

SHARON CLARK

Automated Systems Librarian
University of Illinois at Urbana-Champaign

The Online Catalog: Beyond a Local Reference Tool

In 1980, the Illinois State Library sponsored a project to mount the software of the Western Library Network (WLN) to demonstrate how that software might be used as the basis of a statewide automated system for Illinois. The cooperative venture of the University of Illinois at Urbana-Champaign (UIUC) and the River Bend Library System resulted in a joint catalog of their holdings that became operational in summer 1984. The joint online catalog, which now contains over 1 million titles and supports approximately 250 terminals, has proven to be a cost-effective prototype for a statewide online catalog. At present, the database of this online catalog only contains records for these two institutions. However, the database can be searched from a dedicated terminal in each of the eighteen regional library systems headquarters in Illinois as well as in each of the twenty-eight LCS academic libraries.

The reasons for choosing the WLN software in the late 1970s were based on several important factors. There was a need for features and capabilities that would allow the user to transcend the limitations associated with a paper-based card catalog (i.e., at the UIUC, the card catalog became impossible to keep up to date and very difficult to use, as well as far too expensive to suggest that it be continued indefinitely). What the UIUC sought was access to full bibliographic information from multiple access points and effective authority control of the files. Most important from the perspective of the project was to find a system which could function in a cooperative environment. The advantages of networking were already evident in the success of OCLC for cataloging and interlibrary loan in Illinois, and in LCS, the automated circulation system in place at the University of Illinois which was already becoming successful among academic institutions in the state. Most desired was the implementation of a

full bibliographic record system with authority control which would allow for the continued use of OCLC as the source of database records, but one that was not dependent on the use of LCS (for the benefit of libraries such as the River Bend Library System which do not use LCS). However, the system had to be adaptable to linking with LCS. WLN was already functioning well in a network environment. Therefore, in 1980 the WLN programs were purchased with Library Services and Construction Act (LSCA) funds administered through the Illinois State Library to create an online public access catalog.

ILLINET ONLINE

Since 1985, when more LSCA funds were received by the UIUC Library, work has proceeded to create a statewide online catalog. Called IO (ILLINET Online), the union catalog will provide:

- statewide subject access with Library of Congress name and subject authority files online;
- keyword title searching capability;
- Boolean searching;
- capability to search the collections of over 800 public, system, academic, and special libraries throughout Illinois; and
- opportunities for timely, inexpensive resource sharing.

As part of fulfilling the requirements of the grant, the WLN software was upgraded and now provides enhanced searching capabilities as well as the addition of the music scores and sound recordings formats. Disc storage has been increased to accommodate the projected growth of the database which will contain an estimated 3,200,000 full OCLC/MARC records representing over 10 million holdings.

The database is constructed as a series of files including the bibliographic, authority, holdings, and key files. The bibliographic file contains bibliographic descriptions, pointers to headings, and the Record Identifier (RID) number which for local purposes is the OCLC number. Contained in the separate authority file are the headings from the Library of Congress names, series, and subject tapes. Since headings are stripped as a function of loading full bibliographic records into the database, the headings also form the authority file. The holdings file contains Library Identification codes (LID) and location codes corresponding to geographic regions within Illinois. It is this file which will have dramatic implications for the online catalog in an expanded statewide environment. This file is discussed in more detail later in connection with a special searching feature under local development for the statewide online

catalog. The key file has been especially beneficial for reference work as it contains keywords and subfields as access points to records in both the bibliographic and authority files. The key file lends itself to discovering how a particular word—often obscure—is used in context.

The special feature developed as a result of the two-year grant project is called *scoping*. In essence, this feature allows searching the catalog in various ways (e.g., by individual library or groups of libraries). As an aid to help users locate needed information, the state will be divided into geographical areas representing current library system boundaries. These areas will be accessible as individual entities. Utilizing “scoping” commands, a user will be able to search the database by: the entire state, individual LCS schools, all LCS schools as a group, individual ILLINET research and reference centers, all four research and reference centers as a group, and any selected geographical area. In addition, the Center for Research Libraries (CRL) has been approved as a separate scope. CRL’s holdings, as on the ILLINET tapes, include extensive newspaper collections encompassing foreign, ethnic, and U.S. secondary, regional, and city newspapers. The exchange program between CRL and the Russian Academy of Science has resulted in CRL maintaining a premier and extensive Slavic collection, all of which will be included in the statewide catalog. Of interest to statewide users will be CRL’s plan to convert retrospectively their serial catalog of over 45,000 records and one-third of their total monographic collection representing over 240,000 records. Circulation data for all LCS schools will also be accessible through a link which will be built from the union catalog to individual LCS databases.

Design and specifications for scoping and holdings were the result of cooperative efforts of UIUC librarians, University of Illinois computer services staff, and the Statewide Online Catalog Advisory Committee. After considering various options, the resulting configuration was based on several factors. Primary among them was the premise that effective use of this statewide online catalog is dependent on the user’s capability to scope the database holdings geographically. While it was hoped that each library in the state (approximately 290 libraries) could be defined as institutions in the database and therefore would be scopable entities, such a decision would have necessitated the purchase of at least 20 percent more computer storage space. This expenditure was not feasible within the existing grant budget.

For interlibrary loan and delivery purposes, it was considered advantageous for numerous individual libraries to be first represented on a regional basis. With the present arrangement, a user can determine whether a non-LCS library in a geographic area owns an item by scoping on the geographic area, then reviewing the holdings in that area to determine if the item is held by the library in question.

Data Elements

Data elements include the institution, geographic area code (GAC), Library Identifier, scoping symbol, and OCLC holdings symbols. An institution refers to the library or group of libraries used to limit the results of a search. For each full bibliographic record (FBR) in the database a set of flags are set on or off indicating which institutions hold the record. Allocation of space is required for the flags of each institution except for the global (the entire state as a group) one. Currently, space is used for fifty-three institutions. To provide for institutions which may be defined in the future, space has been allocated for a total of ninety-nine institutions or scorable entities.

The GAC is limited to thirty-five characters and may include upper and lowercase characters, digits, spaces, and punctuation. It is used primarily in the display following the hold command.

For each institution there is one or more Library Identifiers which will appear on the display following a hold command. To conserve space in the database, it was determined to keep them short, typically under twelve characters. They may include upper and lowercase characters, spaces, and punctuation as desired. An institution having more than one member library will have a distinct LID for each member. Since LCS institutions do not have member libraries, each will have one LID represented by the two-character institution code used in LCS commands.

Each institution will have one scoping symbol. This symbol will be used to specify the institution when an FBR search command is scoped. Since these symbols will frequently be typed by patrons, they will be kept very short. The scoping symbol for the LCS schools will correspond to their two-character LCS campus codes. For the regional library systems, scoping symbols will be limited to three or four characters in length. Special scoping symbols such as ALL for the entire database, LCS for the LCS schools, RRC for the research and reference centers, and CRL for Center for Research Libraries will be three characters long.

For each institution the GAC and its scoping symbol were specified. For each library in the state, its LID, the institution(s) to which it belongs, and a list of OCLC holdings symbols corresponding to the library were defined. The holdings symbols were specified at the two-, three-, or four-character levels. While many libraries will belong to more than one institution, a library is limited to having only one LID.

Command Syntax

Four of the FBR commands, FIND, HOLD, LINK, and DISP, may be scoped. In each case, the user types the scoping symbol of the desired

institution in the first options field at the end of the command. There are a total of three options fields. The command "F S BIRDS \$LTLS,M,T" instructs the system to find all of the books about birds held by libraries in the Lincoln Trail Libraries System, sort them by title, and display them using the minimum level display. If a user attempts to scope a command for which scoping is not allowed, the system ignores the scope and continues processing as if there were no error. When a user specifies an invalid scope on a command which may be scoped, the system displays the error message, "Incorrect scoping symbol. Please try again."

The FIND command may be scoped for any author, subject, title, or series title searches. It may not be scoped for searches by control numbers such as the ISN, RID, ISBN, and ISSN because of space constraints in the database. In the event a patron enters a scope command on a search of control numbers, the following error message will be displayed: "Scoping is not possible with control numbers. Omit the scope, then do a HOLD." On the scorable searches, if no scope is provided in the options field, the default is assigned based on the terminal name.

No special restrictions exist for scoping the HOLD command used to identify libraries owning an item. The default scope is the same as the scope of the previous "FIND" command. Users will need to be made aware that a nondefault scope on a HOLD command will display different holding libraries for the same set of bibliographic records that would have been retrieved with the default scope. Therefore, a scope on a HOLD command merely shortens the holdings display rather than changing the selection of records that are displayed.

The default scope for a LINK command, used to link to LCS circulation records, is the scope of the previous FIND command. The LINK command may be scoped only for a single LCS institution. If a user tries to scope a LINK command for a non-LCS institution or for the all-LCS institution (L 1-5 \$LCS), the system displays the error message: "The LINK works only for LCS schools. Try a 2-letter scoping code."

The DISP command, while rarely used by patrons, is an effective mechanism for diagnosing problems with links. It displays links from the link file, but does not actually cross the links to LCS. Because some FBR records will display more links than can appear on one screen, scoping the DISP command will help to alleviate this problem. The same error messages are used for the DISP command as are used for the LINK command.

Displays

The only display affected by scoping is the holdings display. Some of the changes include removing the "collection I.D." line from the top of the display and storing LIDS in FBR so that they appear in place of call

numbers on the holdings display. The "NUC" symbols that had formerly been displayed were replaced by GACs. Although no changes occurred in how holdings records were sorted, the holdings lines within each record are sorted by GAC, making it easier to see the holdings of libraries that are in close proximity. Within each institution, holdings lines are sorted by LID.

The scoping feature has been developed from a prototype in use at the University of Missouri—the other WLN licensee using that software for a public access online catalog. The University of Missouri implemented scoping for FIND commands. While UIUC utilized their online programs for this feature, the batch programs to create and update the database were locally developed. Also locally developed was the LINK command which was designed to allow for scoping with minimal problems. The concept of scoping as it was developed and initiated at the University of Missouri represents another advantage in using the WLN software—the ability to participate in shared development efforts of other WLN licensees.

The final phase of this project, to load all of the ILLINET OCLC tapes into the database (800 tapes), was completed March 1989. Completion of tape loading will occur by the end of the 1987 calendar year.

ISSUES IN STATEWIDE ONLINE CATALOG DEVELOPMENT

To ensure that the diverse user needs are met in creating an online catalog of this type, the Illinois State Library appointed a committee to advise in the construction of the database. The Statewide Online Catalog Advisory Committee is comprised of twelve librarians representing the State Library, public, college, community college, special, and system libraries. In conjunction with input from a special subcommittee created to address specific needs of LCS users, committee members from both groups have been invaluable in reviewing and approving technical specifications such as scoping, authority control measures, as well as addressing ongoing issues such as funding, maintenance concerns, and retention of local information.

Quality Control

Issues being faced as a result of extending the online catalog are many. Of major concern has been the ability to ensure quality control and provide ongoing maintenance of this vast database in a statewide environment. Provisions for quality control were addressed prior to the online catalog's original implementation three years ago and directly involve the authority file.

The online catalog, operational since 1984, had the overall objective of testing the feasibility of being utilized throughout Illinois. Several

decisions made were designed to create an online catalog which would reflect up-to-date and complete cataloging based on national standards and an authority control module necessary for ease of access for users. In order to create a database reflecting as much as possible AACR2 cataloging, UIUC and River Bend Library System contracted with the AMIGOS Bibliographic Council, Inc. to have headings from all records (since 1975) converted to AACR2 form and to merge duplicate records.

The decision was made that forms of headings in the authority file should reflect national standards. Authority control is achieved by adding names, series, and subjects from the initial loading of the 1981 LC Name Authority tapes and tapes for the ninth edition of the *Library of Congress Subject Headings*. The LC Name Authority and LCSH tapes were loaded into the online catalog prior to loading the full bibliographic record file. The decision to purchase the LC Name and Subject Authority Tapes and the strategy of loading the authority file first accomplished two purposes. The first of these involved UIUC providing a cross reference structure in the authority file. The WLN programs only provide for authority control by creating a file of authority headings as a result of loading bibliographic records. Cross references among headings are not automatically created and must be added manually. Therefore, by loading the LC Name and Subject Tapes, the LC references were also loaded in the process. The second objective achieved by loading the LC tapes was the ability to take advantage of the system's "mapping" feature (i.e., when an exact match occurs between a heading from a bibliographic record and the heading of a "see" reference, the bibliographic record links to the authorized heading to which the "see" reference leads). In affect, the heading is converted to the correct AACR2 form (Clark & Chan, 1985).

A sequence of events similar to that which occurred in the initial load of the online catalog from 1983 to 1984 will occur with the statewide expansion of the online catalog. For example, UIUC staff have been adding the cross-references from UIUC's manual authority file, and the LC update tapes are being loaded prior to loading the ILLINET tapes (Romero & Wajenberg, 1985).

At the UIUC Library, card production was stopped in October 1984 and FBR was accepted as the permanent access tool to the collection. In September 1985, the manual processes of authority control, in place to service the card catalog, were transferred to the Automated Systems Maintenance Unit and were developed to service the online catalog. Online authority control at Urbana presently consists of two major processes carried out through the FBR authority file. The first involves updating access points and the second involves adding appropriate cross-references to already correct access points. These two processes help ensure more accurate access to the database and represent the same type of authority control processes that occur with a traditional card catalog.

Updating access points usually involves validating the form of the heading through the LC Name-Authority file and correcting any headings in FBR which do not conform to LC standards. Spelling errors and MARC coding errors are also corrected as part of this process. Cross-references are added manually to headings which enter the FBR authority file through the weekly loading of bibliographic records from OCLC/ILLINET tapes. Once a cross-reference is in place, FBR will prevent nonstandard forms of the heading from entering the authority file, as well as provide a means of directing the user to the correct form of the heading.

System maintenance at UIUC has drawn its staff resources through redeploying professional as well as paraprofessional staff from the original and copy cataloging units and from the LCS maintenance unit. The staff in the OCLC searching and inputting units have been relieved of such tasks as typing and filing of authority cards. The quality of online authority control is steadily improving with the increase of AACR2 headings and appropriate cross-references in the database. The current loading of new LC Name-Authority update tapes will greatly reduce the number of obsolete headings which may enter the authority file when the ILLINET tapes are loaded to create the statewide database.

Libraries with card catalogs already expend effort to maintain and ensure integrity of those catalogs through authority control. It is assumed that any library which adopts FBR as their online catalog will recognize the necessity to ensure the integrity of the online catalog through supporting authority control. At present in this country there is a tendency to distribute cataloging and authority work. The precedent was set by the Library of Congress, whereby their cooperative arrangements with other libraries are in place to contribute authority records to LC's own authority file (i.e., the NACO project). These records are then included in LC's MARC distribution service. Plans under discussion for the statewide online catalog include provisions for distributed maintenance, perhaps involving four of the larger LCS institutions initially.

Another area of concern relates to the desire on the part of an institution to include local data such as notes (especially donor information) and local subject headings in the database. As a result, a questionnaire was distributed to all OCLC/ILLINET members designed to elicit information on how local data are currently used. Specifications have been developed based on that data so that following the statewide database load, a system called "record enrichment" can be implemented to allow for loading relevant local data.

Funding and Governance

Of continuing concern is the issue of funding. Therefore a lengthy

proposal has been issued which seeks support of the online catalog through a combination of sources including the Illinois State Library, Illinois Board of Higher Education, and participating libraries. The purpose of the proposal is to expand access to the online catalog as well as to enhance LCS, the older circulation module. The last issue involves how the statewide catalog will be administered. Ironically, governance was at the onset perceived as possibly the most difficult issue to resolve. In reality, it is turning out to be one of the easier resolutions.

Almost a decade of experience in cooperatively administering LCS is providing the framework for the organization of IO/ILLINET online. The Illinois LCS Organization (ILCSO) is comprised of a policy council and an operations committee. The policy council includes six elected LCS directors and the operations committee chair, as well as representatives from the University of Illinois computing services and financial planning office. The name reflects its charge—to establish directives and policy involving the use and future of LCS. At the operational level, one representative from each LCS institution is appointed to the operations committee. Various subcommittees handle the wide range of activities associated with a large automated database and make recommendations to the policy council. Both groups will undergo some change involving expanding the representation to reflect expansion of access to the online catalog across the state. Although the organizational structure may be modified to better meet the needs of diverse participants, the goals should remain intact. It will be critical that it remain a library service organization, and as Bernard Sloan, who has worked with LCS users for years, emphasizes, “not a data processing management organization” (B. Sloan, personal communication, March 1987). In a paper presented at the “California Conference on Networking,” Hugh Atkinson (1985) expressed the need for “keeping a sustained effort and commitment to the ideal of networking,” noting that technology allows us to “make a new beginning in library service,...concentrate on the improvement of library service,” and that “accesses, services and new procedures developed at the network level will spill over to our own (local) processes,” with very real potential to cause “changes in our libraries themselves.” Our own library at the UIUC has changed as a result of the online catalog, and clearly service to users has been enhanced.

REFERENCES

- Atkinson, H. (1985). *California conference on networking*. Unpublished paper, December.
- Clark, S. E., & Chan, W. (1985). Maintenance of an online catalogue. *Information Technology and Libraries*, 4(December), 324-338.
- Romero, N., & Wajenberg, A. Authority records and authority work in the online catalogue. *Information Technology and Libraries*, 4(December), 318-323.