make adjustments to staffing and procedures to improve efficiency. There’s no going back!

APPENDIX A

Comparison of Full Text Coverage in jake vs. the EJDB: Six Months Later

In December of 2001 the jake site at Yale was migrated to jake-db.org. As can be seen from Tables A and B below, repeat comparison of UofS EJDB vs. jake holdings conducted on January 1, 2002 demonstrated that, although the numbers have shifted and there is now coverage of some of the CBCA databases in the SFU version of jake, on the whole the picture remains the same – jake coverage of the CNSLP and selected non-CNSLP databases is improving but still incomplete. The list of titles for IDEAL at jake-db.org included numerous duplicates.

Table A. UofS EJDB vs. jake: Full-Text Coverage of CNSLP Titles (Jan 1, 2002)

Vendor	UofS EJDB	jake-db.org	jake (SFU)	Openly jake
Springer	401	328	261	261
IDEAL	205 (Academic Press only)	244 (numerous duplicates)	353	243
ACS	31	0	0	0
IOP	38	0	0	0
RSC	23	0	0	0

Table B. UofS EJDB vs. jake: Full-Text Coverage of non-CNSLP Titles (Jan 1, 2002)

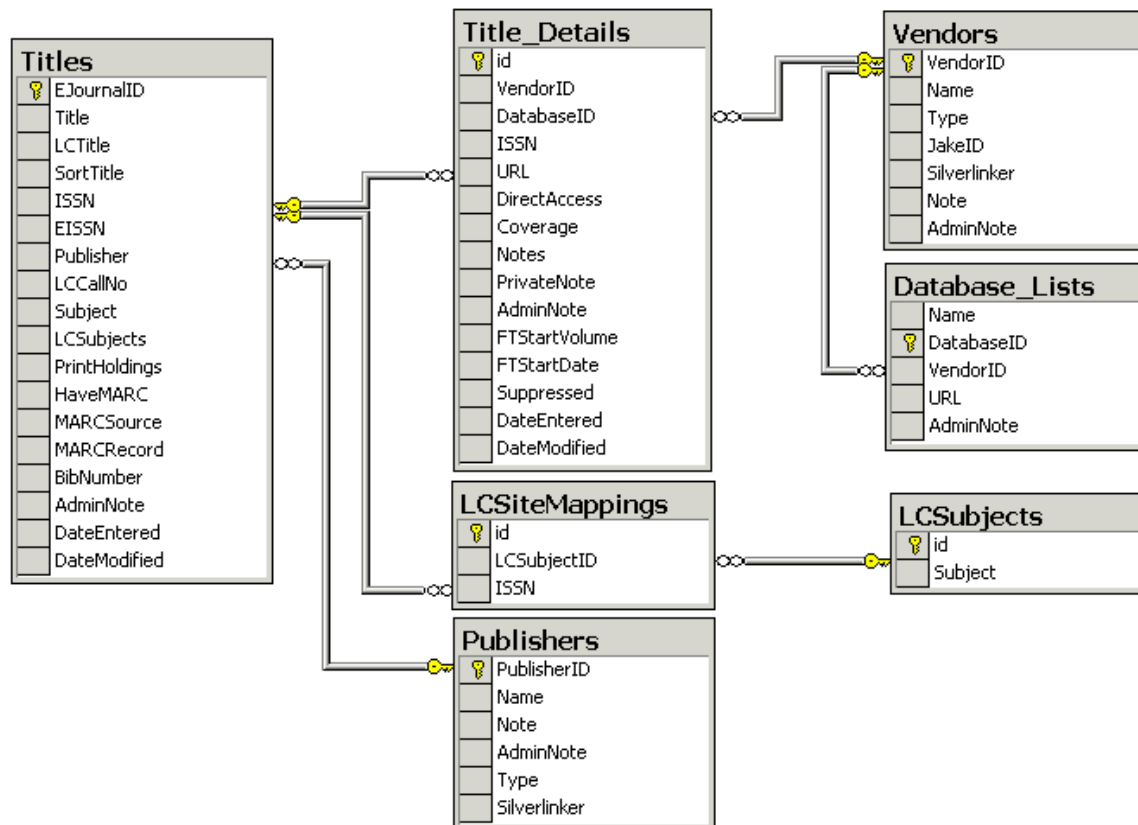
Vendor	UofS EJDB	jake-db.org	jake (SFU)	Openly jake
JSTOR	214	114	110	110
Project Muse	171	105	148	103
CBCA FT Business	81	0	70	0
CBCA FT Education	190	0	0	0
CBCA FT Reference	178	0	168	0

APPENDIX B

Ejournal Management System: Technical Details

- The e-journals database runs on MS SQL Server 7.0 and NT 4.0
- The web server is Apache 1.3.22 on Sun Solaris 8, using a combination of Perl and PHP 4.06 to provide the web interface.
- FreeTDS (www.freetds.org) supplies the interface between the Unix machine and the SQL server
- Sybase and MS SQL Server use the TDS protocol to communicate with client applications
- MARC records from LC and AMICUS are harvested, via Z39.50 using a combination of Perl and the Yaz Z39.50 toolkit utilities

University of Saskatchewan Libraries Electronic Journals - Database Diagram



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10. deBruijn, op cit, slide no. 9 : *CNSLP : Need Meets Opportunity*.
11. CNSLP. *CNSLP License Procurement, 2000-2001 : Objectives, Process and Outcomes : Final Report*.
12. The five e-journal services are: IDEAL, ACS Web Editions, IOP Journals, RSC Electronic Journals, and Springer LINK. The other two CNSLP acquisitions, Web of Science and MathSciNet, are citation databases.
13. This process might be simplified by using the services of Serials Solutions, a company that offers a variety of products to assist libraries in matching their holdings with the ever-changing content of the article aggregator services.
14. Montgomery, Carol and JoAnne Sparks, *Framework for assessing the impact of an electronic journal collection on library costs and staffing patterns* (available online at: <http://www.si.umich.edu/PEAK-2000/montgomery.pdf>. Undated, read June 2001).