

## **Declaration of Ingrid Hsieh-Yee, Ph.D**

I, Ingrid Hsieh-Yee, Ph.D, declare as follows:

1. I have been retained as an independent expert witness on behalf of DISH Network, L.L.C. ("DISH") in connection with *Inter Partes* Review ("IPR") Proceeding Nos. IPR2020-01280 and IPR2020-01359.

2. I am being compensated for my work in this matter at my current standard hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

3. In the preparation of this declaration, I have reviewed the documents referenced below. Each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions:

- (1) Scheffler, R. G. (2003), "Ingest & metadata partitioning: requirements for television on demand," in the *2003 NCTA Technical Papers, 52nd Annual NCTA Convention & International Exposition*, pp. 274-283, obtained from TIB, the German National Library of Science and Technology (German: Technische Informationsbibliothek) on February 23, 2021, **Appendix A** ("*Scheffler*");

- (2) Confirmation letter from TIB, the German National Library of Science and Technology, on the public availability date of *Scheffler*, obtained from counsel, **EX. 1026**;
- (3) Bibliographic record for *Technical Papers, 52nd Annual NCTA Convention & International Exposition* that contains *Scheffler*, available at <http://www.worldcat.org/oclc/249638468> from WorldCat, accessed and obtained on March 2, 2021, **Appendix B**;
- (4) Bibliographic record for *Technical Papers, 52nd Annual NCTA Convention & International Exposition* that contains *Scheffler*, available at <http://opac.tib.eu/DB=1/LNG=EN/CLK?IKT=12&TRM=3694995> [73](#) from the online catalog of TIB, the German National Library of Science and Technology, accessed and obtained on February 20, 2021, **Appendix C**;
- (5) Bibliographic record for *Technical Papers, 52nd Annual NCTA Convention & International Exposition* that contains *Scheffler*, available with accession number 249638468 from WorldCat in OCLC FirstSearch system, subscription required for access, accessed and obtained on February 20, 2021, **Appendix D**.

(6) OCLC Glossary, available at [https://help.oclc.org/Librarian\\_Toolbox/OCLC\\_glossaries/OCLC\\_glossary?sl=en#D](https://help.oclc.org/Librarian_Toolbox/OCLC_glossaries/OCLC_glossary?sl=en#D) from OCLC (last updated Jan 25, 2021), accessed and obtained on March 2, 2021, **Appendix E**.

4. In forming the opinions expressed within this declaration, I have considered:

- (1) The documents listed above;
- (2) The reference materials cited herein; and
- (3) My own academic background and professional experiences, as described below.

5. My complete qualifications and professional experience are described in my curriculum vitae, a copy of which is attached as **Appendix F**. The following is a brief summary of my relevant qualifications and professional experience.

6. I am currently a Professor in the Department of Library and Information Science at the Catholic University of America. I have experience working in an academic library, a medical library, and a legislative library and have been a professor for more than 30 years. I hold a Ph.D. in Library and Information Studies from the University of Wisconsin-Madison and a Masters in Library and Information Studies from the University of Wisconsin-Madison.

7. I am an expert on library cataloging and classification and have published two books on this subject, *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide* (2000, 2006). I teach a variety of courses, including Cataloging and Classification, Internet Searches and Web Design, Advanced Cataloging and Classification, Organization of Internet Resources, Advanced Information Retrieval and Analysis Strategies, Digital Content Creation and Management, Information Literacy Instruction, and The Information Professions in Society. My research interests cover cataloging and classification, information organization, metadata, information retrieval, information architecture, digital collections, user interaction with information systems, and others.

8. In the 2003-2004 timeframe, the Online Computer Library Center (OCLC) was the largest bibliographic network in the world. OCLC continues to hold this distinction today, with more than 482 million records. Further, OCLC itself has more than 15,637 member institutions from 107 countries. The majority of these OCLC member institutions are libraries, including, for instance, public libraries, national libraries, and libraries associated with higher education institutions.

9. In the 2003-2004 timeframe and today, OCLC members could and can contribute original cataloging and bibliographic records to OCLC's Connexion system. Once the record is created and stored in OCLC Connexion, it becomes searchable and available to other OCLC members for copy cataloging, interlibrary

loan, and collection management purposes. Again, thousands of libraries in the United States and abroad are OCLC members.

10. After records are added to OCLC Connexion, they also become searchable and viewable on WorldCat, which is a free web portal for users to explore more than 10,000 libraries worldwide. Records in WorldCat include labels to help users interpret the data elements and the record.

11. WorldCat (<http://www.worldcat.org>) is “the world’s largest network of library content and services” and its features are summarized in “What is WorldCat” (<http://www.worldcat.org/whatis/default.jsp>). WorldCat began operation in January 1998 as a free web portal to more than 10,000 library collections worldwide. Through WorldCat, users can search for information in their local libraries and libraries around the world. WorldCat allows users to search for books, CDs, videos, and many new types of digital content, such as audiobooks, in many languages. Users can also retrieve research materials and article citations with links to their full text. After an item is retrieved, WorldCat helps users identify a library nearby that holds the item or all the libraries that hold the item. WorldCat is an efficient way to explore the content held by more than 10,000 libraries around the world. WorldCat is publicly accessible, and there is no fee to perform a search on WorldCat.

12. The WorldCat bibliographic database is a highly utilized resource in the library field. Again, as I have noted, the bibliographic records that make up the

database come from unbiased sources: the libraries themselves that hold the works underlying the records. And, the records are intended to be used and are generally used as a reference by OCLC libraries and the members of the public visiting those libraries for research and other purposes. The WorldCat bibliographic database's records are also routinely relied on by librarians when identifying a work, the library where it is available, and other work bibliographic information. Its records are considered accurate and reliable by those in the library field. This is evinced by fact that the WorldCat bibliographic database has been in continuous use for decades, and also by its wide adoption and use by libraries around the world. Both in 2003-2004 and today, thousands upon thousands of libraries paid for the ability to access, use, and search the OCLC system and the WorldCat bibliographic database.

13. I am personally familiar with many online catalogs, databases, and search engines. In preparing for this declaration I used the following authoritative information systems to search for records:

- Online catalog of TIB, the German National Library of Science and Technology (<http://opac.tib.eu/LNG=EN/DB=1/>)
- WorldCat, a free web portal (<https://www.worldcat.org>)
- WorldCat in OCLC FirstSearch system (<https://firstsearch.oclc.org>)

These records are identified and discussed in this declaration. Experts in the field

reasonably rely on the data described herein to form their opinions.

## **Public Availability of *Scheffler* (Appendix A)**

### **A. Authentication**

14. **Appendix A** is a true and correct copy of “Ingest & metadata partitioning: requirements for television on demand,” (“*Scheffler*”), by Robert G. Scheffler, in the *2003 NCTA Technical Papers, 52nd Annual Convention and International Exposition*, pp. 274-283, obtained through counsel from TIB (Technische Informationsbibliothek), the German National Library of Science and Technology on February 23, 2021. When I began preparing this declaration, I searched WorldCat by “Technical Papers, 52nd Annual Convention and International Exposition” for records and the search results informed me that TIB held this publication. I then searched the online catalog of TIB for records and the search result confirmed the holdings information. I then asked counsel to obtain from TIB a copy of *Scheffler*. I received the copy on February 23, 2001, which included the title page, table of contents of *Technical Papers, 52nd Annual Convention and International Exposition*, and the *Scheffler* article. These pages are presented as **Appendix A** in this declaration.

15. Page 1 of **Appendix A** is the title page that shows “NCTA’s 52nd Annual Convention and International Exposition” as the title. Above it, a statement

of “NCTA. The National Show. Chicago, IL. June 8-11, 2003” indicates the parent organization of the meeting, meeting location, and date. Above the title, a statement indicates “The complete technical session proceedings from: NCTA. The National Show. Chicago, IL. June 8-11, 2003.” This statement indicates the parent organization of the meeting, and meeting location and date, and shows that this publication contains proceedings from the technical session at the meeting. The title page also shows that this publication was published by NCTA (National Cable & Telecommunications Association) and compiled by Mark Bell and Andy Scott. The title page shows “0-940272-34-2” as this publication’s ISBN (International Standard Book Number) and also shows that it has a “2003” copyright date, with “The National Cable & Telecommunications Association” as the copyright holder. Pages 2 and 3 of **Appendix A** (internal pages I and ii) are the table of contents, which identifies the publication as “2003 NCTA Technical Papers”. Page 3 shows that *Scheffler* was part of the session on “Subscribers On-Demand: Delivering What They Want, When They Want It” and began on internal page 274. Pages 4 to 13 of **Appendix A** are the *Scheffler* article. Page 4 shows the title, author, abstract and the text of *Scheffler*. The bottom of this page identifies the publication as “2003 NCTA Technical Papers” and shows that *Scheffler* runs from internal page 274 to page 283, including eight figures.

## **B. WorldCat Bibliographic Record**

16. **Appendix B** is a true and correct copy of the bibliographic record for *Technical Papers, 52nd Annual Convention and International Exposition*. I personally identified, located, and obtained this record from WorldCat for this declaration. This is the type of records experts in my field would reasonably rely upon when forming their opinion.

17. Page 1 of **Appendix B** shows the title of this publication is “Technical papers, 52nd annual NCTA convention & international exposition : June 8-11, 2003, Chicago, IL,” the author field shows “Mark Bell” and “National Cable and Telecommunications Association, the publisher field shows the National Cable & Telecommunications Association of Washington, D.C. published this work in 2003. The “Links to this item” area shows “Inhaltsverzeichnis” (contents) as a link, which leads to a table of contents (<http://www.gbv.de/dms/bowker/toc/9780940272347.pdf>) provided by Blackwell’s Book Services and R.R. Bowker, and the table of contents shows “Ingest & Metadata Partitioning: Requirements for Television On Demand” begins on “p. 274.” The “Find a copy in the library” field shows “Technische Informationsbibliothek (BI)” is the holding library. The Details section presents more data. The Material Type field shows this publication is “Internet resource” and the Document Type field shows that it is “Book, Internet Resource.” The ISBN field shows this publication’s 10-digit ISBN is “0940272342” and the OCLC number field shows the record

number is “249638468.” The Description field shows the publication has two preliminary pages and the total volume has 334 pages. The other titles field shows this publication is also known and can be searched by “2003 NCTA technical papers.” The responsibility field shows the National Cable & Telecommunications Association and Mark Bell.

**C. TIB Bibliographic Record**

18. **Appendix C** is a true and correct copy of the bibliographic record for *Technical Papers, 52nd Annual Convention and International Exposition*. I personally identified, located, and obtained this record from online catalog of TIB, the German National Library of Science and Technology for this declaration. This is the type of records experts in my field would reasonably rely upon when forming their opinion.

19. I have closely compared the TIB record (**Appendix C**) with the WorldCat record (**Appendix B**) and found them to have the same title (“Technical papers, 52nd annual NCTA convention & international exposition: June 8-11, 2003, Chicago IL”), the same contributor (“Bell, Mark”), the same corporate body as the publisher (“National Cable and Telecommunications Association”), the same publication statement on the publisher, location and year, the same physical description of two preliminary pages and 334 pages, and the same ISBN. They also contain the same link to “Inhaltsverzeichnis”. The Shelf mark field shows the

publication's call number is "RN 2344(52), and the Request information field shows this publication is "not for loan" and is "presently available" and a request link is provided. The only difference is the TIB record includes the conference names in three different forms, while the WorldCat record does not include the conference name formulated according to cataloging standards.

**D. TIB record in WorldCat FirstSearch**

20. **Appendix D** is a true and correct copy of the bibliographic record for *Technical Papers, 52nd Annual Convention and International Exposition*. I personally identified, located, and obtained this record from the WorldCat database in the OCLC FirstSearch system for this declaration. This is the type of records experts in my field would reasonably rely upon when forming their opinion.

21. WorldCat and WorldCat in OCLC FirstSearch provide access to records in WorldCat. The differences are that WorldCat is a web portal that is freely available to the public and data elements are labeled (see **Appendix B**), whereas OCLC FirstSearch is a subscription system that provides access to a large number of databases, including WorldCat. A major difference between these two versions of WorldCat is that the WorldCat in OCLC FirstSearch provides more bibliographic details and includes the date when a record is added to WorldCat.

22. Page 1 of **Appendix D** shows brief identifying information of this

publication and indicates “UNIV HANNOVER & TIB” of Germany as the holding library. I have closely compared the FirstSearch record (**Appendix D**) with the TIB record (**Appendix C**) and found them to contain the same information on the title, personal author, corporate author, conference names (in three forms), publication statement, year of publication, physical description, the link to contents (“inhaltsverzeichnis”), other title information, and responsibility statement. I have also closely compared the FirstSearch record (**Appendix D**) with the WorldCat record (**Appendix B**) that is freely available on the Internet, and found that the details of the free WorldCat record (**Appendix B**) are contained in the FirstSearch record (**Appendix D**). In addition to the WorldCat record details, the FirstSearch record also contains an importance detail in a “Date of Entry” field that shows the record was added to the OCLC WorldCat system on “20030916” (i.e., September 16, 2003) and its OCLC number is “249638468.” The Database field shows the record is stored in WorldCat.

23. **Appendix E** is a true and correct copy of the “OCLC glossary”, available at [https://help.oclc.org/Librarian\\_Toolbox/OCLC\\_glossaries/OCLC\\_glossary?sl=en#D](https://help.oclc.org/Librarian_Toolbox/OCLC_glossaries/OCLC_glossary?sl=en#D) from OCLC. I personally located, identified and obtained this document. This glossary provides a “comprehensive listing of OCLC terms accompanied by definitions.” The term “date of entry” is defined to mean the “[d]ate a new or

updated bibliographic citation is included in a database.”

**E. TIB Confirmation Letter**

24. **Ex. 1026** is a true and correct copy of a confirmation letter obtained from TIB and issued to counsel’s firm in Germany. It states that TIB confirms that “Technical papers, 52nd annual NCTA convention & international exposition, June 8-11, 2003, Chicago, IL ... with its information carrier ... was incorporated at our establishment on September 15<sup>th</sup> 2003, under the shelf mark RN 2344(52).”

**F. My Opinion on *Scheffler***

25. Taken together, the WorldCat record (**Appendix B**), the TIB record (**Appendix C**), and the TIB record in WorldCat from OCLC FirstSearch (**Appendix D**), and my knowledge and experience with cataloging and processing practices in libraries inform my opinion that *Technical Papers, 52nd Annual Convention and International Exposition* (and *Scheffler* contained therein) was cataloged by TIB and the record was added to OCLC WorldCat on September 16, 2003, making it available to OCLC members and users on the Internet from that day on. The date, in my opinion, is consistent with the date in the TIB letter. My interpretation of the TIB letter is that TIB had cataloged the publication containing *Scheffler* and given it a shelf mark of “RN2344(52)” on September 15, 2003, a day later the record was entered into OCLC WorldCat. It is therefore my conclusion that *Scheffler* was

publicly accessible no later than September 16 2003.

26. In my opinion, based on the fact that the WorldCat bibliographic database record for the copy of the *2003 NCTA Technical Papers* at the TIB library has a “date of entry” of September 16, 2003, starting on or very shortly after this date, a search performed using OCLC FirstSearch at an OCLC member institution for the “2003 NCTA Technical Papers,” the “NCTA,” “cable technical papers,” or the like would have identified the bibliographic record for the *2003 NCTA Technical Papers* attached as **Appendix D** and informed the searcher that a copy of the *2003 NCTA Technical Papers* was available for access at the TIB library.

27. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: 3-3-2021

Executed: Ingrid Hsieh-Yee

Ingrid Hsieh-Yee, Ph.D.

# **Appendix A**

# THE COMPLETE TECHNICAL SESSION PROCEEDINGS

FROM:



## **NCTA • THE NATIONAL SHOW**

**CHICAGO, IL • JUNE 8 - 11, 2003**

### **NCTA'S 52<sup>ND</sup> ANNUAL CONVENTION AND INTERNATIONAL EXPOSITION**

Published by:



Compiled by:

Mark Bell, Director, Administrative and Technical Services, Industry Affairs/Administration  
Andy Scott, Director, Engineering, Science & Technology

Audio recordings for each session are available for purchase—check your final program guide at the National Show, June 8-11—or phone NCTA's Industry Affairs department at (202)775-3669 for details. For availability and price information on previous volumes in the Technical Paper series, call NCTA's Science & Technology department at (202)775-3637 or e-mail [technicalpapers@ncta.com](mailto:technicalpapers@ncta.com).

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# INGEST & METADATA PARTITIONING: REQUIREMENTS FOR TELEVISION ON DEMAND™

Robert G. Scheffler, Chief Architect  
Broadbus Technologies, Inc.

## ABSTRACT

*On demand video services, such as today's Video on Demand (VOD), Subscription Video on Demand (SVOD), and the fast-approaching Television on Demand™ (TOD®) are enhancing the consumer television experience and creating new, exciting revenue opportunities and increased cash flow for cable operators and content owners alike. However, the technical requirements to support these services are becoming more demanding and complex. In VOD, cable operators are seeing solid buy-in rates, repeat purchase patterns, and concurrency rates of 3%-10% with limited marketing and promotional support. With recent trials of SVOD and an increased number of popular titles, concurrency rates have 'smoothed' the peak usage rates throughout the week to numbers that often approach 10%-20%. However, with Television on Demand (TOD) services, consumers will have considerably more programming choices including movies, subscription-based content, and the most popular broadcast content. It is anticipated that concurrency rates of TOD may steadily climb to levels that approach 30%-65% -- rates that mirror the total concurrent U.S. television viewing audience as measured by rating services such as Nielson.*

*Increased service usage, additional content, and new business models are challenging MSOs to conduct unprecedented network architecture preparation and planning. In addition, decisions related to*

*asset distribution, content propagation, network loading, metadata and rules issues need to be addressed to make Television on Demand a commercial reality.*

*This paper will address the issues and requirements associated with server ingest of broadcast content and content propagation. It will also discuss the architectural implications for the VOD server and propose a new class of server to support TOD requirements. The paper will also discuss how TOD content is managed through the creation and distribution of enhanced metadata formats in an environment that is controlled by studios, distributors, and cable operators.*

*New video server architectures and rules-based content control and propagation systems become integral contributors to the success of future on-demand services.*

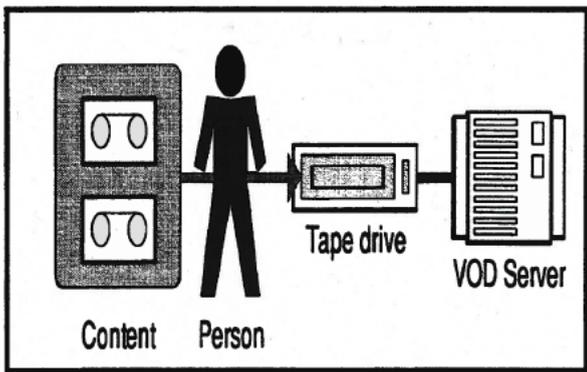
## VOD/TOD CONTENT INGEST

The issue of the ingest of broadcast television content is one that will become more and more important for advanced video services such as Television on Demand to become a reality. As more content is made available and concurrency rates increase, architectural decisions will have to be made to support these increased demands on the network. A new architecture comprised of higher density VOD/TOD servers with the capability to ingest

broadcast television will be required to support ever increasing content libraries and stream counts. However it is important to look at the evolution of VOD architectures to understand how those requirements will change in the future.

### VOD in the Past

In the early days of VOD, movies were distributed on tapes. These tapes were shipped to each site that required a specific movie title. Using an encoding rate of 3.375 Mbps and an average movie length of 100 minutes, the total size of each movie was roughly 2.4 GBytes. A typical installation might contain a library of under 100 movies and was capable of streaming to less than 1,000 subscribers simultaneously.



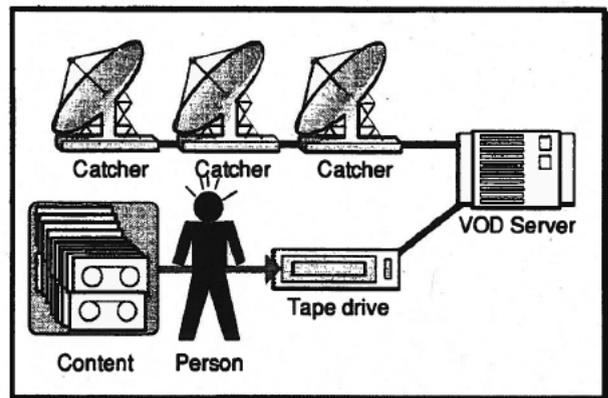
*Figure 2-1 Content Ingest for VOD in the past*

In early VOD deployments, metadata or other business rules weren't typically supplied with the content. The operators themselves were responsible for deciding what rules applied to particular content and for entering the appropriate rules into the VOD server or control system. This relatively simple model meant that most of the attention was focused on the billing interfaces, set top box (STB) client, and head-end control. With low stream counts, movie titles could be loaded during off-peak hours when the VOD server had more

processing capacity to focus on the ingest functions. This was very labor intensive with a single operator feeding tapes and entering rules to instruct the STB guide software about the pricing and availability of new titles (see Figure 2-1). Keeping up with content ingest was quite manageable for the operator and the conventional VOD server.

### VOD Today

As an industry, VOD has matured beyond the simplistic example described above. VOD installations now enable 1,000 to 3,000 customers to access a library of 150 to 300 movies. As a result, shipping tapes to VOD enabled head-ends has proved to be a logistical challenge and has evolved to a newer model called pitch-and-catch, where content is distributed by private broadcast to remote stations and syndication partners via satellite (see Figure 2-2). With increased library sizes, increased stream counts and more diverse suppliers sending data, the distribution and propagation of content has shown itself to be quite a challenge. Content can still arrive on tapes and is caught by catchers along with trailers, posters, and rules that are required to put it all together.



*Figure 2-2 Content Ingest for VOD today*

Content aggregation companies have risen to the challenge by offering services to edit, adjust, and compile these diverse formats and metadata into a nice bundled

package to be pitched and caught. However, a fundamental problem is that while quite adept at low-volume streaming, conventional VOD servers usually lack in their ability to simultaneously ingest large quantities of content. The situation multiplies itself as we add streams, services, storage, and begin to distribute more hardware throughout the network.

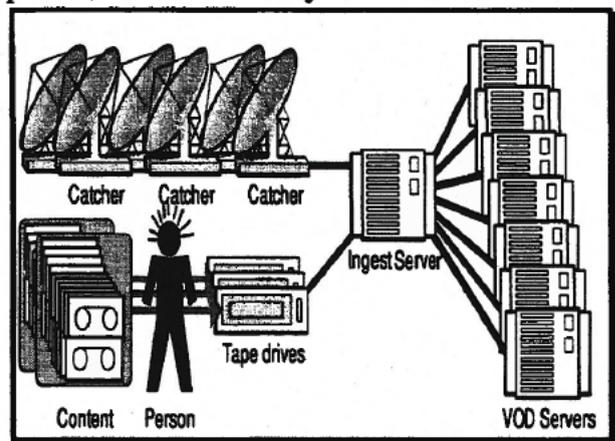
### Combining SVOD with VOD

Subscription VOD (SVOD) increases the existing VOD content library by adding 50-100 movies and other content and making them available to an increased number of subscribers. Even with a limited amount of content offered, trials of SVOD to date have resulted in increased concurrency rates that may be as high as 10%-20% or 3,000 to 5,000 streams in a typical system.

These concurrency rates place tremendous demands on the streaming capacity of the network. Also as stream counts increase, so does the problem of content ingest. To increase the stream count, additional streaming servers are required. These additional servers need access to the library of ingested content. If a given piece of content is to be made available to every customer on the network, the content needs to be either locally stored or remotely accessible. One way to make the content accessible is to add an ingest server or propagation server at the point where the content is caught or loaded from tape. This ingest server could then locally store the content, making it available to the rest of the servers. Alternatively the ingest server could be used to propagate or distribute the content to the streaming servers, whether local or remote (see Figure 2-3). Remembering that the streaming servers are primarily intended for streaming, there is a fixed amount of bandwidth available for

large amounts of content propagation. To now handle the ingest of a significant amount of content, a conventional VOD server will typically lose some, or much of its streaming performance.

Today's VOD server systems adequately accommodate the demands of low-concurrency VOD/SVOD deployments. However, adding the task of ingesting numerous channels of broadcast content to conventional VOD servers creates a massive hardware and software infrastructure that takes up a lot of space, consumes a lot of power, and is inherently less reliable.



*Figure 2-3 Content Ingest for VOD in the future*

### Television on Demand using Conventional VOD Servers

Now let's look at an example where we expand the VOD/SVOD service offerings to include Television on Demand (TOD). TOD enables cable operators to provide on demand delivery of live or pre-recorded broadcast television services as well as the movie and subscription-based content that VOD/SVOD offers. TOD is especially attractive to television content owners because it allows the viewing and sale of older programming that is out of syndication. TOD enables the consumer to have PVR functionality during broadcast

television viewing without requiring a hard-drive in the STB. At a minimum a TOD system should be capable of storing 1,000 movies for VOD/SVOD customers, plus 10,000 hours of captured broadcast television.

With Television on Demand, ingestion, propagation, and streaming of content needs to occur such that the customer still feels like they are watching broadcast television. In addition to the plethora of content, trailers, posters, and rules that VOD/SVOD requires, there is now a real-time requirement for low latency content ingestion. Current VOD/SVOD systems, complete with catchers, tape drives, and content ingest propagation now have to support the ingestion of broadcast television feeds (see Figure 2-4). The path of the broadcast feed to the broadcast ingest server to the ingest and propagation server to the VOD server and then to the customers is an operation that will take many seconds and must occur at the same time as the propagation of VOD content to the VOD servers.

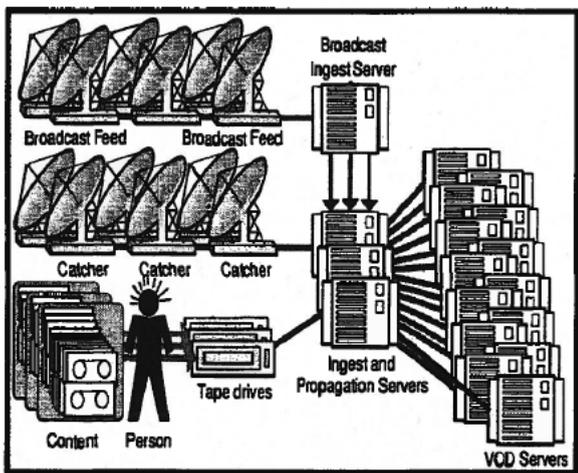


Figure 2-4 Content Ingest for TOD using VOD servers

Consumer concurrency rates for TOD will require a much higher stream count than the current growth projections for VOD

offerings. When VOD, SVOD, and TOD are combined a typical system may require 20,000 to 40,000 simultaneous streams. For example, using conventional VOD servers capable of 500 streams each would require 80 servers to satisfy the stream requirement. However, as more conventional VOD servers are added, the problem of propagating the content to all the servers increases exponentially and creates the need for more ingest servers to propagate the content so that eventually there is a hierarchy of ingest servers to streaming servers. A conventional VOD server is designed for streaming to customers, not for moving, propagating and ingesting television content. Therefore today's VOD servers are not the optimum solution for this compelling, new application.

#### Deploying TOD with TOD servers

The critical issues that must be addressed to adequately support TOD are content ingest and stream count. A new class of TOD server is required that can ingest dozens of channels of broadcast television while simultaneously redistributing thousands of streams with zero-latency. The associated delays can be removed by running the broadcast feeds for ingest directly into a TOD server where they can be directly streamed to customers without requiring an external hierarchy of propagation servers. This solves the content ingest and propagation problem presented by TOD. However, a hierarchical approach to storage is also required for off-line VOD/SVOD/TOD content access. What is needed is a distributed storage strategy with shared local storage as well as shared remote storage that decouples the streaming functions from the storage functions. By decoupling these functions, stream-count and storage-size can be scaled independently while storage can be placed in the network

where it can be used in the most cost-effective way. A master head-end containing a pooled storage library would allow a group of servers to access lesser-used programs without requiring local copies. By using this distributed storage architecture, each type of content can actually be moved and positioned in the network for the perfect balance between hardware and transport costs. As the needs of the network change, the placement of system components can change as well.

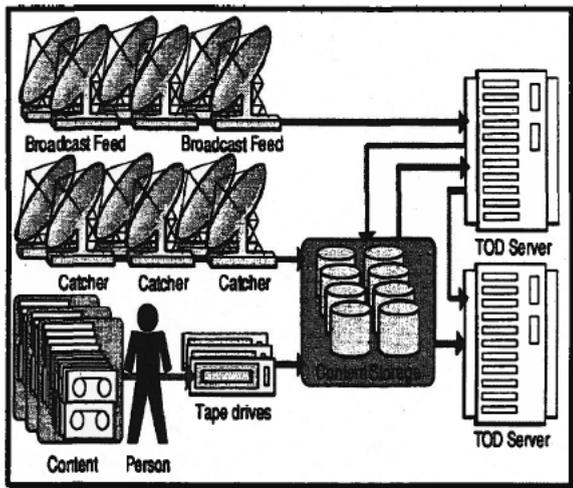


Figure 2-5 Content Ingest for TOD using TOD servers

A flexible architecture that can handle low-latency live-ingest as well as pitcher-catcher and tape based distribution models would be ideal for cost-effectively supporting TOD applications. The capability to decouple streaming from storage, while being able to distribute the storage anywhere in the network, would also significantly improve the economics of TOD. With streaming positioned in one place and storage distributed throughout the network the new architecture will scale to support even the most demanding TOD applications (see Figure 2-5). The future of VOD, SVOD, and TOD are dependent on a new architecture where scale can be controlled and each environment can be tailored for

specific applications with unique requirements.

### Summary of Content, Streams and Ingest

As needs grow and new business models are introduced, the capacity and scaling of VOD streaming servers are being tested. Content libraries are increasing and greater concurrency is leading to higher and higher stream counts (see Figure 2-6). With the introduction of TOD, the added ability to ingest broadcast television with low-latency is transitioning from an interesting feature into an absolute requirement.

Conventional VOD servers are being taxed to the limit with only a modest library change rate per month. As content libraries grow, to prevent libraries from becoming 'stale' with old content, an increased demand is being placed on off-line ingest. Even now, conventional VOD servers are reaching their limits in being able to keep up with SVOD and VOD applications. Regardless of how much streaming requirements increase as TOD begins to proliferate, the cable operator will be forced to add additional servers just to handle ingest tasks. Even then, the resulting system will not adequately address the problem of broadcast ingest to streaming latency. The clearly superior solution is to use a new class of specialized TOD server capable of ingesting and directly streaming with no perceivable delay.

Application	Movie Library	Library Change	Real-Time TV Ingest	Concurrency Rate	Stream Count
VOD	150-300	15/month	0 streams	5%-10%	1,000-3,000
SVOD/VOD	200-400	40/month	0 streams	10%-20%	3,000-6,000
TOD/SVOD VOD	1,000	100/month	100 streams	30%-65%	20,000-40,000

Figure 2-6 System Capacities for VOD, SVOD, and TOD

## METADATA AND CONTROL

### Rules are needed

The business of broadcast television today is very complex. The participants are numerous -- content owners, content aggregators, content distributors, broadcast and cable networks, MSOs -- and the relationships between the players are dynamic. What keeps content flowing from creators to consumers is the execution and enforcement of detailed contracts. These contracts determine the rules of "how", "when", and "by whom" content may be viewed. Whether it's a re-run episode of "Friends" that airs in syndication on TBS or a live broadcast of the New York Knicks on ESPN 2, there are specific contract-based rules that govern the manner in which content is handled. Therefore, it should be no surprise that a system of contract-based rules will continue to govern (and perhaps with greater emphasis) in a business that combines broadcast television content with on-demand content.

When VOD was initially deployed, the rules were relatively simple. MSOs would license a window of time when a movie would be made available to its subscribers. During the licensing window, the movie would be placed on the VOD Server and be available to subscribers. After the window

was over, the movie would be deleted from the server. A set of rules, or metadata, capturing the pre-negotiated License Window Start and End Times would be read and enforced by the VOD server.

As the industry moves towards SVOD and ultimately TOD, the same set of complex rules and attributes must be applied to each piece of content. Examples of additional rules for handling television content could include:

- Specific days of week when content is available
- One or more timeslots during the day
- Time range that the program is available on a particular day
- Specific commercials that must be carried with the program
- Trick-mode rules and attributes (specific speeds, enabled/disabled functions)
- Specific customer groups by demographic or geographic regions

Rules should be entered and applied as early in the process as possible. There are rules from many levels. Examples include:

- Content owner or studio
- Studio distribution arm
- Content aggregator
- Television network
- Local television station

- Cable MSO
- Cable local unit

Some of the rules apply to VOD, some to SVOD, and some only to TOD. The key is that there are many rules that can come from any number of places. While it can seem daunting, it is quite easy to create and manage these rules.

### Partitioning Metadata

The Video-on-Demand Content Specification as published by CableLabs has become the de-facto standard of how metadata is created and how it can incorporate many of the rules necessary to describe how on-demand content is to be handled. Initially written to support VOD (movies), it has been expanded to support SVOD. Moving forward, it is likely that the specification will need to be expanded to support all forms of on-demand content, including broadcast television.

Some metadata rules pertain to the specific content itself, while others apply to how that content is distributed and sold. One piece of content from a studio can be sent to many cable systems across the country. If the studio had to regenerate the content metadata each time, it would become a painful process that nobody would want to use. However, if the content specific metadata were attached or imbedded in the content itself, and the distribution specific metadata was separate, then the same content with metadata attached could be sent to many locations, with a different version of the distribution metadata. Thus, the content metadata and the rules-specific metadata has been partitioned.

#### 1. Content Metadata

Content metadata includes program specific things such as a unique identifier,

title, rating, description, time, actors, directors and crew, category, trailer file names, poster file names, etc. This type of metadata does not change, no matter who, what, when, or where it is distributed. This metadata could clearly be embedded in the actual content file and would stay with the file no matter where it goes.

#### 2. Rules-specific Metadata

The rules-specific metadata starts at the content creation studio. The studio decides if there are any specific restrictions on the distribution and sale of this content and passes those rules along to the content distributors. For example, there may be a requirement to restrict a specific category of commercial - A "Friends" episode may require Coke commercials, but not Pepsi. From there, the studio distribution arm may require more specific rules. "Friends" may be allowed from Monday through Friday anytime, but not Thursday from 8-9 pm, to prevent intruding on first-run episodes. Further downstream, the television network may decide to allow viewing anytime on Tuesday and Wednesday because those are non-peak days. The local television station may want to restrict viewing from 10-11pm during the local news hour.

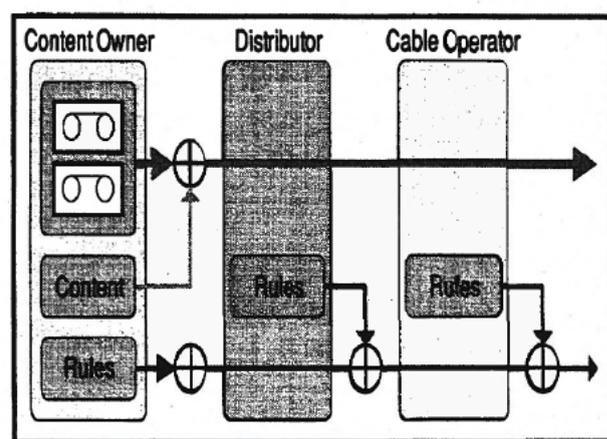


Figure 3-1 Rules-specific Metadata Flow

At each step along the way, the rules can become more restricted, but cannot be less restricted. In this manner, the content rules become more and more defined as they propagate downstream to the network operator and eventually the consumer (see Figure 3-1). Each system along the path is responsible for obeying the rules imposed upstream, and can expect each system downstream to obey the rules it passes on. When they reach the cable system, the TOD menu or EPG is built using these rules for the content received. By using this approach, the menus for the STB can be automatically and dynamically constructed.

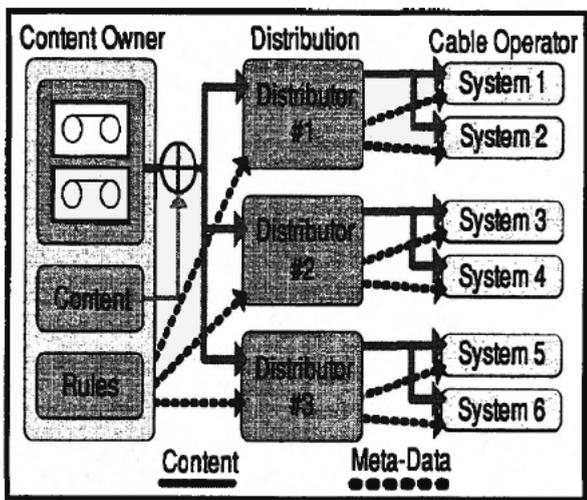


Figure 3-2 Metadata Flow to Multiple Downstream Paths

At each step in the process, there can be multiple downstream paths (see Figure 3-2) to both multiple distributors and cable systems. For example, the studio could sell a "Seinfeld" episode to the WB for certain nights in a specific week, and TBS on other nights. From each step facing down, the metadata can fragment, meaning there is a one-to-many relationship at each step of the way. This is important because at each level, a seller can sell to multiple customers. However, it would be inconvenient to have to re-record and re-master content each time

it was sold. An improved solution would be to ship the exact same content to each downstream customer, but each would be supplied with unique rules-specific metadata which can be changed or updated at any time without requiring the entire piece of content to be resent.

### Creating Metadata

With the two distinct types of metadata, appropriate software will be required to author and control its creation. A key ingredient is a unique identifier used to tie the asset together with both forms of metadata.

#### 1. Content Metadata

The content specific metadata is created at the earliest possible point in the production and distribution chain. The best place for this is at the studio or encoding provider. In cases where the content is broadcast television, the content metadata could originate from the television network, or other production company supplying the network feed.

#### 2. Rules-specific metadata

The rules-specific metadata can be created and adjusted at any point in the production and distribution chain, but would typically be originated at the same point the content is generated. For live television events, the rules could and should precede the actual content transmission. By sending the rules ahead first, the STB EPG can be populated, or other similar guide related decisions can be made.

### Propagating Metadata

Both forms of metadata need to be sent along the same path as the actual content.

When any piece of content is sold or distributed downstream, the content metadata is included with the actual content along with an edited copy of the rules-specific metadata. Every copy of downstream content could have a unique set of rules-specific metadata, but the content metadata would stay the same. This allows each downstream provider to receive different rules, and allows them to be changed at a later time. When the rules change only the rules-specific metadata need be resent, not the content metadata or the entire program content. With this approach, any distributor in the chain can revise and update their rules-specific metadata as necessary.

### Enforcing Rules-specific metadata

#### 1. Asset Distribution

To make this system viable, each video server or file server along the asset distribution path must receive and obey rules encoded in the metadata. Typically in the role of asset distribution, all that is required is to pass-on the rules given to us. At any point in the path, the rules can be edited to become more restricted, but never less restricted. As assets are moved downstream to the cable plant, appropriate TOD software will pick-up the rules-specific metadata. The TOD software will use this rules-based data to build the availability matrix of programs, and associate a local time-slot for the consumer. The TOD server software is then responsible for ensuring that the studio/distribution/network rules and permissions are obeyed.

#### 2. Content Propagation

When propagating content throughout the cable system, there can exist specific rules related to perishable content, or content that

has a limited availability window. When this type of rule is implemented, it is important that the system remove such content and make the storage and streaming space available as quickly as possible. Another situation where the propagation of content is important is when a known high-concurrency program arrives and needs to be propagated to many places in a large network to facilitate the expected high demand.

### CONCLUSION

In this paper, we have examined how conventional VOD servers are limited in their ability to ingest content and support the increasing stream requirements of TOD. There is a considerable impact in the output stream count as a VOD server is asked to ingest more content. With most existing systems, there is a non-linear loss of streaming capability while ingesting content. Specifically, many output streams may be lost for each single stream ingested. As the number of titles increases in VOD libraries the problem becomes more and more apparent. To reduce the impact on a VOD server, ingest of new content can occur after-hours. However this is just a temporary solution and won't scale as ingestion requirements continue to increase. With the upcoming everything on demand revolution, including Television on Demand, the ingest limitation of existing VOD server architectures becomes catastrophic. The more bandwidth consumed by ingest, the less bandwidth is available for streaming functions. Therefore more servers are required to keep the same stream count. As more servers are added, ingest and propagation becomes more and more complex. Elaborate ingest servers with content propagation services are a short-term solution but problematic longer term as

unacceptable latencies are introduced to the distribution of broadcast television.

A new breed of servers designed specifically for Television on Demand is required. These servers need to handle over 100 streams of live ingest while simultaneously redistributing the ingested content to over 20,000 output streams. The server must not suffer any performance degradation in output streams while ingesting live or non-live content. The latency through such systems must be low enough to enable live television with trick-mode functionality similar to that of DVD. The streaming elements and the storage elements must be separately scalable and movable within the network.

With the plethora of ingested content from VOD, SVOD, and TOD, new means for authoring and propagating metadata must be implemented. In addition to content metadata, a new class of rules-based metadata will be required to protect revenue streams by allowing a rules-based distribution and STB presentation of content. The metadata must be partitioned

and carried separately from the actual content to allow updating as well as customization depending on the MSO and region that the content is destined for.

A new breed of specialized, high performance TOD server with low-latency and live content ingest capabilities, plus a new metadata methodology, is a requirement to realize the potential of Television on Demand for cable operators.

#### About the Author

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## A

### AACR2

Anglo-American Cataloging Rules, 2nd edition. An international standard for the cataloging of all types of materials collected by general libraries. AACR2 has now been replaced by RDA: Resource Description and Access.

### Abbreviated records

Brief records (Encoding Level 3) that do not meet the requirements of minimal-level cataloging specifications.

### Abridged edition

A shortened version of the Dewey Decimal Classification (DDC) system that is a logical truncation of the notational and structural hierarchy of the corresponding full edition. The abridged edition is intended for general collections of 20,000 titles or less. *See also* [Broad classification](#); [Full edition](#).

### Abstract

A brief summary that classifies, evaluates, or describes the important points in the content of a journal article or library resource.

### Academic library

A library that is an integral part of a college, university, or other institution of postsecondary education, administered to meet the information and research needs of faculty, and staff.

### Access keys

In the Connexion client interface, underlined letters on menus, submenus, and commands, sometimes referred to as hot keys. Access keys, preceded by <Alt>, are keys used to execute commands (e.g., <Alt><V><U> opens the User Information window in the client). Access keys are available for all client commands.

**Access method**

Method used to log on to a service, download records or reports, or locate additional information. For example, a URL (Uniform Resource Locator) is used to find information on the Internet.

**Access point**

A name, term, code, etc., representing a specific entity that is indexed.

**Access to records**

Names, titles, keywords, subjects, codes, dates, and other data in bibliographic and authority records are indexed in a searchable database. Examples such as WorldCat to make them identifiable and retrievable.

**Accession number**

An identification or inventory number assigned to an item in a library's collection.

**Action status**

In Connexion client, an indicator in a bibliographic record that designates what actions have been taken and the outcome of each action. If taken, the following action status bar of a displayed record: Delete Holdings, Export, Label, Produce, Replace, Update Holdings, and Validate. For each action taken, a one-character code indicates the action completed successfully (C), failed (F), or is ready for batch processing (R).

**Add**

To load an original bibliographic record into the database after data sync routines cannot find a match for it. The bibliographic record may not necessarily start out as a new record at the institution's end.

**Added entry**

A secondary access point for the resource. Added entry is a pre-RDA term.

**Address**

Words, numbers, or symbols that designate a physical or virtual location. Examples: street numbers and names, countries, Email addresses, URLs.

**ALA**

American Library Association. The oldest and largest library association in the world. See [About ALA](#) for more information.

**ALA character set**

ALA-defined characters used in MARC records, including standard alphabetic characters, diacritics, special characters, 14 superscript characters, 14 subscript characters, and Greek characters. Also known as the MARC-8 character set, these were the only characters valid in MARC records prior to the implementation of Unicode.

**Allowable duplicate records**

Records for the same resource, but using different cataloging languages or rules. See also [Parallel records](#).

**Anglo-American Cataloging Rules, Second edition**

See [AACR2](#).

**ANSI**

American National Standards Institute. A nonprofit non-governmental organization composed of representatives from business and professional organizations that serves as a repository for various voluntary standards. See [About ANSI](#) for more information.

**ANSI/NISO Standards for Holdings Data**

Specifies display requirements for holdings statements for bibliographic resources to promote consistency in the communication and exchange of holdings information.

The standard applies to holdings statements for bibliographic resources in any physical or electronic medium. It may be applied to electronic resources available to a library either under its control, or available under other arrangements. It applies to both manual and automated means of recording holdings.

**Any qualifier**

Qualifier used to override default qualifiers. Any is also the default qualifier. If you do not qualify a search, the qualifier is any.

**Application**

Computer program that provides an interface to allow computer users to accomplish certain tasks. Examples include word processors such as Microsoft Word and C

Computer program that provides an interface to allow computer users to accomplish certain tasks. Examples include word processors such as Microsoft Word and a client for cataloging library materials.

### Approval plan

A predetermined set of criteria established by an institution and a materials vendor that defines types of material to be automatically sent to the institution by the vendor if the institution accepts the items for purchase or rejects the items and sends them back.

### Archive record

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### ArchiveGrid

An online service that provides access to detailed archival collection descriptions. It includes nearly a million descriptions of archival collections held by thousands of museums, historical societies, and archives worldwide.

### Archives

The noncurrent records of an organization, regardless of format, which are maintained and preserved because of their permanent legal, fiscal, regulatory, evidential, or historical value to the institution. Materials that are archived are permanently retained.

### ARN

Authority Record Number (OCLC-assigned control number for authority records in the LC names and subjects authority file).

### Article issue number

A number or code that identifies an article by the issue of the journal in which it appears.

### Article type

Words or abbreviations that describe the format or medium used to present an article. For example, a review (rev) is an article type. An editorial is another article type.

### Article volume number

A number or code that identifies an article by the volume of the journal in which it appears.

### ASCII

American Standard Code for Information Interchange. A standard computer character code set, consisting of alphanumeric characters, punctuation, and a few control characters (such as a carriage return). Each ASCII character consists of 7 information bits and 1 parity bit for error checking.

### Assigned search key

A string of characters assigned to an item by an agency which can be used to retrieve the record for that item.

### Authority control

Verifies a heading in a bibliographic record against the Library of Congress Authority File and, if a matching authority record exists, links the heading to the corresponding authority record. If the authority record is updated, the controlled (linked) heading in bibliographic records is updated automatically.

### Authority file

See [OCLC Authority File](#).

### Authority history record

Copies of all distributed Library of Congress authority file records, superseded versions of distributed records, and deleted records. Retrieve these records in Connected Authorities>Show>LC Distributed Version or LC Suspended Versions or using Authorities>Search>LC Names and Subject History.

### Authority record

A collection of information about a name (personal, corporate, family, or meeting), preferred title, or subject term (topical, geographic, genre, etc.). An authority record provides an authorized access point, see from references, see also from references, and notes.

### Authorization level

Defines a range of tasks that can be performed when logged on to a service. Also called *authorization mode*.

### Authorization number

Number assigned by OCLC to authorize use of OCLC services. Usually used in conjunction with a password. *See also* [Password](#); [Default holding library code](#).

### Authorized Access Point

An access point, representing an entity, formulated according to a specified standard.

### Availability

Indicates the institutions from which a library resource can be obtained.

A B C D E F G H I J K L M N O P R S T U V W Z

## B

### Batch processing

*See* [Batchloading](#).

### Batch processing in Connexion client

In Connexion client, the process of sending and completing a group of searches for bibliographic and/or authority records and/or a group of local actions in WorldCat client local files (files stored on the Connexion client cataloger's workstation), the cataloger enters search strings and/or marks saved records for actions and then initiates processing. The client automatically logs on to the system, runs the WorldCat searches and/or processes record actions, and produces reports, accessible in the client.

### Batch processing limits in Connexion client

None. Batch processing is limited only by the size of your hard drive. Note: Local files used for batch processing are limited to storing no more than 9,999 records. However, Connexion users can run as many local files as you want in a single batch.

### Batchloading

A service by which records were matched and/or added to WorldCat in batches. The batchloading service was replaced by OCLC Data Sync in 2017.

### BIBCO

Monographic Bibliographic Record Cooperative Program (BIBCO) is one of the programs of the Program for Cooperative Cataloging (PCC). BIBCO participants contribute monographic bibliographic records in all formats to WorldCat and other international databases. Records meet or exceed the BIBCO Standard Record (BSR) requirements. The "pcc" code in the 042 field. *See also* [PCC](#).

### Bibliographic database

A computer file consisting of electronic entries called records, each containing a uniform description of a specific document or bibliographic item, usually retrievable by subject heading (descriptor), or keyword(s). Some bibliographic databases are general in scope and coverage; others provide access to the literature of a specific discipline. An increasing number provide the full-text of at least a portion of the sources indexed. Most bibliographic databases are proprietary, available by licensed vendors, or directly from the abstracting and indexing services that create them.

### Bibliographic formats

The standardized sequence, and manner of presentation of the data elements constituting the full description of a resource in a specific cataloging or indexing system. The readable MARC record format has become the standard for library catalogs in many countries of the world. OCLC refers to eight bibliographic formats. In Connexion, bibliographic formats correspond to the workforms used to create new bibliographic records. In WorldShare Record Manager, these workforms are known as material templates. *See also* [Books format](#); [Computer Files format](#); [Continuing Resources format](#); [Maps format](#); [Mixed Materials format](#); [Scores format](#); [Sound Recordings for Materials format](#).

### Bibliographic Formats and Standards

Guide to machine-readable cataloging records in WorldCat. This guide provides tagging conventions, input standards, and guidelines for entering information into WorldCat. *See* [Bibliographic Formats and Standards](#).

### Bibliographic record

A description of the physical or virtual format and intellectual content of a single resource (a book, video, map, etc.) encoded in a standardized format such as MARC.

### Bibliographic Record Processing Summary

A summary of statistics after processing a batch of records using the OCLC data sync service. *See* [OCLC WorldShare Collection Manager data sync collections](#).

### Bibliographic save file

In Connexion, a working storage area online or a local file (on your workstation or network) to use for completing new bibliographic records or modifying existing WorldCat records.

Limit of 9,999 records for either online ! le or local ! le(s).

## BKS

See [Books format](#).

## Blank workform

A template for creating an interlibrary loan request or (in Connexion) a cataloging template for creating new records.

## Book number

The part of a call number that distinguishes a specific item from other items within the same class number, also called a Cutter number. A book number is composed of the author's name or letters from the title main entry and numbers. There are several systems for creating book numbers.

## Books format

OCLC-MARC Bibliographic format used for cataloging monographic non-manuscript language or textual material (including all published print language material, or publications of language material, microform reproductions of published language material, and published textual electronic resources). The three-character format index qualifier for books is "BKS".

## Books with feet

Refers to library books that are commonly lost, stolen, vandalized, or misshelved. They are typically popular titles and cover a wide range of subjects and contemporary topics.

## Boolean logic (searches)

A system of logical thought developed by English mathematician George Boole (1815-64). A Boolean search combines key concepts or search terms with the logic of AND, OR, and NOT to specify the exact information required in a database search.

## Boolean operators

AND, OR, and NOT. Used to combine search terms. AND finds only records that contain both terms. OR finds records that contain either term. NOT finds records that contain the first term but not the second term. Combining search terms produces more precise and manageable search results.

## Borrowing record

In WorldCat Resource Sharing, the record for which a library participates as the Borrower.

## Bracketed information

Descriptive information that has been provided by the cataloger added to a bibliographic record inside square brackets ([ ]).

## Brief list

Default display of WorldCat search results when a Connexion search retrieves 2 to 5 records.

## Broad classification

The classification of works in broad categories by logical abridgment, even when more specific numbers are available, e.g., the use of 641.5 Cooking instead of 641.5 cooking for a cookbook of Mexican recipes. Broad classification is the opposite of close classification. See also [Abridged edition](#); [Close classification](#).

## Browse

Scan an index for a match or the closest match to a term (word, phrase, or whole phrase) in records. The system matches the exact text string—character by character right—against the characters in the specified index. Produces a browse list that highlights the closest match and shows the number of records for each item in the list. Clicking on an entry opens the record or a record list, if multiple records match.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

## C

## Calendar days

WorldCat Resource Sharing sequential days, including weekends and holidays. See also [System days](#).

## Call number

A set of letters, numerals, or other symbols (in combination or alone) used by a library to identify a specific copy of a resource. A call number may consist of the class number; and other data such as date, volume number, copy number, and location symbol. A call number indicates the relative position of the copy on the shelf, facility,

**CAMIO**

Catalog of Art Museum Images Online. Developed by RLG, a database of artwork images.

**Cancel**

See [Delete](#).

**Case-insensitive**

Describes data you can enter in uppercase, lowercase, and mixed case. You do not have to match the case exactly.

**Case-sensitive**

Describes data you must enter exactly as it appears, matching upper- and lower-case.

**Cataloging Agent mode**

An authorization mode that allows the Cataloging Agent of an institution or a group to process cataloging records on a client's behalf. Agents may also process unresolved records from the group's data sync activity. See also [Processing center](#).

**Cataloging In Publication**

A Library of Congress program that provides bibliographic data for new books in advance of publication. Records are created from information supplied by publishers and are available for distribution and loading into bibliographic databases.

**Cataloging Label Program**

An OCLC service that lets users of OCLC cataloging products easily print labels for library materials. The free Windows software manages the creation, display, editing, and printing of pocket and spine cataloging labels.

**Cataloging profile**

See [OCLC cataloging profile](#).

**Cataloging source**

The authority or bibliographic record element (008/39) has coded data indicating the source of the data. Abbreviations for this element differ depending upon the

- Source (Connexion authority)
- Source (Connexion bibliographic)
- Cataloging Source Code (Record Manager authority and bibliographic)

In addition, the authority and bibliographic Cataloging Source record element 040 indicates the agencies that created and/or edited the record in WorldCat.

**Cataloging source qualifier**

Qualifier index (label cs=) that can be used to limit WorldCat searches to records contributed by a specific library identified by its OCLC symbol (for example, cs=oclc).

**Note:** To limit searches to records contributed by the Library of Congress or by specific LC cooperative programs, use cooperative programs index (label dl=) with the

**CatExpress/Express**

See [OCLC CatExpress](#).

**Central concept**

Main idea behind the content of the library resource.

**CERL**

Consortium of European Research Libraries

**Character masking**

Entering a question mark (?) or number sign (#) in a search in place of other characters to retrieve multiple words. **Example:** *computer?* retrieves records that contain *computerization*, or *computerized*.

**Chronology**

Types of dates used by publishers to identify the individual bibliographic unit of a serial, for example, date of coverage, date of publication, or date of printing.

**CJK**

An abbreviation referring to the Chinese, Japanese, and Korean languages and characters sets.

## CIP

See [Cataloging In Publication](#).

## Circumflex

The character (^) entered in certain segments of numeric and derived searches in WorldCat to make searches more precise. Also known as *caret*.

## Citations

A list that contains terms that identify whole or parts of library resources so that they may be found.

## Classification

A logical system for the arrangement of knowledge, including notations for identifying where in a classification a given item belongs.

## Classification number

The part of a call number, usually a combination of letters and numbers, used to classify library resources by subject area using a particular classification system.

## Classification system

A list of classes arranged according to a set of pre-established principles for the purpose of organizing items in a collection, or entries in an index, bibliography, or catalog based on their similarities and differences, to facilitate access and retrieval (i.e., classification by subject). Classification systems can be enumerative or hierarchical. Examples of classification systems include Dewey Decimal Classification and Library of Congress Classification.

## Classify

(1) To arrange a collection of items according to a classification system. (2) To assign a classification number to an individual work.

## Classify Web service

A FRBR-based, prototype service created by OCLC Research for automatically retrieving classification numbers for books, DVDs, CDs, and other types of materials. client via the Edit > Classify command, the service retrieves and inserts a suggested call number for a displayed bibliographic record.

## Click-through dialogs

Wizards in CONTENTdm that help simplify the process of entering descriptive and administrative metadata in both simple and compound records.

## Close classification

The classification of works to the fullest extent permitted by the notation. Close classification is the opposite of broad classification. See also [Broad classification](#); [Full](#)

## CNR

See [Continuing Resources format](#).

## CODEN

A unique 6-character code assigned by the Chemical Abstracts Service (CAS) to identify serial and non-serial publications in all subject areas.

## Collection

(1) Library resources grouped by a specific topic or other organization criteria; (2) the entire holdings of a library; (3) all library resources on a particular subject.

## Collection Sets

Officially called WorldCat Collection Sets. An OCLC service that provides MARC records for collections of already-cataloged microform, non-microform, and electronic resources.

## COM

See [Computer File format](#).

## Command line search

A type of Connexion WorldCat search that allows you to type (1) any complete keyword, numeric, or derived search in a single string, including index labels, qualifier operators, or (2) a browse string, including the Scan (*sca*) command and index label in the format *sca xx*.

**i** Note: The equivalent search capability in FirstSearch/Resource Sharing is called an "expert search."

## Communications format

The communications format presents a MARC record in a form that looks like one long run-on sentence, in which the fields are not preceded by tags. Immediately following is a block of data called a directory. This directory tells what tags are in the record and where they are placed by a count of the characters to the position where each directory is constructed, by computer, from the bibliographic record, based on the cataloging information, and, if any of the cataloging information is altered, can be the same way. *See also* [MARC \(Machine-Readable Cataloging\)](#).

### Completeness

An indication of how much of a published run of a serial is held. Completeness is indicated in ranges, for example, *Complete (95%-100% held)*, *Incomplete (50%-94% held)*, *than 50% held*.

### Computer Files format

OCLC-MARC Bibliographic format used for cataloging computer software (including programs, games, fonts), numeric data, computer-oriented multimedia, online services; the three-character format designator for computer fields is "COM".

### Conference name

*See* [Meeting name](#).

### Conference name phrase

The exact name or title of a conference that is the focus of a search. A conference name could be included in a title, abstract, notes, or text of a library resource.

### Connexion

*See* [OCLC Connexion](#).

### Connexion browser interface

*See* [OCLC Connexion browser](#).

### Connexion client interface

*See* [OCLC Connexion client](#).

### CONSER

Cooperative Serials Program (CONSER, which originally stood for CONversion of SERials) is the oldest program of the Program for Cooperative Cataloging (PCC). Participants contribute records for serials and integrating resources to WorldCat, where the CONSER database resides. Records meet or exceed the CONSER standards requirements and have the code "pcc" in the 042 field. *See also* [PCC](#).

### Constant data record

A partial record that contains standardized content for reuse in creating or editing a record without having to retype each time the content is reused. Constant data created by and shared among librarians at a given institution for cataloging and resource sharing activities.

### Content designation

The tags, indicators, codes, and other conventions established explicitly by MARC 21 to identify and further characterize the data elements within a record and to support manipulation of that data. MARC 21 attempts to preserve content designator consistency across formats where appropriate. *See also* [Record structure](#).

### CONTENTdm

OCLC's digital collection software suite. It allows you to digitize, store, search, and mount your digital objects on the Web.

### Context-sensitive Help

Topic you open using <F1> or a Help button in a dialog window to describe each feature of the dialog.

### Continuing Resources format

OCLC-MARC format used for cataloging items issued over time with no predetermined conclusion. The Continuing Resources format includes serials and ongoing internet resources. In WorldCat searches, use the Continuing Resources index (label: **cnr**) as a qualifier to limit results to records for this type of material.

### Contract cataloging

OCLC service that catalogs libraries' collections as their cataloging agent. Formerly called TechPro or Custom Cataloging.

### Control field

A 00x field. Control fields are structurally different from variable data fields containing neither indicator positions nor subfield codes. They may contain either a single or a series of fixed-length data elements. Although field 007 does not have indicators or subfield codes, it displays in subfielded form in Connexion interfaces.

**Copy cataloging**

Using and modifying an existing bibliographic record for local use. OCLC creates and stores an archive record of the modifications at OCLC.

**Copyright compliance**

Guidelines that relate directly to WorldCat Resource Sharing: Guidelines for the Proviso of Subsection 108 (g) (2). Borrower is responsible for ensuring that the request complies with U.S. Copyright law; request must include code ccg (conforms to Copyright Guidelines) or ccl (conforms to Copyright Law).

**Corporate name**

The name of an agency, association, business, firm, government, institution, nonprofit enterprise, performing group, etc. used as an authorized access point in a bibliographic record.

**Corporate/Conference name derived search**

See [Derived search](#).

**CSD**

See [OCLC Customer Services Division](#).

**Custom holdings**

Customized groups of preferred lenders; you define the groups for sets of similar requests.

**Custom Holdings Group record**

A record that contains OCLC symbols of preferred lenders within a particular category (for example, Books or State).

**Custom holdings locations record**

A display associated with a WorldCat record that lists institutions from which you prefer to borrow.

**Custom Holdings Path record**

A record that contains one or more custom holdings group records sorted in order of borrowing preference.

**Cutter number**

A notation derived from the main entry and added to the class number to order materials within classes. Cutter numbers can be derived from the Cutter Three-Figure Table, the Cutter-Sanborn Three-Figure Author Table, or the OCLC Four-Figure Cutter Tables. The notation often, but not always, combines alphabetic characters representing a surname with numerals. The class and Cutter notations together form a call number intended to be unique within a particular collection of resources.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

**D****Database**

A grouping of electronic data for a particular purpose or for the use of a particular set of users. Each entry in the database is a record. The database provides an interface and tools to enable manipulation of the data for sorting, grouping, searching, etc.

**Database enrichment**

A capability that allows modifications of WorldCat records.

**Data Sync Collection Profile**

The specifications for an institution's OCLC data sync project. The data sync collection profile details the general properties about the project, information about the records, outlines local bibliographic data for retention, specifies the MARC record output if necessary, and allows for contact information and correspondence. See [Collection Manager data sync collections](#).

**Data sync with output with OCLC Number**

An option for an institution to elect to receive a copy of the matching OCLC MARC bibliographic record when it sets its holding symbol in WorldCat through the OCLC service. Alternatively, the institution may choose to receive their own record(s) back.

**Date of entry**

Date a new or updated bibliographic citation is included in a database.

**DBID source**

**Database Identifier source.** An identifying number or term that refers to a source journal or primary database from which a cited library resource came.

**DCB**

See [Direct Consortial Borrowing \(DCB\)](#).

**DDC**

See [Dewey Decimal Classification](#).

**DDR**

See [Duplicate detection and resolution](#).

**Decomposed diacritics**

Two or more characters where a letter is entered first followed by one or more diacritical marks that display as one character.

For example, the base letter e (U+0065) followed by the combining acute accent (U+0301) which displays as é.

See also [Diacritic](#); [Precomposed diacritics](#).

**Default**

Selections made by the computer or a software program in the absence of specific instructions by the user. For example, the Connexion client pre-sets some options of each type of local field when you first install the program.

**Default constant data**

A constant data record set as the default content to apply to record(s) you create or edit.

**Default holding library code**

The holding library code is a four-character code associated with a specific OCLC symbol. It appears automatically in data fields when a user displays a bibliographic subfield \$a) or local holdings record (field 852 subfield \$b).

**Default holdings display**

The system responds to a display holdings command with a list of all, regional, or state holdings on a record, depending upon the number of holdings the record has.

**Default qualifiers**

In the Connexion client, a specific qualifier that is automatically applied to batch search keys. Default qualifiers cannot be set in other types of searching in the Connexion client.

**Default settings**

Settings and options that are preset in Connexion client when you install it. For example, the client provides default keystroke shortcuts for entering diacritics and special characters. You can change default settings to customize the program.

**Default values in workforms**

Values automatically supplied in workforms (templates for creating MARC records), depending on the MARC format selected for the new record.

**Default WorldCat search results displays**

System-determined displays of WorldCat search results as group, truncated, or brief lists or as a full record. The default display type is based on the number of records retrieved.

**Deflection**

A decision process that can happen multiple times within the life-cycle of a request using lending rules set up in the Policies Directory. Deflection is performed on the request.

**Delete**

Action to remove an institution's OCLC symbol from a record in the database. This can be done one of two ways: Create a Delete WorldCat Holdings collection with collections or create a Bibliographic collection with Record Status element set to "Use". Data sync cancels the holding on the matching record when a match is found. Status element (Leader byte 5) contains the character "d". This is equivalent to the Delete Holdings command in the Connexion client and browser.

**Delimiter**

See [Subfield delimiter](#).

[See also: \*\*Derive new record\*\*](#).

### Derive new record

For cataloging in Connexion, using a pre-existing record to create a new record to add to the system.

### Derived search

A type of WorldCat search that uses a specific number of initial characters from the words in a name and/or title. A shortcut way to enter a search. The "derived" segments are separated by commas. The number and pattern of letters and commas tells the system which index to search. The four types of derived searches (with the details in parentheses) are: Title (3,2,2,1); Personal name (4,3,1); Corporate/Conference name (4,3,1); Name/Title (4,4).

### Descriptor

(1) A term that describes the theme or topic of the content of a library resource. (2) A standardized term assigned to database records to facilitate retrieval of records.

### Detailed level information

Holdings statement at the most detailed level of enumeration and chronology. *See also* [Level 4](#).

### Dewey class number

*See* [Dewey Decimal class number](#).

### Dewey Decimal class

*See* [Dewey Decimal class number](#).

### Dewey Decimal class number

A classification number that conforms to the conventions used in the Dewey Decimal Classification system. The classes used to identify library resources are: 000, General Reference; 100, Philosophy & Psychology; 200, Religion; 300, Social Sciences; 400, Language; 500, Natural Sciences & Math; 600, Applied Sciences (Technology); 700, Fine Arts; 800, Literature; 900, Geography & History.

### Dewey Decimal Classification

A general knowledge organization tool conceived by Melvil Dewey in 1873 and first published in 1876. At the broadest level, the Dewey Decimal Classification (DDC) has ten main classes organized by disciplines or fields of study. Together these classes cover the entire world of knowledge. *See also* [Dewey Decimal class number](#).

### Dewey Decimal subject heading

Used in the Dewey Decimal Classification system to identify library resources by disciplines or areas of knowledge.

### Dewey Services Only session

A Connexion session that provides access to WebDewey and/or Abridged WebDewey. A Dewey Services Only session: does not access and user support fees; does not have simultaneous logon limits for libraries subscribing to it at fee Internet or dedicated TCP/IP access; and includes a default inactivity timeout of 120 minutes (default timeout for Connexion sessions is 40 minutes). Authorized users can start a Dewey Services Only session from the Connexion logon screen or from within an active Connexion session.

### Dewey subject heading phrase

The specific terms used to identify Dewey subject headings or subsets of those headings. Browse the Dewey subject heading phrase index for valid phrases.

### Diacritic

A mark that modifies the phonetic value of some other character or characters. It is always used in conjunction with another character.

In records coded as MARC-8, each diacritic occupies its own position, directly following the modified character, although the diacritic displays correctly in relation to the character.

In records coded as UTF-8, both precomposed and decomposed diacritics may be used.

*See also* [Precomposed diacritics](#); [Decomposed diacritics](#).

### Dialog

In Connexion, a window that opens when a command you issue requires input before a task can be completed or when you click a button to select options and settings called a "window" in Connexion client and a "screen" in Connexion browser. Dialogs provide text boxes, lists, buttons and other elements for entering data, making selections, and clicking more commands to tell Connexion what to do.

### Digital Archive

OCLC service that provides long-term storage of digital documents in multiple formats. Based on the OAIS (Reference Model for an Open Archival Information System) and utilizes the METS (Metadata Encoding and Transmission Standard).

**Digital Collection Gateway**

The WorldCat Digital Collection Gateway provides OCLC subscribers with a self-service tool for uploading the metadata of their unique digital content to WorldCat. If metadata is in WorldCat, library collections are more visible and discoverable by end users who search WorldCat.org, WorldCat Local and WorldCat Local "quick start" pages on Google, Yahoo!, and other popular Web sites.

**Direct Consortial Borrowing (DCB)**

An arrangement allowing users of one agency to request and borrow items from another agency within a consortium. As a DCB agency, OCLC uses NCIP (NISO Circulation Interchange Protocol) to facilitate the transfer of user identification and item information between different circulation systems, allowing OCLC to manage traffic for patrons and/or provide local control for items belonging to another agency.

**Direct delivery**

An OCLC Resource Sharing option that allows a lending library to send an item directly to the requestor/patron rather than to the borrowing library.

**Direct Request**

An OCLC ISO-10161-based service that provides a means to send patron-generated requests automatically to WorldCat Resource Sharing. See also [ISO 10160/101 Automated Request Manager](#) for more information.

**Directory**

Within each MARC record, a series of fixed-length entries, with one entry for each variable field (control or data) present in a record. Each Directory entry contains the field tag, the field length, and the starting character position. The Directory immediately follows the Leader at the beginning of the record.

**Display holdings**

A command to view the list of institution symbols that hold an item. In WorldCat Resource Sharing, used to select potential lenders.

**Document supplier**

Major national resource centers and other document suppliers such as the British Library Document Supply Center.

**Domain**

All or part of an Internet name, address or element that identifies a computer and the organization that transmits or receives electronic data.

**Dublin Core**

An international standard that supports creation of simple, informative descriptions of electronic resources that facilitate management and discovery. The Dublin Core defines 15 elements for a resource description. Users can define additional elements or qualifiers for the standard elements to adapt Dublin Core to meet their needs. The elements provide a shared semantic framework that allows communities operating under different rules or standards to exchange metadata.

Dublin Core has as its goals the following characteristics: simple creation and maintenance, commonly understood semantics, international scope, and extensibility.

For more information, visit the official [DCMI site](#).

**Duplicate detection and resolution**

Software that identifies and merges duplicate records in books and serials format. The software uses complex algorithms and can match some records that failed to data sync processing. For example, regular data sync does not match the publisher strings Charles Scribner and Chas. Scribner. DDR software may find that all other records recognize the identical Scribner strings in the publisher, and determine that the records match. OCLC uses this software at its discretion, based on a given field's probability and probable duplication rate.

**Duplicate record**

See [Allowable duplicate records](#).

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

**E****EACC**

East Asian Character Code. A set of unique 3-byte hexadecimal codes used to represent and store in machine-readable form all Chinese, Japanese, and Korean characters in USMARC format.

**Electronic Collections Online (ECO)**

An OCLC service that offers Web access to a collection of electronic journals, letting libraries subscribe to individual journals and provide access to them for their er single Web interface.

### Electronic Data Exchange (EDX)

A decommissioned OCLC method of data exchange via FTP. It was a method for libraries to send and receive ! les.

### Electronic document supplier

Document supplier that accepts WorldCat Resource Sharing requests and delivers full-text documents through messages to your library's Email system.

### Electronic resource

See [Computer File format](#).

### ELvl

See [Encoding Level](#).

### Email

**Electronic mail.** The exchange of electronic messages created by a user on a computer and transmitted (via an organization's network or the Internet) to another use

### Embedded holdings data

Holdings information contained in an existing MARC 21 bibliographic record rather than being in a separate local holdings record.

### EMST

See [Enter-my-symbol-twice institution](#).

### Enc lvl

See [Encoding Level](#).

### Encoding Level

1. In bibliographic records, the Encoding Level represents the completeness of the record. It is identi! ed in MARC 21 as Leader/17 and in Connexion as ELvl in the ! Record Manger as Encoding Level. Requirements for each encoding level in bibliographic records have varied over time. Correspondence between data in record cataloging instructions is not exact.
2. In authority records, the Encoding Level represents the completeness of the record. It is identi! ed in MARC 21 as Leader/17 and in Connexion as Enc lvl in the ! x Record Manager as Encoding Level.
3. In holdings records, the Encoding Level represents the level of speci! city of the holdings statement. It is identi! ed in MARC 21 as Leader/17 and in Connexion an Manager as Encoding Level. Codes in holdings records re! ect requirements of [Holdings Statements for Bibliographic Items](#) (ANSI/NISO Z39.71) and [Holdings St Summary Level](#) (ISO 10324).

### Enhance

Enhance was a former OCLC program, established in 1983, that began the process of decentralizing responsibility for bibliographic quality control in WorldCat. Reg enabled specially authorized members of the cooperative to edit, upgrade, and replace full-level member input records in non-serial formats. National Level Enhance 1994, enabled authorized Library of Congress catalogers and other participants in the Program for Cooperative Cataloging (PCC) to edit, upgrade, and replace full-l PCC records. Beginning in 2009, Regular Enhance was gradually superseded by the expanded editing and replacement capabilities of the OCLC Expert Community. Enhance continues as the means by which PCC participants do BIBCO work in WorldCat. See also [Expert Community](#).

### Enter-my-symbol-twice institution

A potential Lender participating in resource sharing that requires more than four system days to respond to an ILL request.

### Entity

A class of key conceptual objects of interest to users of information describing bibliographic data. In RDA entities include agent, collective agent, corporate body, exi item, manifestation, nomen, person, place, timespan, and work.

### Enumeration

A designation in numeric and/or alphabetic form, rather than in chronological form, presented for a serial issued in a sequence of numbering to show the relationship unit of the serial to the series as a whole. For example, Volume 235 and Volume XII are indicators of enumeration.

### Error rate

The percentage of records within a ! le that contain validation errors.

**Eureka**

Formerly, a group of RLG databases. Most of the Eureka databases have become part of OCLC FirstSearch.

**Evaluation**

The evaluation of bibliographic records sent for data sync processing involves analysis of the data. Data Sync staff identify problems with the records as well as problem structure. All of this analysis is done to obtain the highest and most accurate hit rate for a project.

An automated portion of the data sync process that identifies and corrects some critical errors to allow for better processing and matching. If left uncorrected, these prevent data sync from processing the records.

**Executable file**

File that runs a software program. The client executable file is Connex.exe.

**Expert Community**

Beginning in 2009, the Expert Community is an expansion of the WorldCat record editing capabilities of the Enhance program to all full level cataloging users. OCLC Community provides Connexion users who have a full level authorization or higher level of responsibility in making changes to WorldCat records. Maintenance of WorldCat records is shared equally between OCLC staff and member libraries. See also [Enhance](#).

**Export**

(1) A command or action that causes a record to be converted to MARC 21, MARCXML, Dublin Core, or MODS format and output to a file on a workstation or in a local file system. (2) Downloading a record from WorldCat.

**Export to TCP/IP connection**

Export one or more bibliographic or authority records directly to a local library system via a TCP/IP port. Establishing the export connection may require configuration of the local library system and firewall.

**Expression**

RDA defines an expression as an intellectual or artistic realization of a work in the form of alpha-numeric, musical or choreographic notation, sound, image, object, or any combination of such forms.

**EZproxy**

Middleware that authenticates library users against local authentication systems and provides remote access to licensed content based on the user's authorization.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

**F****Family name**

See [Surname](#).

**Field**

In a bibliographic, authority, or holdings record, a tag in which the same kind of information is consistently entered. For example, bibliographic tag 245 is a field that contains title information.

**File structure**

See [Record structure](#).

**File transfer protocol (FTP)**

See [FTP](#).

**Filing indicator**

In bibliographic records, determines how many initial characters the system omits before indexing the field.

**Fill character**

A black box or vertical bar that represents content that must have valid data, or where no attempt is made to code the data.

**Final OCLC actions**

Actions catalogers take on records to accomplish specific tasks, such as adding holdings to a record, exporting a record to a local system, adding a new WorldCat record to an existing WorldCat record. See commands on the Action menu in Connexion client or in the Action list in Connexion browser.

Actions that libraries are permitted to take on records are part of each library's cataloging profile and are identified by the system by the authorization the library uses.

**FirstSearch**

OCLC FirstSearch is an online reference service with a collection of databases, full-text articles, full-image articles, library holdings, and interlibrary loan. It supports a wide range of subject areas with well-known bibliographic and full-text databases in addition to ready-reference tools such as directories, almanacs, and encyclopedias.

**FirstSearch/ILL Direct Request Link**

A link between OCLC Direct Request and the OCLC FirstSearch service that allows patrons to generate requests for materials cited in FirstSearch databases.

**Fixed field**

The OCLC Fixed Field consists of elements of the MARC 21 Bibliographic Leader and field 008, in addition to control fields 001 and 005. The Fixed Field may be displayed with mnemonic labels for each element or as a separate variable field in Connexion client and WorldShare Record Manager. Fixed fields, and each element within, have a fixed length. Each element is identified by its position. Other fields with fixed-length elements are 006 and 007.

**Fixed-length data element**

An element in a record whose length cannot be changed.

**Forced add**

The loading of a field of records to the database without attempting to find matching records and without validating their data. OCLC does a forced add rarely, when records are so unusual that matching records in the database are unlikely.

**Forename**

See [Given name](#).

**Format**

A standard for the representation and exchange of data in machine-readable form. There are five MARC 21 data communication formats: Authority, Bibliographic, Community Information, and Holdings. See also [Bibliographic formats](#).

**FRBR**

Functional Requirements for Bibliographic Records. An approach to consolidate different versions of the same content. See IFLA's [Functional Requirements for Bibliographic Records](#) for more details.

**Frequency**

The interval at which a continuing resource is issued. Examples include weekly, monthly, quarterly, annually, and irregularly.

**Fretwell-Downing Informatics**

Based in Sheffield, United Kingdom, with operations in Europe, North America and Australia, Fretwell-Downing Informatics (FDI) is a document delivery and ILS provider. Downing was acquired by OCLC in 2005.

**FTP**

File Transfer Protocol (FTP)/Secure File Transfer Protocol (SFTP) is a TCP/IP-based protocol that is generally available for file transfers to and from a large variety of systems. It is the method used to send and retrieve files.

**Full edition**

The complete version of the Dewey Decimal Classification (DDC) system. See also [Abridged edition](#); [Close classification](#).

**Full mode**

The authorization level used to log on to the system for copy cataloging and original cataloging activities. With a Full level authorization, catalogers can add and replace holdings on WorldCat records or work with bibliographic institution records.

**Full stop**

In cataloging, a full stop is a period (.), colon (:), semicolon (;), question mark (?), or exclamation point (!).

**Full text**

The complete contents of a library resource that is text based, as opposed to an abstract or a bibliographic record.

**Full text option**

See [Electronic document supplier](#).

**Full-level record**

A Full-level cataloging record seeks to ensure inclusion of the essential data elements necessary to meet user needs. It is a solid "full" description of a resource that in a shared environment. Full-level cataloging does not preclude the use of data in a bibliographic description representing more extensive cataloging treatment. General cataloging meets the requirements of RDA Core (RDA 1.3) or AACR2 second-level description (AACR2 1.0D2). Full-level cataloging uses [ELvl](#) codes *I* or *blank*.

**Function keys**

Keys and key combinations on the keyboard that transmit signals not associated with printable or displayable characters (examples: F1, F2, etc). In specific applications, function keys are programmed to initiate commands.

A B C D E F G H I J K L M N O P R S T U V W Z

**G****GAC**

**Group Access Capability.** A group of institutions that use the OCLC system for resource sharing and interlibrary lending. A GAC has full and selective members. A selective member has access to only abbreviated bibliographic records, and only to records for its own group. Groups are composed of at least one Full member and may include Selective WorldCat Resource Sharing only. GAC can also refer to the group itself.

**GAC/UL**

**Group Access Capability/Union List.** The same as a GAC, but a selective user also has access to local holdings records for its group.

**General retention policy**

Denotes the period for which the serial is retained or held by the location, for example, Permanently retained, Retained for a limited period, and Not retained.

**Given name**

A name chosen for a person at birth that identifies and differentiates that person from others in the same family. Depending on the culture a person is born into, the given name precedes or follows a surname (i.e. family name). A given name may also be known as a forename, first name, or personal name. See also [Surname](#).

**GovDoc**

The OCLC GovDoc service, available to regional and selective depository libraries, provides up-to-date, MARC-format cataloging records for U.S. government documents.

**Government document number**

Government-assigned number for materials provided at the expense of and by the authority of any office of the government, for example, United States Superintendent of Documents (SuDoc) numbers.

**Group Access Union List group**

An OCLC Union List group in which some members are not OCLC Cataloging members and have limited access to OCLC services.

**Group list**

In Connexion, the default display of WorldCat search results with a search retrieves 101 to 1500 records. Groups of records are sorted by type of material and year. Clicking an entry opens a brief or truncated list, depending on the number of records represented by the group list entry. 1500 is the system limit for retrieving WorldCat records.

**Group Services**

OCLC service that helps libraries join to purchase, usually for a discount from the price each would pay to purchase the services on their own. Includes Group Cataloging, which is the WorldCat records cataloged by members of the group.

**Guided entry**

Edit or create a record by using text boxes and lists to enter or change data.

**Guided search**

Text boxes and lists of indexes and qualifiers to enter or select the parts of a search, for example for WorldCat, LC authority, or saveable records. For entering searches to remember indexes, labels, correct order for searches, etc., as you do for command line searches.

A B C D E F G H I J K L M N O P R S T U V W Z

## H

### Hand Press Book (HPB)

The HPB database includes records for European printing of the hand-press period (circa 1455-1830) from the Consortium of European Research Libraries (CERL), which represent national and university libraries in 16 countries. The database is available to CERL members only.

### Heading on a list

On the first line of each list or bibliographic record is a heading that describes the search and indicates the number of records retrieved. Depending on the search, they include database name, index labels, title phrases, keywords, numeric derived search, qualifier labels and qualifiers.

### Help

Electronic user documentation that is available from the Help menu of a specific product such as Connexion, FirstSearch, etc.

### Hits

The number of records or the number of times a record or word is found as a result of searching the system.

### Holding library

The library or collection within an institution represented by the holding library code.

### Holding library code

A unique 4-character code that identifies a holding library or collection within an institution. For 3-character OCLC symbols, the holding library is often the OCLC symbol's fourth character. For example ADRR, when the OCLC symbol is ADR. *See also* [OCLC symbol](#).

### Holdings

The total stock of materials, print and nonprint, owned by a library or library system, usually listed in its catalog. Synonymous in this sense with library collection. Includes all the copies, volumes, issues, or parts of an item owned by a library, especially a serial publication, indicated in a holdings statement in the record representing the item. Holdings can be recorded in the MARC 21 Format for Holdings Information.

### Holdings display

A list of OCLC symbols of institutions that hold the item. A holdings display accompanies each bibliographic record in WorldCat.

### Holdings level

There are four levels of holdings specificity, ranging from a simple statement that the library holds the resource on up to a complex, detailed statement of exactly what resource are held. For the four levels, see [OCLC Z39.71 Local Holdings Maintenance \(Table 1: Levels of Specificity\)](#).

### Holdings record

A record containing the location, status, and/or copies associated with a single bibliographic item of a specific publication held by a particular institution.

### Holdings symbol

*See* [OCLC holding library code](#).

### Hot keys

*See* [Access keys](#).

A B C D E F G H I J K L M N O P R S T U V W Z

## I

### Identifier

A significant term, number, acronym, name, or symbol used alone or with other identifiers to refer to a library resource.

**IFLA**

International Federation of Library Associations and Institutions IFLA is the leading international body representing the interests of library and information services. As an independent, international, non-governmental, not-for-profit organization, IFLA aims to promote high standards of provision and delivery of library and information services, encourage widespread understanding of the value of good library and information services, and represent the interests of its members throughout the world. The Royal Library of the Netherlands, in The Hague, provides facilities for IFLA's headquarters.

**IHB**

Institution Holdings Bit (IHB) is represented in online displays by the OCLC symbol.

**ILL**

**Interlibrary loan.** When a book or other item needed by a registered borrower is checked out, unavailable for some other reason, or not owned by the library, a patron can request that it be borrowed from another library by filling out an interlibrary loan request form at a service desk or on the library's Web site. Some libraries also accept ILL requests by mail or telephone. Interlibrary loan is a form of resource sharing that depends on maintaining union catalogs. *See also* [WorldCat Resource Sharing](#).

**ILL cycle**

Interaction between Borrower and Lender during an interlibrary loan transaction.

**ILL Fee Management service (IFM)**

A service that provides a means to pay and be paid for interlibrary loan requests through your OCLC invoice.

**ILL Reasons for NO report**

Monthly data about Borrower and Lender activity furnished electronically at no charge. This report records the ISO-specific reason a Lender was unable to lend a resource.

**ILL record**

A record with an identification number created when a Borrower produces a workform, that is, sends the request to the first potential lender.

**Illustration**

Graphics used to clarify or enhance the content of electronic or paper text.

**ILS**

Integrated Local System. *See* [Local system](#).

**Import records**

Import bibliographic or authority records from a local system or from offline services into the Connexion client online or local save file to (1) add to WorldCat, (2) for records received from an offline service such as WorldCat cataloging partner collections, or (3) process unresolved Batchload records. The Import Records command is in the Import menu.

**INT**

*See* [Integrating resource](#).

**Index**

A detailed alphabetical or numerical list for a specific kind of bibliographic data provided by the system for retrieving a record or sets of records from a database such as a catalog.

**Index label**

A two- or three-character code followed by a colon or equal sign that indicates to the system the index against which to match a search term.

**Indicators**

Either of the first two character positions in the variable data fields that contain values which interpret or supplement the data found in the field. Indicator values are interpreted independently and supply information about the field for indexing and other system functions.

**Initial article**

Words such as a, an, the, and the non-English equivalents that are the first word in a title or corporate name. *See also* [Non-leading indicator](#).

**Input Method Editor (IME)**

A tool to enter East Asian language characters with a keyboard. If you install CJK languages on your workstation, Windows automatically supplies the appropriate IME.

**Input stamp**

Data appended to a call number, representing the location, copy number, or other local information for an item.

### Institution

A library, a library system, an organization, or a part of a library, library system, or organization.

### Institution profile

A term synonymous with Cataloging Pro! le. *See also* [OCLC cataloging pro! le](#).

### Institution symbol

*See* [OCLC symbol](#).

### Institution-specific file

Records accessible only to an individual institution and OCLC that have been used or will be used by the institution.

### Integrated local system (ILS)

*See* [Local system](#).

### Integrating resource

A continuing resource that is added to or changed by means of updates that do not remain discrete but are integrated into the whole. Includes loose-leaf manuals through means of replacement pages, continuously updated websites, continuously updated databases, etc. The three-character format designator for integrating resources

### International Standard Book Number (ISBN)

A unique identification number assigned to a work by its publisher. OCLC has converted the existing 10-character ISBN to the new 13-character format. The thirteen-character format includes a check character that may be a number or the letter x. In printed form, the ISBN has three hyphens. Hyphens are omitted in online records. ISBNs are stored in field 008 in bibliographic records.

### International Standard Serial Number (ISSN)

A unique identification number assigned to a serial through the ISSN Network. Each ISSN has eight characters. The eighth character is a check character that may be a number or the letter x. A hyphen follows the fourth character.

### ISO

**International Organization for Standardization.** A name derived from the Greek word isos, meaning "equal." Founded in London in 1947 with headquarters in Geneva. A nongovernmental federation of national standardization organizations in 130 countries, dedicated to establishing international standards to facilitate commerce and science, technical, and economic endeavors. The United States is represented in ISO by the American National Standards Institute (ANSI). ISO operates through a number of technical committees and 2,300 subcommittees that recommend standards and standardization policy to its national members. *See also* [ANSI](#).

### ISO 10160/10161

International communications standards that permit the exchange of ILL messages among ILL systems even if they use different hardware and software. The standards apply to ILL transactions for both lending and borrowing activities. *See also* [Direct Request](#).

### ISBN

An International Standard Book Number is a unique number assigned to a resource by its publisher. Each ISBN is a 10- or 13-digit number and has four parts: the language of the country of publication, the publisher, the title, and the check character.

### ISSN

An International Standard Serial Number consists of eight digits in two groups of four, separated by a hyphen. ISSN numbers are assigned through the ISSN Network and are used for newspapers, journals, magazines, and periodicals of all kinds and on all media.

### Issue

A unique document that is part of a serial that could be identified by words, numbers, or date of publication.

### Item

RDA defines an item as a single exemplar or instance of a manifestation.

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## J

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**Journal**

A periodical publication usually devoted to scholarly subjects.

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**K**

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**Keymap**

A file of keystroke shortcut assignments in Connexion client. Default key assignments are provided when you first install the client. You can customize keystrokes. Keymaps on the Tools menu used to open windows for assigning, deleting, and working with keystroke assignments.

**Keystroke shortcuts**

Key combinations that let you perform actions using the keyboard rather than the mouse. You can use shortcuts to navigate the Connexion interface, take actions or and navigate Help, edit records, insert diacritics and special characters, run macros, and navigate lists.

**Keyword**

A word in a bibliographic record that is indexed. It often conveys subject content in a search for library resources. Keywords are found in titles, notes, abstracts, summaries, descriptions, and subjects. Keywords are also names of people and places that are the subjects of a library resource or a listing in a directory.

**Keyword index**

Default WorldCat search index (the system searches this index if a search has no specified index). Indexes a single word in a record, but other keyword search terms can be combined.

**Keyword search**

A type of search that uses a complete word, usually combined with other keywords.

**Kit**

A set of textual and nontextual materials in which no one material dominates and which has a collective title. For example, a workbook that comes with flashcards, work recording, game board, playing pieces, and dice.

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**L**

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**Label**

Used on the spine of a book, on the pocket of a library item, or on a card representing a library item. *See also* [Pocket label](#); [Spine label](#).

**Label content**

The types of information to be included on labels, including location, sublocation, call number and enumeration.

**Label file**

A file created by catalogers using the OCLC Label Program (if using the Connexion browser) or using the Connexion client, which has a built-in label program.

**Language**

Language of the text of the library resource. Also an index used to qualify WorldCat searches.

**LBD**

*See* [OCLC Local Bibliographic Data \(LBD\)](#).

**LC**

*See* [Library of Congress](#).

**LC call number**

See [Library of Congress call number](#).

## LCCN

A Library of Congress Control Number (previously called a Library of Congress Card Number) is a unique number assigned to a bibliographic or authority record by Congress. Before January 2001, LCCNs consisted of a three-character prefix (often containing blanks), a two-digit year, a six-digit serial number, and a trailing blank, often displayed with a hyphen separating the year and the serial number. After December 2000, LCCNs consist of a two-character prefix (often containing blanks), a year, and a six-digit serial number.

## LCRI

Library of Congress Rule Interpretations are cataloging guidelines issued by the Library of Congress that provide for a common practice, sometimes called "national practice," applying Anglo-American Cataloging Rules (AACR). This was the practice followed by the Library of Congress and all other libraries engaged in the bibliographic entry process. They have been superseded by LC-PCC Policy Statements (LC-PCC PS), which are issued in conjunction with Resource Description & Access (RDA) guidelines.

## LCSH

See [Library of Congress Subject Headings](#).

## LDAP

**Lightweight Directory Access Protocol.** An application protocol for querying and modifying directory services running over TCP/IP.

## LDR

LDR may refer to either:

- Leader (see [Leader](#)) or
- OCLC Local Data Record (see [Local holdings record \(LHR\)](#))

## Leader

Data elements that provide information for the processing of the record. The data elements contain numbers or coded values and are identified by relative character positions. The leader is fixed in length at 24 character positions and is the first field of a bibliographic, authority, and holdings record.

## Lender

The library supplying the item.

Any institution lending something to you. You are the lending library when you supply something to another library.

## Lender policies

Information about potential Lenders available from Find an OCLC Library and the OCLC Policies Directory.

## Lender string

OCLC symbols of up to five potential lenders.

## Less-than-full-level record

See [Minimal-level records](#).

## Level I standard

The OCLC input standard establishing criteria for a full or complete bibliographic record, indicated in a MARC record as ELvl:I. Level I is the equivalent of MARC 21 element 001.

## Level K standard

The OCLC input standard establishing criteria for a minimal level bibliographic record, indicated in a MARC record as ELvl:K. Level K is the equivalent of MARC 21 element 001.

## LHRS

See [OCLC Local Holdings Record Summary \(LHRS\)](#).

## Library

See [Institution](#).

## Library identifier

A locally assigned code that represents a particular institution. The code appears in a local data field of a bibliographic record submitted for group processing. A transaction is required to change the library identifier on an OCLC record for a submitted document. The OCLC symbol for a submitted record is called a "local holdings record" and is used for a submitted document.

converts the library identifier to an OCLC symbol for a matched record. The OCLC symbol is set on matching records for "set holds" and removed from matched records.

### Library of Congress

The Library of Congress (LC) is located in Washington, D. C. and is the main research arm of the United States Congress. It is the home of the United States Copyright Office and serves as the nation's copyright depository. Although not officially a national library, it provides services appropriate to a national library.

### Library of Congress call number

Identifier number derived from the U.S. Library of Congress classification system. Used to retrieve a library resource.

### Library of Congress Subject Headings

**Library of Congress Subject Headings.** An established list of preferred subject terms, selected by a subject specialist at the Library of Congress, from which an indexer may select when assigning subject headings to a bibliographic record representing a work he/she is cataloging. Includes main terms and subdivisions.

### Limited mode

A type of logon authorization generally used for training new catalogers. Those who log on to the system using a Limited authorization can search for and edit records if needed, but cannot take final OCLC actions on records.

### Literary form

A mode of literary expression such as poetry, drama, fiction, etc. Each form can be subdivided into kinds of forms, e.g., lyric poetry, comedy, science fiction, etc.

### Local data

Data in a record that is pertinent only to the institution cataloging the record. For example, local processing information and cataloger's notes are local data. Certain fields are reserved for local data. Local data is not preserved in the WorldCat bibliographic record.

### Local Data Record

See [Local holdings record \(LHR\)](#).

### Local file

In Connexion client, the file that resides on your hard drive or a network drive at your library, not on the OCLC system. Local files are used to save bibliographic or authority data as you work in Connexion client. The client provides four empty default files for these purposes when you first install as many local files as you need.

### Local Holdings Agent mode

An authorization mode that allows the Holdings Agent of a union list group to create and maintain local holdings records on a member's behalf.

### Local Holdings Format

Metadata structure used to represent or share information about a library's collection. The MARC 21 Format for Holdings Data is an example of a local holdings format. See [MARC 21 Format for Holdings Data](#); [Local holdings record \(LHR\)](#).

### Local holdings maintenance

OCLC service that helps libraries maintain accurate, current holdings information by providing a library's holdings for materials in any format, including serials. Form 100 Listing.

### Local holdings record (LHR)

Separate holdings record attached to a related WorldCat bibliographic record that provides holdings details for a particular library. These details include: copy-specification for an item, information peculiar to the holding library, information needed for local processing, maintenance, or preservation of an item, and version information.

### Local system

An institution's computer system that manages cataloging, acquisitions, circulation, serials and/or an online catalog. If elements of a local system are designed to integrate, it is called an Integrated Local System (ILS).

### Local system vendor

The company that manufactured a library's integrated library system.

### Location

An institution, a library within an institution, a library within a group of libraries, or a collection within an institution or library where a resource is stored or held.

### Location information

A list of libraries that have used a bibliographic record for cataloging. Each bibliographic record in WorldCat has location information.

### Locations record

See [Holdings display](#).

### Log off

The process of disconnecting from a local or remote system.

### Log on

The process of connecting to a local or remote system.

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## M

### Machine-Readable Cataloging

See [MARC \(Machine-Readable Cataloging\)](#).

### Macro recorder

In Connexion client, use to create a macro by recording actions in a procedure as you do them, whether you use the mouse to click commands or toolbar buttons, or keystrokes, or use a combination of mouse and keyboard (Tools > Macros > Manage; click the Record button). The recorder writes the macro automatically in the OCLC Macro Language. A good tool for those who prefer not to write their own macros.

### Macros

Short programs you write using OCLC Macro Language and Connexion client-specific macro commands to automate routine cataloging tasks. Requires understanding of BASIC programming language.

### Magnetic tape

A strip of flexible material coated or impregnated with magnetizable particles, upon which sound, images, and/or data can be written and stored. Magnetic tape is on reel-to-reel, cartridge, or cassette form. In the context of bibliographic, authority, and/or holdings data, magnetic tape was the usual file exchange medium before such data could occur via the internet.

### Main class

One of the ten major subdivisions of the DDC, represented by the first digit in the notation, e.g., 3 in 300 Social sciences.

### Main entry

Under AACR2, the main entry is the primary access point for a resource. Most commonly, it is the person or corporate body with the chief intellectual responsibility. In other cases, the main entry is the title.

In the card catalog environment, the main entry was the card providing the most complete description of a bibliographic resource and listing all of the subject and see points.

### Manifestation

RDA defines a manifestation as a physical embodiment of an expression of a work.

### Manuscript

A document (including musical scores, maps, as well as text) that is made by hand or transcripts.

### MAP

See [Maps format](#).

### Maps format

OCLC-MARC Bibliographic format used to catalog cartographic material including maps, atlases, globes, digital maps, and other cartographic resources. The three-character designator for cartographic material is "MAP".

### MARC

See [MARC \(Machine-Readable Cataloging\)](#).

[See MARC \(Machine-Readable Cataloging\).](#)

## MARC (Machine-Readable Cataloging)

MARC (MACHINE-Readable Cataloging) is a family of international standards for the representation and communication of bibliographic, authority, holdings, classification, and other information in machine-readable form, based upon the Format for Information Exchange, ISO 2709. MARC standards define the three elements of record structure, field designation, and data content. MARC 21, originally developed by the Library of Congress in the 1960s, is the most widely used of the MARC standards. UNIMARC (UNIMARC Format), developed by the International Federation of Library Associations and Institutions (IFLA) in the 1970s, is the second most widely used MARC standard. [See Communications format.](#)

## MARC 21

The version of Machine Readable Cataloging that superseded USMARC in 1999 with the harmonization of U.S. and Canadian MARC formats. MARC 21 is supported by the current official MARC standard in the United States, Canada, Australia, and numerous other countries.

### MARC 21 Format for Authority Data

The *MARC 21 Format for Authority Data* defines the codes and conventions (tags, indicators, subfield codes, and coded values) that identify the data elements in MARC authority records. It is a carrier for information concerning the authorized forms of names, titles, subjects, and subject subdivisions to be used in constructing access points, record authorized forms, and the interrelationships among these forms.

### MARC 21 Format for Bibliographic Data

The *MARC 21 Format for Bibliographic Data* defines the codes and conventions (tags, indicators, subfield codes, and coded values) that identify the data elements in MARC bibliographic records. It is a carrier for bibliographic information about printed, online, and manuscript textual materials, computer files, maps, music, continuing resources, and mixed materials. Bibliographic data commonly includes titles, names, subjects, notes, publication data, and information about the physical description of the item.

### MARC 21 Format for Holdings Data

MARC 21 Format for Holdings Data defines the codes and conventions (tags, indicators, subfield codes, and coded values) that identify the data elements in MARC holdings records for serial and nonserial resources. It is a carrier for holdings information for three types of bibliographic resources that are identified by a code in Leader/06 (Type of data commonly includes copy-specific information for an item, information that is peculiar to the holding organization, information that is needed for local processing or preservation of the item, and version information. [See also Local Holdings Format; Local holdings record \(LHR\).](#)

### MARC organization code

Code assigned to libraries who participate in NACO (Name Authority Cooperative Program, the authority component of the Library of Congress's Program for Cooperative Cataloging). Allows users to add and replace authority records in the LC authority file.

### MARC record

A MARC record is a representation of bibliographic, authority, holdings, classification, or related data in machine-readable form that is formatted according to the Machine-Readable Cataloging (MARC) standard and may be used for data exchange. A single record collects data elements that describe or identify one or more unambiguous logical entities. The record consists of a leader, a directory, and variable fields. Variable fields are identified by a three-digit numeric tag and may include up to two numbers supplying additional information about the field. Variable fields may be further divided into subfields identified by a single-character alphabetic or numeric code.

### MARC-8 character sets

Approved character sets for MARC 21 cataloging as defined in [MARC 21 Specifications for Record Structure, Character Sets, and Exchange Media](#). Subsets of Unicode [Latin scripts](#); [Unicode](#).

### Master record

See [WorldCat record](#).

### Matches

The number of times the system identifies a search term, or the number of records retrieved as a result of a search.

### Material type

The type of material the record represents. The type can represent a physical type, such as *atlas* or *kit*; or content, such as *biography* or *fiction*; or focus, such as *juvenile publication*.

### Material type template

See [Workform](#).

### Materials vendor

Wholesale booksellers and publishers who provide library materials through approval plans and firm orders from institutions.

**Maximum field/record size**

Bibliographic records must meet size limits defined in MARC21 standards. The number of characters in a **field** cannot exceed 9,999. The number of characters in a **record** cannot exceed 99,999. These limits apply to records you catalog using Connexion. The system capacity for a **field** in a record in WorldCat is 9,999 characters.

**Media format**

Indicates the physical form or the method of information delivery for a library resource described.

**Medical Subject Headings**

Formal and consistent vocabulary words and phrases used to describe the subject of a medical work. MeSH is provided by the National Library of Medicine for medical sciences libraries.

**Meeting name**

The name of a meeting, conference, exhibition, exposition, festival, athletic contest, scientific expedition, etc. used as an authorized access point in a bibliographic record.

**MeSH**

See [Medical Subject Headings](#).

**Message file**

A searchable file that groups your current ILL records according to status; a subset of the ILL Transaction File.

**Metadata**

Literally, "data about data." Structured information describing information resources/objects for a variety of purposes. Although AACR2/MARC cataloging is formal, the term is generally used in the library community for non-traditional schemes such as the Dublin Core Metadata Element Set, the VRA Core Categories, and the Encoded Archival Description (EAD). Metadata has been categorized as descriptive, structural, and administrative. Descriptive metadata facilitates indexing, discovery, identification, and access. Structural metadata describes the internal structure of complex information resources. Administrative metadata aids in the management of resources and may include management metadata, preservation metadata, and technical metadata describing the physical characteristics of a resource.

**Minimal-level records**

Minimal-level records contain the essential data necessary to identify a resource. Generally, the records meet the requirements of AACR2 first-level description, but the first-level does not prohibit the addition of data deemed necessary.

**MIX**

See [Mixed Materials format](#).

**Mixed Materials format**

OCLC-MARC Bibliographic format used for cataloging resources in two or more forms that are usually related by virtue of their having been accumulated by or about a person or body. Includes archival and manuscript collections of mixed forms of materials, such as text, photographs, and audio recordings. It generally excludes resources whose primary purpose is instructional. The three-character format designation for mixed materials is "MIX". The mixed materials format was previously referred to as Archival and Manuscript Materials.

**Mnemonic**

An aid used to help memory. Fixed field elements of records have mnemonic identifiers to help catalogers with coding and interpretation.

**Mnemonic label**

An abbreviated identifier for an OCLC-MARC field element, constructed from the full element name that it represents. The mnemonics are a display option in the interfaces. For example, the mnemonics "ELVL" or "Enc Lvl" have stood for "Encoding Level."

**Monograph**

A resource complete in one part or intended to be complete in a finite number of parts. See also [Serial](#).

**Multipart surname**

Surname that includes prefixes, hyphenated names, or names that begin with articles or prepositions.

**Music publisher name**

See [Publisher number](#).

**Music publisher number**

A formatted numbering designation assigned by a publisher to a music resource manifestation; these include plate numbers and publisher numbers for notated musical numbers and matrix numbers for audio recordings. The phrase "Music Publisher Number" dates back to before 1902 and was expanded for use beyond music and is now known as "Publisher Number for Music."

### Musical composition

Indicates the category under which a work of written or recorded music may fall based on its arrangement, structure, instrumentation, or other musical component.

### My Status

In Connexion, a custom status you can assign to a saved record or constant data. Lets you enter up to 40 characters of free text (such as a name, identifier, or note) to identify, retrieve and manage records. If present, My Status appears in the status bar of a displayed record.

A B C D E F G H I J K L M N O P R S T U V W Z

## N

### NACO

Name Authority Cooperative Program (NACO), part of the Program for Cooperative Cataloging (PCC). Participants in NACO create and maintain authority records in the Name Authority File. *See also* [PCC](#).

### Name/title derived search

*See* [Derived search](#).

### National level enhance

*See* [Enhance](#).

### NCIP

*See* [NISO Circulation Interchange Protocol \(NCIP\)](#).

### NCIP unique user ID

Patron login credentials (i.e., library card number + pin) that are used to authenticate a *patron* via NCIP.

- Borrower NCIP User ID: NCIP ID assigned to the borrowing library itself, used as the borrower when the patron ID or the lending library's ID is not available. For example, an item can be checked out to the borrowing library's ILL Department rather than to an individual or to the lending library's ILL Department.
- Lender NCIP User ID: NCIP ID assigned to the lending library itself, used to check items out of their collection when the patron ID or the borrowing library's ID is not available. For example, an item can be checked out to the lending library's ILL Department rather than to an individual or that individual's library.

### NEPU

The Union List group symbol for the United States Newspaper Program.

### Nesting

Grouping terms within parentheses to specify the order in which they will be combined. Terms in the innermost parentheses will be combined and searched first. Within outer parentheses, terms will be combined in left-to-right order.

### NISO

National Information Standards Organization. Accredited by ANSI (American National Standards Institute) to develop voluntary technical standards for the library, publishing, and sciences communities.

### NISO circulation interchange protocol (NCIP)

NISO standard defining messaging between circulation systems, ILL systems or broker applications. This protocol is limited to the exchange of messages between and among computer-based applications enabling them to:

- perform functions necessary to lend and borrow items
- provide controlled access to electronic resources
- facilitate co-operative management of these functions

### NISO standards

*See* [ANSI/NISO Standards for Holdings Data](#).

**Nonfiling indicator**

In bibliographic and authority records, indicators determine the number of character positions associated with a definite or indefinite article (e.g., An, Le, or The) at the title that are disregarded in sorting, indexing, and filing processes. Any diacritical mark, space, mark of punctuation associated with the article, and any space or mark preceding the first filing character is included in the count of nonfiling characters.

**Nongap break**

In local holdings records, an indication that no issued items are missing, but a gap exists in the publication or numbering of the serial itself. For example, a change in a series may cause a nongap break in the enumeration.

**Non-Latin scripts**

Character sets not based on Latin character sets. The Connexion client supports cataloging using all Unicode defined characters, which includes the following non-Latin scripts: Arabic, Chinese, Cyrillic, Greek, Hebrew, Japanese, and Korean, as well as all of the UTF-8 Unicode character sets. *See also* [MARC-8 character sets](#); [Unicode](#).

**Non-referral days**

*See* [System days](#).

**Nonsupplier**

Institution that does not respond to interlibrary loan requests through OCLC; OCLC symbols of nonsuppliers display in lowercase letters.

**Note**

Statement in the note area of the bibliographic record giving information not included elsewhere in the bibliographic description. *See also* [Note area](#).

**Note area**

The area following the physical description in a bibliographic record giving the contents of the work, its relationship to other works, and any physical characteristics preceding areas of bibliographic description. Each note is given in a separate 500-590 field(s) in a MARC record. *See also* [Note](#).

**Numeric search**

A type of WorldCat search that allows you to search for records by number, such as ISBN or OCLC control number.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

**O**

**OAster**

A union catalog of millions of records that was built by harvesting from open archive collections worldwide using the Open Archives Initiative Protocol for Metadata (PMH).

**OCLC**

Previously called Online Computer Library Center, Inc. and Ohio College Library Center. Nonprofit membership organization serving libraries around the world to find the world's information and reduce library costs by offering services for libraries and their users.

**OCLC Authority File**

A database that documents, for consistency, the authoritative forms of names (personal or corporate), titles, or subject headings to be used in a catalog from various sources such as LC/NACO, Medical Subject Headings (MeSH), Dutch (NTA), Mori, and German (GND).

**OCLC batchloading services**

Automated method of processing bibliographic and local holdings records (LHR) submitted by libraries and vendors into WorldCat. (Separate service from cataloger processing in the Connexion client.) *See also* [Bibliographic record](#); [MARC 21 Format for Holdings Data](#).

**OCLC catalog card**

A 3" by 5" printed card containing bibliographic information. OCLC discontinued card production in 2015.

**OCLC cataloging**

OCLC's online services for cataloging library materials using WorldCat and for producing machine-readable records and other online products. Participating institutions create bibliographic records, modify the information for local use, and then order the modified record from OCLC. Institutions also contribute new records and location information to WorldCat for their own use and to be shared. Access to online catalogs is provided by the Connexion client, Connexion Express, CatExpress, and Z39.50 client.

WorldCat for items for which no record is found. Access to cataloging activities is provided by the Connexion client, Connexion browser, CatExpress, and Z39.50 cat

### OCLC cataloging profile

Identifies and describes an institution's collections, including department and branch collections. Describes classification schemes and sources of subject headings.

### OCLC CatExpress

An OCLC service for copy cataloging. CatExpress users log on from Connexion browser. Connexion users who also subscribe to CatExpress log on to Connexion and CatExpress from the Express tab.

### OCLC Connexion

Integrated cataloging service that offers access to WorldCat, the OCLC Authority File and other online databases. The browser interface provides access via Internet Explorer and other browsers. The client interface provides access via Microsoft Windows-based software installed on user workstations. Both interfaces offer the same cataloging services. Each also provides unique capabilities. The browser interface uniquely provides access to CatExpress, Dewey services, local holdings maintenance, and OCLC Select creation of paths and other electronic resources. The client interface uniquely supports the use of macros, local classification, online cataloging, integrated label processing, user scripts for cataloging, and batch processing searches and record actions.

### OCLC Connexion browser

One of two interfaces to OCLC Connexion cataloging services and products. Introduced in mid-2002, the Web-browser-based interface provides the same access to WorldCat as the Connexion client. The browser interface also provides some unique functions, including WebDewey and Abridged WebDewey, CatExpress, OCLC Select, Pathfinders and Local Holdings Maintenance.

### OCLC Connexion client

One of two interfaces to OCLC Connexion cataloging services and products. Introduced in the second half of 2003, the Windows-based software interface provides access to cataloging in WorldCat as the Connexion browser. The client interface also provides some unique functions, including the use of macros and an automatic macro recorder, extensive keyboard shortcut customization, integrated label printing, local classification, online cataloging, batch processing for searches and record actions, use of non-Latin alphabets for cataloging, and more.

### OCLC control number (OCN)

OCLC control number (OCN) is a unique accession number assigned by the OCLC system when a bibliographic record is added to WorldCat. Used to search for records.

### OCLC Customer Services Division (CSD)

OCLC's user assistance and support contact desk that provides support for telecommunications, hardware, and software.

### OCLC distributor

An authorized agent for OCLC products and services for the international market. *See also* [OCLC regional service provider](#).

### OCLC holding library code

A four-character code that uniquely identifies a holding library within an institution that may be based on the institution's OCLC symbol. *See also* [OCLC symbol](#).

### OCLC Local Bibliographic Data (LBD)

Bibliographic information that is unique to the holding library such as local subject headings, uniform titles, or notes.

### OCLC Local Data Record

*See* [Local holdings record \(LHR\)](#).

### OCLC Local Holdings Record Summary (LHRS)

A concise description of all of a library's local holdings for a specified title. Holdings summaries are most often used to provide a brief summary of a library's serial or holdings that are shelved at multiple locations.

### OCLC New Jersey

Provider of a database that links metadata for electronic resources. Formerly known as Openly Informatics. Acquired by OCLC in 2006. Located in Bloomfield, New Jersey.

### OCLC number

*See* [OCLC control number](#).

### OCLC Online Union Catalog (OLUC)

*See* [WorldCat \(the OCLC Online Union Catalog\)](#).

**OCLC Policies Directory**

Web-based repository of the copy and lending policies of libraries participating in WorldCat Resource Sharing. Information contained includes institution information (contacts, collections, web links), informational copy and lending policies, and deletion policies that allow requests to bypass an institution.

**OCLC regional service provider**

Centers organized by region or library type in the United States. Regional networks serve their libraries and library networks and provide access and support to OCLC participating library organizations that contract for OCLC services. *See also* [OCLC distributor](#); [OCLC-affiliated regional network](#).

**OCLC Selection**

A service that enhances the acquisition process by automating the processing of requests for library materials.

**OCLC symbol**

A unique, alpha-numeric 3- or 5-character identifier issued by OCLC to member institutions and participants. For example OCLC symbols are used in field 040 (Cataloging bibliographic records). *See also* [Holding library code](#).

**OCLC Union List**

Former name for local holdings maintenance service. *See also* [Local holdings maintenance](#).

**OCLC usage statistics**

Access reports on your library's use of OCLC services, including online cataloging. Available at [www.stats.oclc.org](http://www.stats.oclc.org).

**OCLC WorldCat Resource Sharing**

Service that helps OCLC libraries borrow and lend materials through interlibrary loan. Facilitates creating, sending, managing and tracking loan requests and documents.

**OCLC WorldShare Collection Manager data sync collections**

Automated method of processing bibliographic and local holdings records (LHR) submitted by libraries and vendors into WorldCat. Separate service from cataloger processing in the Connexion client.

**OCLC-affiliated regional network**

Centers organized by regions or library type in the United States. Regional networks serve their libraries and library networks and provide access and support to OCLC participating library organizations that contract for OCLC services.

**OCLC-derived records**

Bibliographic records originally obtained from OCLC. Some institutions export records directly from OCLC into their local system, without setting holdings online. They are then returned to OCLC as a data sync collection to set and/or cancel the institution's holdings.

**OCLC-MARC**

OCLC's implementation of the MARC bibliographic format. *See also* [MARC 21 Format for Bibliographic Data](#).

**OCLC-MARC format**

OCLC's implementation of the MARC 21 format.

**OCN**

*See* [OCLC control number](#).

**Offline cataloging**

Catalog in Connexion client without logging on to the OCLC system. Use local files to work on records offline. Prepare record actions and/or WorldCat or LC authority files to be batch processed.

**OLUC**

*See* [WorldCat \(the OCLC Online Union Catalog\)](#).

**Online error reporting**

Various methods of reporting errors for bibliographic and authority records are available, depending upon the system used. For information on the methods of reporting errors, please see Bibliographic Formats and Standards (BFAS) 5.5, [Requesting changes to records](#).

**OPAC or OPC**

An acronym for online public access catalog, a database composed of bibliographic records describing the books and other materials owned by a library or library system via public terminals or workstations, or via the Internet. Most online catalogs are searchable by author, title, subject, and keywords and allow users to print, download records to an Email account.

#### Open-ended holding

A holdings statement that indicates an item (such as a serial, a series, or a multipart work) is still in publication.

#### Original cataloging

Cataloging performed by an institution itself and not derived from any other source. Records produced by original cataloging might be matched in data sync process

A B C D E F G H I J K L M N O P R S T U V W Z

## P

#### Parallel records

Records in WorldCat that describe a single resource, but which have been cataloged in different languages. For example, collation, notes, and subject headings are in different languages. *See also* [Allowable duplicate records](#).

#### Password

A sequence of characters required to gain access to a computer system. Usually used in conjunction with an authorization number. *See also* [Authorization number](#); [D library code](#).

#### Pathfinder

Pathfinders are subject-guide Web pages that libraries create to consolidate links to selected electronic resources on a topic. They categorize the resources, provide annotations, and integrate descriptions and locations for related resources available via the library but not web-accessible.

Connexion provides tools to help libraries create and manage pathfinders and to facilitate collaboration on pathfinder development and maintenance.

#### PCC

The [Program for Cooperative Cataloging](#) (PCC) consists of four programs (BIBCO, CONSER, NACO, and SACO). Libraries join this voluntary organization by becoming members of the programs. The Library of Congress houses the Secretariat of the PCC and is a PCC member. *See also* [BIBCO](#); [CONSER](#); [NACO](#); [SACO](#).

#### PDF

**Portable Document Format.** The Adobe Acrobat standard that enables the same graphic display of a document on different platforms. Because the graphical display copy features such as page numbers, logical page breaks, tables of contents, etc., printing a PDF document makes a better hard copy than printing HTML-formatted documents. OCLC user documentation is available in PDF as well as HTML.

#### Periodical

A magazine, journal, or other serial publication issued at regular, recurring intervals. Differs from a newspaper in format and publication frequency (annually, quarterly, or weekly rather than daily).

#### Persistent

Data or a display option that remains in effect until changed. For example, a holding library code persists until logoff unless changed by the user.

#### Personal name derived search

*See* [Derived search](#).

#### Phrase indexes

Search indexes used to search for an entire field or subfield in records. Phrase indexes are also browsable.

#### Phrase search

Words, numbers, or character strings used to initiate a search for an entire field or subfield in a record. To enter a complete search string using a "command line" search or an "expert" search in FirstSearch/Resource Sharing, use a phrase index label in the format **xx=**.

**Example:** To search for a personal name phrase, type **pn=brooks, gwendolyn**.

#### Physical description

Describes the physical characteristics of an item. For books, includes such data as dimensions, number of pages and illustrations, and accompanying materials, if any.

## PICA

Originally a library cooperative in the Netherlands, serving that country as well as portions of Belgium, France and Germany. PICA was founded with half a million shares. OCLC's catalog in 1979. In 1999, OCLC acquired a 35% portion of PICA, increasing that share to 60% in 2000. In July 2007, OCLC acquired the remaining 40% share from the PICA foundation.

## Pinned

In Connexion client, a method for keeping multiple records of the same type open simultaneously. Pinned command on the View menu used to pin the displayed record. Another record of the same type (e.g., multiple online save file records or multiple WorldCat records).

## Pocket label

A label listing title, author, and call number that is affixed to the inside pocket of a library item.

## Policies Directory record

Record that contains name, address, interlibrary loan policy, and other communication information about an institution or unit of an institution. The OCLC Policies Directory is the Name-Address Directory as a repository for this type of information.

## Portal

Originally, a general purpose Web site offering a wide variety of resources and services, such as news, weather, directory information, Web searching, free Email accounts, mailing lists, online shopping, and links to other Web sites. However, the term is increasingly applied to Web sites that offer such services only within a particular occupation, or field.

## Post-processing report

Any number of reports generated as a result of data sync processing.

## Precomposed diacritics

A single Unicode character that is a combined letter and diacritical mark(s) which also display as one character.

For example, the Latin small letter e with acute accent, é (U+00E9).

See also [Diacritic](#); [Decomposed diacritics](#).

## Preferred title

A title forming the authorized access point that identifies a resource, especially if it has appeared under varying titles. Preferred titles generally serve one of two purposes: versions of the resource including complete works, works in a particular literary or musical form (sonatas, songs) and distinguishing between different resources with similar titles. Uniform title is the term used by AACR2, and Preferred title is the term used by RDA.

## Processing center

An OCLC-defined arrangement whereby a single cataloging agent creates records or sets holdings in the online system under a single OCLC symbol for multiple institutions. Holding library codes identify the separate institutions. Holding library codes are retained in the online archive copy of bibliographic records, but only the OCLC symbol for the center appears in the holdings display of records. See also [Cataloging Agent mode](#).

## Processing report

See [Post-processing report](#).

## Profile

A structured definition of the content and format by a participating institution for OCLC products. During the profiling process OCLC assigns symbols to institutions.

## Publisher

An agent responsible for publishing, releasing, or issuing a manifestation.

## Publisher number

Plate and publishers' numbers for printed music (scores); serial and matrix numbers for sound recordings; videorecording numbers for visual materials, and publishers' numbers for sound recordings, music, or videorecordings. The publisher number is located in field 028, subfield \$a and is used for matching in data sync. For example,

A B C D E F G H I J K L M N O P R S T U V W Z

## Q

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### Qualifier

A means of limiting a WorldCat search to specific classes of records, for example: type of material (index label - **mt**), years of publication (index label - **yr**), microform (index label - **mf**), cataloging source (index label - **cs**). Qualifiers are elements from the bibliographic record that are used in combination with a search to search.

### Qualify a search

A technique to make a search more precise by limiting results to specific classes of materials. Produces more manageable search results. *See also* [Qualifier](#).

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

## R

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### RDA

*See* [Resource Description & Access](#).

### REC

*See* [Sound Recordings format](#).

### Record

A machine-readable record in a database that contains bibliographic information about a separately cataloged library item, set, or serial. A record can describe a book or any other library resource, including electronic resources. It also contains coded information used to retrieve and work with data. In WorldCat, a bibliographic record is in MARC format.

In the context of OCLC data sync processing, a record can be any amount of bibliographic data that represents a library item. The data can be minimal, as in a numerical record, or more detailed, such as a bibliographic record.

### Record matching

Computer system operation that compares one record to another based on search criteria to determine a match.

### Record statuses

In Connexion, information stored with a saved record showing actions taken and whether they failed or succeeded, source of a record, custom-assigned My Status, processing work flow, and whether the record is edited.

### Record structure

In MARC 21 formats, record structure is the order in which the content designators and content appear in the record and/or fields. Record structure can include techniques used in the record and in fields. The terms record format and record structure are often used interchangeably. *See also* [Content designation](#).

### Record type

Term that identifies the format, genre, or medium of a document for cataloging and for retrieving a specific type of record. Valid values vary by database. In FirstSearch Sharing searches, use the advanced or expert search screens to select a valid document type from the drop-down menu. In Connexion, type a full search in the command Search WorldCat screen or window, or select from a dropdown list in the guided search area of the screen or window.

### Registry

*See* [WorldCat registry](#).

### Report number

Uniquely identifies a technical report; not a series number. There are two kinds: Standard Technical Report Numbers and other nonstandard numbers.

### Resolved record

A record that has been successfully processed through data sync either by matching to an existing record, including final action, or added to WorldCat.

### Resource Description & Access

Also known as RDA. A current international standard used by libraries, archives, museums, and other cultural heritage institutions for describing materials of all types and media. Approved by AACR2, RDA is maintained in collaboration with the RDA Steering Committee (RSC). The RDA Toolkit is published by the Association of

media. A successor to AACR2, RDA is maintained in a collaborative process by the RDA Steering Committee (RSC). The RDA Toolkit is published by the American Library Association, the Canadian Federation of Library Associations, and Facet Publishing, the publishing arm of CILIP (the Chartered Institution of Library and Information Professionals).

### Resource Sharing

See [OCLC WorldCat Resource Sharing](#).

### Review file

A file that acts as a "holding tank" for patron-generated ILL requests forwarded through external systems or set aside by you for further consideration.

### Romanized data

Latin script representation of non-Latin script data in records.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [Z](#)

## S

### SACO

Subject Authority Cooperative program (SACO), one of the programs of the Program for Cooperative Cataloging (PCC). Participants in SACO submit proposals for Library of Congress Subject Headings (LCSH), for Library of Congress Classification (LCC), and for other LC vocabularies. The other vocabularies are LC Genre/Form Terms (LCGT), LC Demographic Group Terms (LCDGT), and LC Medium of Performance Thesaurus for Music (LCMPT). See also [PCC](#).

### SAN

Standard Address Number. A unique seven-digit identifier used to signify a specific address of an organization in (or served by) the publishing industry. Initiated by RDA, SAN is an American National Standard.

### Save file

In Connexion, a temporary online storage area for bibliographic or authority records that catalogers are in the process of creating, editing, reviewing, etc. Each library has its own online save file per logon authorization that is accessible to catalogers from that library only.

In the Connexion client only, catalogers can also use local save files while logged on or offline ("local" means that they are stored on a workstation or shared drive).

Online and local save files can store up to 9,999 records.

### Save file number

The number the system uses to track records in your library's cataloging Save file.

### Scan

Command used to send a browse string to the system to scan indexes. See also [Browse](#).

### Schedules

(1) Listings of subjects and their subdivisions arranged in a systematic order with notation given for each subject and its subdivisions. (2) The series of DDC numbers, headings and notes.

### SCIPIO record

SCIPIO = Art and Rare Book Sales Catalogs. SCIPIO records cover art auction and rare book catalogs for sales from the late sixteenth century through the present. They were incorporated into WorldCat during the integration of RLG (Research Libraries Group) into OCLC.

### SCO

See [Scores format](#).

### Scores format

OCLC-MARC Bibliographic format used for cataloging notated music, which may consist of graphical, symbolic, or word-based musical notation in manuscript, printed, or electronic form; the three-character format designator for scores is "SCO".

### Search history

In a Connexion Search WorldCat screen or window, search term input boxes have a popup or dropdown list that displays up to 10 previous searches.

### Search key

In Connexion client only, a search entered in command line format (full search syntax) and add to a list stored in a local file for batch processing.

### Searching

The process of retrieving records from a database.

### Segment

One part of a derived search. *See also* [Derived search](#).

### SER

*See* [Serial](#).

### Serial

A continuing resource issued in a succession of discrete parts, usually bearing numbering or chronological designations, that is intended to continue indefinitely. Includes journals, newspapers, numbered monographic series, periodicals, proceedings, etc. The three-character format designator for serial is "SER". *See also* [Monograph](#).

### Serials format

*See* [Continuing Resources format](#).

### Series

A group of separate resources related to one another by the fact that each resource bears, in addition to its own title proper, a collective title applying to the whole. Resources may or may not be numbered. Series may include monographic series, another type of serial, multipart monographs, and integrating resources.

### Series title

The collective title of all items in a series, as opposed to each item's individual title. A series title represents the name of a group of separate resources related to each other, issued successively, and generally by the same publisher in a uniform style, with each resource having, in addition to its individual title, a collective series title.

#### Example:

Series title—Summer Institute of Linguistics Publications in Linguistics

Title (of individual item in series)—Modes in Denya Discourse

*See also* [Title](#).

### Session

Time between logon and logoff when an OCLC library is logged on to the OCLC system to use a production or service.

### Set holdings on a record

OCLC member libraries "set" their holdings by attaching their OCLC symbols to bibliographic records in WorldCat. Having OCLC symbols attached to a record establishes that the institution holds the item.

### Set of records

A group of records viewed when 1) a search retrieves multiple records or 2) a display of multiple records is requested.

### SFTP

*See* [FTP](#).

### Shared local catalog

A catalog containing the records from several libraries.

### Shelf-ready

Items that come to the institution from the materials vendor with labels affixed and ready to be put into the collection.

### Sound Recordings format

OCLC-MARC Bibliographic format used for cataloging musical and non-musical audio recordings; the three-character format designator for sound recordings is "RE".

### Source

*See* [Cataloging source](#).

**Source status**

Designates the source of a displayed record in Connexion: Derived, Extracted, Imported, Workform, OCLC, Pathfinder, URL. Source status is system-assigned and appears in the status bar of a displayed record.

**Special character**

Graphic characters and diacritics other than those used in the Latin alphabet. See International Cataloging: Use Non-Latin Scripts and BFAS 2.7 Character Set for more information. See also [Diacritic](#).

**Spell checker**

A Connexion client tool to check spelling in a record.

**Spine label**

The label affixed to the spine of a library book.

**Source**

See [Cataloging Source](#).

**Status bar**

In Connexion client, shows status information at the bottom of a record or list or main client window. Stored only in the working copy of saved records, except for Records Not retained in the WorldCat record.

**Statuses**

See [Record statuses](#).

**Stopwords**

Words to be omitted from a search because they are so common that they have no informational value. Stopwords are not indexed and are therefore ignored by the search engine. See stopword lists in the Help for Connexion or the Help for FirstSearch/Resource Sharing. **Examples:** *a, an, and, or, and the*.

**Subfield**

The smallest logical unit of information in a MARC variable field. Subfield codes (letters or numbers) identify subfields and are preceded by subfield delimiters (\$) or (\$) in the cataloging interface displays, a subfield \$a is implicit at the beginning of most fields, but does not display. See also [Subfield delimiter](#).

**Subfield delimiter**

Character (\$) or (\$, depending upon the OCLC cataloging interface display) followed by a single letter or number code, used to define the beginning of a subfield within a MARC bibliographic or authority record. See also [Subfield](#).

**Subject**

The topic treated, or matter discussed, in a resource. What a resource is about. Subject schemes (for example, Library of Congress Subject Headings [LCSH]) use a controlled vocabulary to categorize library materials about the same subject.

**Subject headings**

The most specific word or phrase that describes the subject, or one of the subjects, of a work, selected from a list of preferred terms (controlled vocabulary) and assigned as an entry in the bibliographic record to serve as an access point for retrieving records in a database.

A subject heading may be subdivided by the addition of subheadings (example: Libraries--History--20th century) or include a parenthetical qualifier for semantic clarification (Computers).

The use of cross-references to indicate semantic relations between subject headings is called syndetic structure.

The process of examining the content of new publications and assigning appropriate subject headings is called subject analysis.

**Subject scheme**

Subjects categorize library material and provide controlled access to the content of resources. Schemes define concepts and relationships between concepts to support navigation. Subject schemes, such as Library of Congress Subject Headings (LCSH), use a controlled vocabulary; that is, they use the same terms to categorize the library materials about the same subject. For example, a resource about atomic structure and another resource about neutrons can have the same subject entry, Nuclear physics.

**Subtitle**

A word, character(s), or phrase that appears in conjunction with, and is subordinate to, a title proper of a manifestation. Also known as other title information.

For visual materials, a subtitle is text displayed at the bottom of a moving image expression that is a translation, transcription, or paraphrase of the dialogue or narra

### Supplier

An institution that supplies items requested via OCLC WorldCat Resource Sharing. The institution's interlibrary loan polices may determine what items the instituti WorldCat Resource Sharing.

### Surname

A name used as a family name that may precede or follow a given name, depending on the culture. *See also* [Given name](#).

### System days

In OCLC WorldCat Resource Sharing, days that exclude Saturdays, Sundays, OCLC-observed holidays, or other days when interlibrary loan is unavailable; also know days." OCLC does not count Saturdays, Sundays and the following as working days for aging requests:

- New Year's Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Eve
- Christmas Day
- New Year's Eve

*See also* [Calendar days](#).

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## T

### Tag

A 3-character string used to identify or label an associated MARC ! eld. Tags are grouped numerically by function. *See also* [Tag group](#).

### Tag group

MARC tags beginning with and grouped by the ! rst digit according to function. For example, 1xx tags are primary access points, 2xx tags are titles, 3xx tags are for p description, and so on.

### Tape

*See* [Magnetic tape](#).

### TCP/IP

Transmission Control Protocol/Internet Protocol. A set of computer programs that enables communication between similar or dissimilar computers on a network. Ir the standard for sending data on the Internet.

### Terminologies Service

OCLC service that provides access to multiple lists of subject headings and controlled vocabularies through a single interface to help create consistent metadata for or archive collections.

### Text

The type matter on a page or in an electronic document that is distinct from illustrations or graphics.

### Text strings

Often used data to insert into records over and over. Shorter version of constant data.

### Title

A word, phrase, character, or group of characters, normally appearing on a resource, that names the manifestation or the work contained in it. *See also* [Series title](#).

### Title derived search

*See* [Derived search](#).

### Transliteration

Represent data in one script in the corresponding characters of another script in records.

### Truncated list

In Connexion client, the default display of WorldCat search results when a search retrieves 6 to 100 records.

### Truncation (\*)

Truncation allows you to search for a term and its variations by entering only the root of the term or phrase followed by an asterisk \*. Use the truncation symbol only term. *See also* [Wildcard \(# or ?\)](#).

### Type of material (format) qualifier (ft)

Qualifier that limits search results to specific formats: books (BKS), computer files (COM), maps (MAP), mixed materials (MIX), continuing resources (CNR), scores (S), recordings (REC), or visual materials (VIS).

### Type of Record (Type)

The element in the field that differentiates records created for various types of machine-readable information and specific types of material. Codes used in Type also used in field 006.

A B C D E F G H I J K L M N O P R S T U V W Z

## U

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### Unabridged edition

*See* [Full edition](#).

### Unicode

A worldwide character encoding standard allowing processing, storing, and data exchange in any language or script. Unicode includes symbols, punctuation, and other diacritics in addition to textual characters. UTF-8 (Unicode Transformation Format 8 bit) is a term often used within the MARC context to refer to Unicode. UTF-8 width [character encoding](#) capable of encoding all valid character [code points](#) in Unicode using one to four one-byte (8-bit) code units and is the most common encoding on the World Wide Web. *See also* [Non-Latin scripts](#); [MARC-8 character sets](#).

### Uniform title

Uniform title is the term used by AACR2, and Preferred title is the term used by RDA. *See* [Preferred title](#).

### Union catalog

A list of the holdings of all the libraries in a library system. Also, a listing of all or a portion of the collections of a group of independent libraries, indicating by name and symbol which libraries own at least one copy of each item. When the main purpose of a union catalog is to indicate location, the bibliographic description provided in it can be reduced to a minimum, but when it also serves other purposes, description is more complete. The arrangement of a union catalog is normally alphabetical by author.

### Union list

A complete list of the holdings of a group of libraries of materials (1) of a specific type, (2) on a certain subject, or (3) in a particular field, usually compiled for the purpose of sharing. The entry for each bibliographic item includes a list of codes representing the libraries owning at least one copy. Union lists are usually printed, but some have been placed into online databases.

### Union list custom holdings location

A record of a preferred lender that identifies specific volumes of serials and journals held by an institution; more complete than bibliographic locations records.

### Unique-key matching

A data sync procedure that matches records by field 035 (OCLC control number). Also known as Numeric Search Key.

### Unresolved record

A record that failed to match any database record after being processed by the matching algorithms of OCLC data sync services and is added to the database via data but is unindexed. The record is only discoverable using the OCLC control number search. Institutions receive a report of these OCLC control numbers via an Unresolved File.

### Updating loose-leaf

An integrating resource that consists of one or more base volumes updated by separate pages that are inserted, removed and/or substituted.

## URL

Uniform Resource Locator. Address or location of a Web page or other electronic resource.

## User profile

Defines all Connexion client settings, including those for logging on, local files, options, toolbars, customized keystroke shortcuts and text strings, session information. Creating more than one user profile facilitates cataloging for more than one library (cataloging agents).

## UTF-8

See [Unicode](#).

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## V

### Validate a record

Examine the data in certain fields for consistency and compliance with various rules via the Validate (val) command. The system also performs automatic validation when you Replace, Produce, Update, or Delete Holdings.

### Validation error

An error in the MARC format of a record as detected by OCLC system validation. Examples of validation errors include: invalid codes, tags, indicators and subfields, invalid elements, and repetition of non-repeatable fields. See also [Error rate](#).

### Variable field

Any variable field other than a MARC 00x control field. Each variable data field has a tag indicator, and subfields preceded first by a delimiter (\$) and letter or number subfield code. Some variable fields may occur only once in a record; others can be repeated. Length of field data is variable. MARC 21 standards require number of characters in a field not exceed 9,999. See also [Subfield](#).

### Varying form of title

A title or portion of the title associated with the resource recorded in the MARC 246 field. It differs from the title proper and contributes to discovery and identification of the resource.

## VDX

A resource sharing option for library groups that need greater local control of resource sharing with tight integration to local library systems. It builds on the foundation of existing services for groups that include cataloging, resource sharing, reference and digitization services.

## Vendor

See [Local system vendor](#); [Materials vendor](#).

### Vendor-provided data

Information sent by the vendor partner in the vendor manifest that is added to the bibliographic records provided to institutions, such as barcodes, invoice numbers and prices.

## VIS

See [Visual Materials format](#).

### Visual Materials format

OCLC-MARC Bibliographic format used for cataloging projected media, non-projected media, two-dimensional graphics, three-dimensional artifacts or naturally occurring kits; the three-character format designator for visual materials is "VIS".

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## W

### Web Harvester

An OCLC service that captures, manages and provides access to born-digital, Web-based content. Enables catalogers using the OCLC Connexion client (version 2.1+) content from the Web, review it and then add the harvested items to their CONTENTdm collections during the Connexion cataloging process.

### WebDewey

A service for assigning Dewey Decimal class numbers in records for library items.

### WebJunction

An online community dedicated to the emerging technology and training needs of librarians. Originally created by the Bill & Melinda Gates Foundation's U.S. Library OCLC and other partners.

### WEMI

Entities from Functional Requirements for Bibliographic Records (FRBR) that represent the products of intellectual or artistic endeavors used in RDA that stands for Expression, Manifestation, Item. See also [Work](#); [Expression](#); [Manifestation](#); [Item](#).

### Whole phrase index

Search indexes used to search for entire indexed ! elds of records. Whole phrase indexes are also browsable.

### Whole phrase search

All words, numbers, or character strings used to initiate a search for an entire indexed ! eld in records. To enter a complete search string using a "command line" search use a whole phrase index label in the format **xxw=** (where xx represents the label).

**Note:** FirstSearch/Resource Sharing supports only one whole phrase index—Subject. This index label has a different format; see example below.

For a whole phrase search, enter all ! eld data or truncate using an asterisk.

#### Examples:

- To search for a subject ! eld in Connexion, type **suw=library science computer\*** (! eld data is truncated).
- To search for the same subject ! eld in FirstSearch/Resource Sharing, type **sa=library science computer\*** (! eld data is truncated).

### Wildcard (# or ?)

A special character used to represent one or more characters in a search term. The pound sign (#) represents a single character, and the question mark (?), alone or with an asterisk, represents zero or more characters. Wildcards must be preceded by at least three characters in a term. Example: *wom#n* retrieves *women* or *women*; *col?r* retrieves *color* also [Truncation \(\\*\)](#).

### Word

For searching purposes, any character or group of characters between two blank spaces, including initials or abbreviations.

### Word indexes

Search indexes used to search for a word or number in specific indexed ! elds of records. Word indexes are also browsable.

### Word search

A word, number, or character string used to initiate a search for a word in an indexed ! eld in records. To enter a complete search string using a "command line" search an "expert" search in FirstSearch/Resource Sharing, use a word index label in the format **xx**.

**Example:** To search for an OCLC control number, type **no:10998406** (or **#10998406** or **\*10998406**).

### Word-by-word alphabetization

Refers to the ! ling of entries word by word, not letter by letter. For example, *New York* ! les before *Newark* in word-by-word alphabetization; *Newark* ! les before *New* letter alphabetization.

### Work

RDA defines a work as a distinct intellectual or artistic creation, that is, the intellectual or artistic content. The term work can refer to an individual work, an aggregate component of a work.

### Work mark

The part of a book number that consists of a letter appended to the author (or biographer) designation to show the ! rst letter of the title (or ! rst letter of the surname of the biographer). See also [Book number](#).

### Workflow status

In Connexion client, designates a record's position in your cataloging workflow. You select from a system-supplied list: Completed, In Process (default), In Review, or the status bar of a record.

### Workform

An OCLC-MARC template used to create an original record or local holdings record in Connexion, also known as material type template in Record Manager. The system supplies some of the appropriate fields and data, depending on the format you select for the resource you are cataloging.

### Working copy

A copy of the WorldCat record, displayed on the user's screen. When the user edits the working copy, the WorldCat record remains unchanged. Also called "editing I

### WorldCat (the OCLC Online Union Catalog)

An online database of records cooperatively built from the bibliographic and ownership information of OCLC contributing libraries. The WorldCat database is the largest comprehensive of its kind. WorldCat is the foundation of many OCLC services that enable institutions to process, manage, and share information resources, including resource sharing, reference, discovery, collection evaluation, and local holdings. WorldCat consists of three major components: a bibliographic catalog that includes available to library users, a knowledge base that connects library users to electronic content, and a registry of library profiles that allows libraries to maintain informal services. The first bibliographic records were added to WorldCat in 1971. Until being rebranded as WorldCat in 1997, it was known as the OCLC Online Union Catalog.

### WorldCat Link Manager

OpenURL linking and listing service that allows users to link from an article citation in WorldCat to the full-text version of the article.

### WorldCat Local

An OCLC service that interoperates with existing locally maintained services to provide high-level Web visibility for a library's collection. It uses the WorldCat.org infrastructure to provide Web access to WorldCat. It provides the first step toward cooperative, Web-scale library management services.

### WorldCat Navigator

An OCLC service that provides seamless resource sharing within a library consortium. The service manages returnable and nonreturnable items, and integrates with circulation systems and the wider OCLC resource sharing network to create a unique discovery-to-delivery service.

### WorldCat record

The bibliographic record available to all OCLC cataloging users for copy cataloging. By policy, WorldCat contains only one WorldCat record per manifestation for each cataloging. Previously called the Master record, the WorldCat record does not include local data.

### WorldCat registry

An online global directory of libraries, their locations, and the services they provide.

### WorldCat Resource Sharing

See [OCLC WorldCat Resource Sharing](#).

### WorldCat Search API

Provides access to WorldCat bibliographic records and holdings using the FRBR concepts to pull together various editions of the same work. The API provides access to databases from clients that can send RESTful URI queries with either the OpenSearch or SRU protocols and can accept RSS, Atom, MARC XML or Dublin Core® responses.

### Worldcat.org

OCLC service that allows users to access WorldCat through a search box that can be included in a variety of web sites. Users can then find the items in a library near them directly.

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[Z](#)

### Z39.50

A client-server protocol established as a NISO standard that allows the computer user to query a remote information retrieval system using the software of the local system. Often used in portal and gateway products to search several sources simultaneously and integrate the results.

### Z39.50 Cataloging

An OCLC service that enables libraries to use the Z39.50 interface to access WorldCat in order to search and retrieve MARC records for cataloging.

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[◀ FirstSearch glossary](#) | [Searching W](#)

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### Recommended articles

 [FirstSearch glossary](#)  
Find a comprehensive listing of FirstSearch terms accompanied by definitions.

 [Data sync processing glossary](#)  
Find a comprehensive listing of data sync processing terms accompanie

 [OCLC Usage Statistics](#)  
Find support materials about account management and the reports available in the OCLC Usage Statistics portal.

 [Exchange files with OCLC](#)  
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# **Appendix F**

## **Ingrid Hsieh-Yee**

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### **Education**

Ph.D. Library and Information Studies, University of Wisconsin-Madison  
Minors: Sociology and Psychology

M.A. Library and Information Studies, University of Wisconsin-Madison.

M.A. Comparative Literature, University of Wisconsin-Madison.

B.A. Foreign Languages and Literature, National Taiwan University.

### **Work Experience**

Professor, School/Dept. of Library and Information Science, Catholic University of America,  
2004- (Assistant Professor, 1990-1996; Associate Professor, 1997-2004)

Co-Chair, Dept. of Library and Information Science, Catholic University of America, June 2015-  
August 2016.

Acting Dean, School of Library and Information Science, Catholic University of America,  
January 2010-June 2012.

Cataloger, Dept. of Legislative Reference Library, Annapolis, Maryland, 1989-1990.

Lecturer, School of Library and Information Studies, University of Wisconsin-Madison, 1988.

Teaching Assistant, School of Library and Information Studies, University of Wisconsin-  
Madison, 1986-1988.

Cataloger, Health Sciences Library, University of Wisconsin-Madison, 1984-1986.

### **Areas of Teaching and Research Interests**

Information Organization and Access; Metadata; Cataloging & Classification; Information  
Architecture; Information Retrieval; Digital Collections; Scholarly Communication; Information

Behavior; Health Informatics; Human Computer Interaction; Usability Studies

## Grants & Honors

Cultural Heritage Information Management Project. IMLS grant. Amount: \$498,741. Period: Aug. 2012 to July 2015. Co-PI with Dr. Youngok Choi.

D.C. Health Information Technology (HIT4): Building Capacity & Providing Access in Our Nation's Capital. Dept. of Labor H2B Training Grant. Grant amount: \$4,175,500. Grant period: Nov. 2011 to Dec. 2015. Partner with the Metropolitan School of Professional Studies of the Catholic University of America, Children's National Medical Center, D.C. Department of Employment Services, Holy Cross Hospital, Howard University, Center for Urban Progress, Providence Hospital, and Sibley Memorial Hospital.

Capital Health Careers Project. Department of Labor Healthcare Sector and Other High Growth and Emerging Industries Grant. Grant amount: \$4,953,999. Grant period: March 2010 – February 2013. Awarded to a group of healthcare organizations and educational institutions in Washington, D.C. Providence Health Foundation of Providence Hospital (Lead institution). Part of the grant supported the development of a Master's degree program in Information Technology with a concentration in Health Information Technology offered by the School of Library and Information Science.

The Washington D.C. School Librarians Project. IMLS grant. Grant amount: \$412,660. Grant period: Aug. 2007 – June 2011. The School partnered with the District of Columbia Public Schools (DCPS) and the District of Columbia Library Association to educate and mentor school media specialists for the DCPS system. PI, Jan. 2010 to June 2011.

SIG Member of the Year, American Society for Information Science and Technology (2009).

Most Outstanding Paper of *OCLC Systems & Services* (2001).

ALISE Research Grant (2001).

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Research Grant from ERIC (1999-2000).

Best Research Paper Award; Association for Library and Information Science Education (1998).

Research Grants, Catholic University of America. 1991, 1992, 1993, 1996, 1998, 1999, 2004, 2005, 2006, 2007, 2013-14.

Cooperative Faculty Research Grant, Consortium of Universities in the Washington Metropolitan Area (1993-1994).

Cooperative Research Grant, Council on Library Resources (1993-1994).

*Journal of the American Society for Information Science* Best Paper Award (1993).

ASIS/ISI Information Science Doctoral Dissertation Scholarship (1989).

HEA Title IIB Fellowship (Dept. of Education) (1989)

Chinese-American Librarians Association Scholarship (1987).

Beta Phi Mu (1985).

Vilas Fellowship, University of Wisconsin-Madison. 1984

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Choi, Y., and Hsieh-Yee, I. (2010). Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes. *Canadian Journal of Information and Library Science*, 34(3): 271 – 295.

Hsieh-Yee, I. (2008). Educating Cataloging Professionals in a Changing Information Environment. *Journal of Education for Library and Information Science*, 46(2): 93-106.

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*NISO Framework for Guidelines for Building Good Digital Collections*. 3<sup>rd</sup> ed. Baltimore, MD: National Information Standards Organization, 2007. Also available online: <http://www.niso.org/framework/framework3.pdf> (NISO Working Group members: Priscilla Caplan (chair), Grace Agnew, Murtha Baca, Tony Gill, Carl Fleischhauer, Ingrid Hsieh-Yee, Jill Koelling, and Christie Stephenson.)

Choi, Y., Hsieh-Yee, I., and Kules, B. (2007). Retrieval Effectiveness of TOC and LCSH. *Proceedings of the Joint Conference on Digital Libraries*, pp. 233-234.

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- Logan, E., and Hsieh-Yee, I. (2001). Library and Information Science Education in the Nineties. *Annual Review of Information Science and Technology*, 35: 425-477.
- Hsieh-Yee, I. (Ed.) (2001). *Library and Information Science Research*, 23 (2). A special issue in honor of the retirement of Douglas L. Zweig.
- Hsieh-Yee, I. (2000). *ERIC User Services: Evaluation in a Decentralized Environment*. Washington, D.C.: Dept. of Education.
- Hsieh-Yee, Ingrid. (2000). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide*. Littleton, CO: Libraries Unlimited.
- Hsieh-Yee, I. (2000). Organizing Internet Resources: Teaching Cataloging Standards and Beyond. *OCLC Systems & Services*, 16: 130-143. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2000" award.)
- Hsieh-Yee, I. (1998). The Retrieval Power of Selected Search Engines: How Well Do They Address General Reference Questions and Subject Questions? *Reference Librarian*, 60: 27-47.
- Hsieh-Yee, I. (1998). Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study. *Reference Librarian*, 60: 61-85. (Received the 1997 Best ALISE Research Paper Award.)
- Hsieh-Yee, I. (1997). Access to OCLC and Internet Resources: LIS Educators' Views and Teaching Practices. *RQ*, 36: 569-86.
- Hsieh-Yee, I. (1997). Teaching Online and CD-ROM Resources: LIS Educators' Views and Practices. *Journal of Education for Library and Information Science*, 38: 14-34.

- Hsieh-Yee, I. (1996). The Cataloging Practices of Special Libraries and Their Relationship with OCLC. *Special Libraries*, 87: 10-20.
- Hsieh-Yee, I. (1996). Modifying Cataloging Practice and OCLC Infrastructure for Effective Organization of Internet Resources. In *Proceedings of the OCLC Internet Cataloging Colloquium*. [Online]. Available: <http://www.oclc.org/oclc/man/colloq/hsieh.htm>
- Hsieh-Yee, I. (1996). Student Use of Online Catalogs and Other Information Channels. *College & Research Libraries*, 57: 161-175.
- Hsieh-Yee, I. (1995). Ten entries in James S. C. Hu (Ed.), *Encyclopedia of Library & Information Science*, 913, 1028-29, 1036, 1037, 1145-46, 1514, 1575, 1763-64, 2216-27, 2378-79. Taipei, Taiwan: Sino-American Publishing. (Topics include "Advanced Technology/Libraries," "Information Ethics," "Instruction on Cataloging and Classification," "Instruction on Reference Services.")
- Hsieh-Yee, I. (1993). Effects of Search Experience and Subject Knowledge on Online Search Behavior: Measuring the Search Tactics of Novice and Experienced Searchers. *Journal of the American Society for Information Science*, 44: 161-174. (Received the 1993 Best JASIS Paper Award.)

## Works in Progress

- Hsieh-Yee, I. Data Availability Policy of Top Scholarly Journals: A Cross-Discipline Analysis
- Hsieh-Yee, I. & Phillips, G. Data Management Services at Top University Libraries Around the World.
- Hsieh-Yee, I. *Information Organization and Retrieval in Practice*.

## Presentations

- Bailey, T. & Hsieh-Yee, I. (February 2020). The Phenomena of Sharing Misinformation and the Need for Information Literacy. Presented at the 2020 Bridging the Spectrum Symposium, Washington, D.C., February 14, 2020.
- Hsieh-Yee, I. and Fragan-Fly, J. (May 2018) Trends, Design & Strategies for Digital Scholarship Services. Presented at the 2018 Maryland/Delaware Library Association Conference, Cambridge, MD.
- Hsieh-Yee, I. (February, 2018) Research Data Management: What It Takes to Succeed. Presented at the 10<sup>th</sup> Bridging the Spectrum Symposium, Washington, D.C.

- Hsieh-Yee, I. (February, 2017) *Research Data Management: New Competencies and Opportunities for Information Professionals*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. and Lawton, P. (February, 2017) *Enhancing Catholic Portal Searches with User Terms and LCSH*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2016, October) *Visualizing Data for Information*. Presented at the 2016 Virginia Library Association Conference, Hot Springs, VA.
- Hsieh-Yee, I. (2016, August) *Religious Materials Toolbox for Archivists: Solutions to Problems Facing the Profession*. Presented at Archives \* Records 2016, Atlanta, GA.
- Hsieh-Yee, I. and Lawton, P. (2016, March) *Enhancing Retrieval of Catholic Materials with LCSH Knowledge Structure*. Presented at the 2016 Catholic Library Association Conference, San Diego, CA.
- Fagan-Fry, J. and Hsieh-Yee, I. (2016, February) *Approaches to Digital Scholarship at Top Universities around the World: Scholarly Publishing in the Digital Age*. Presented at the 8th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee and Fagan-Fry, J. (2016, January) *Innovative Services for Digital Scholarship at Top 100 Research Libraries of the World*. Poster presented at the 2016 Annual Conference of the Association for Library and Information Science Education, Boston, Mass.
- Hsieh-Yee, I. and Lawton, P. (2015, June). *Crowdsourcing terms for CRRA portal themes*. Poster presented at the third CRRA symposium and annual meeting, Bringing the created toward the Creator: Liturgical art and design since Vatican II. Catholic Theological Union, Chicago, Illinois.
- Hsieh-Yee, I. and Lawton, P. (2015, February). *Crowdsourcing terms for thematic exploration in the Catholic Portal*. Poster presented at the 7<sup>th</sup> Annual Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I., James, R., and Fagan-Fry, J. (2015, February). *Support for digital scholarship at top university libraries of the world*. Poster presented at the 7<sup>th</sup> Annual Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2015, February). *Thus said the end users: Summon experience and support for research workflows*. Poster presented at the 7<sup>th</sup> Annual Bridging the Spectrum Symposium, Washington, D.C.

- Yontz, E., Hsieh-Yee, I., & Houston, S. (2015, February). *Healthy Heroes Summer Reading Club: Developing healthy youth at public libraries*. 11th Annual Jean Mills Health Symposium, Greenville, North Carolina.
- Yontz, E., Hsieh-Yee, I., and Houston, S. (2015, January). *Healthy youth and libraries: A pilot study*. Association for Library & Information Science Education (ALISE) Annual Conference, Chicago, Illinois.
- Hsieh-Yee, I. (2014, May). *Linking CRRA resources to portal themes via authority files*. Presented at the Catholic Research Resources Alliance 2014 Membership Meeting, Marquette, WI.
- Hsieh-Yee, I. (2014, April). *Enhancing subject access to CRRA resources*. Presented at the 2014 Catholic Library Association Conference, Pittsburgh, PA.
- Hsieh-Yee, I. (2014, January). *Health Information Technology Program: Educational entrepreneurship in action*. Presented at the 2014 annual Conference of the Association for Library and Information Science Education, Philadelphia, PA
- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2014, January). *Discovering information through Summon: An analysis of user search strategies and search success*. Paper presented at the 6th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2012, December). *National Digital Stewardship Alliance and SLIS at CUA: An Educational Partnership*. Paper presented at Best Practices Exchange: Acquiring, Preserving, and Providing Access to Government Information in the Digital Era, Annapolis, MD
- Choi, Y. and Hsieh-Yee, I. (2010, January). *Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes*. Paper presented at 2<sup>nd</sup> Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. and Coogan, J. (2010, January). *Google Scholar vs. Academic Search Premier: What Libraries and Searchers Need to Know*. Paper presented at 2<sup>nd</sup> Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, November). *Information Science Education: An LIS School's Perspective*. Paper presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada.
- Hsieh-Yee, I., Menard, E., Ya-Ning Chen, A., Shu-Jiun Chen, S., Kalfatovic, M. R., Wisser, K. M. (2009, November). *Information Organization in Libraries, Archives and Museums: Converging Practices and Collaboration Opportunities*. Presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada. (Organizer and moderator of this panel.)

- Hsieh-Yee, I. and Coogan, J. (2009, July). *Catching up to Google Scholar: The Retrieval Power of Academic Search Premier and Google Scholar*. Poster presented at American Library Association Conference, Chicago, Illinois.
- Hsieh-Yee, I., with the CUA Scholarly Communications Project Team. (2009, January). *Digital Scholarship@CUA: Developing an Institutional Repository for CUA*. Poster presented at 1<sup>st</sup> Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Wise, M., Cylke, K., and Hsieh-Yee, I. (2009, January). *Digital Talking Books: Meeting the Needs of the Blind and the Handicapped*. Paper presented at the Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, January). *User Expectations of MERIC*. Presented at the Information Organization Competencies for the 21st Century Discussion Session of the 2009 Conference of the Association for Library and Information Science Education, Denver, Colorado.
- Choi, Y., and Hsieh-Yee, I. (2008, November). *Subject Access for Images in an OPAC*. Annual Meeting of the American Society for Information Science and Technology, Columbus, Ohio. (Also co-organized a panel on Retrieving and Using Visual Resources: Challenges and Opportunities for Research and Education.)
- Hsieh-Yee, I. (2008, June). *Educating Cataloging Professionals in a Changing Information Environment*. National Taiwan University, Taipei, Taiwan.
- Vellucci, S. L., Moen, W.E., Hsieh-Yee, I., Marson, B., and Wisser, K. (2008, January) *Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input*. A panel presented at the 2008 Conference of the Association for Library and Information Science Education, Philadelphia, Pennsylvania.
- Hsieh-Yee, I., Choi, Y. and Kules, B. (2007, October). *Searching for Books and Images in OPAC: Effects of LCSH, TOC and Subject Domains*. A poster presented at the American Society for Information Science and Technology Annual Meeting, Milwaukee, Wisconsin.
- Hsieh-Yee, I. and Coogan, J. (2007, August) *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Faculty and Staff of the University of the District of Columbia.
- Hsieh-Yee, I. and Coogan, J. (2007, June). *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Washington Research Library Consortium Community, Catholic University of America, Washington, D.C.

- Hsieh-Yee, I., Choi, Y., and Kules, B.. (2007, June). *What Users Need for Subject Access: Table of Contents or Subject Headings?* A poster presented at the 2007 American Library Association Annual Conference, Washington, D.C., June 2007.
- Choi, Y., Hsieh-Yee, I., and Kules, B. (2007, June). *Retrieval Effectiveness of TOC and LCSH.* A paper presented at the Joint Conference on Digital Libraries 2007, Vancouver, Canada.
- Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007, May). *If We Build It, Will They Come? Building a Community of Practice for Metadata Stakeholders.* A poster presented at the Rutgers University Research Day, Bridgeton, New Jersey.
- Hsieh-Yee, I. (2007, May). *Federated Searching: User Experience & Perceptions.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May). *Search Performance of Google Scholar and Academic Search Premier.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May) *MERIC: Building a Digital Commons for Metadata Education & Research.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I., and Coogan, J. (2007, March/April). *A Comparative Analysis of Google Scholar and Academic Search Premier.* Poster presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland.
- Vellucci, S. L. and Hsieh-Yee, I. (2007, March/April) *They Didn't Teach Me That in Library School! Building a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research.* On-site presentation and Webcast by Elluminate. A contributed paper presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland. The acceptance rate for contributed paper was 20%. This paper was one of 10 conference papers chosen for live webcast during the conference.
- Moen, W., Hsieh-Yee, I. and Vellucci, S.L. (2007, January) *A DSpace Foundation for a Teaching & Research Commons: The Metadata Education and Research Information Commons.* A poster session presented at the Open Repositories Conference 2007, San Antonio, Texas.
- Tang, R., Hsieh-Yee, I., and Zhang, S. (2006, November) *User Perception of MetaLib Combined Search.* Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas, Nov. 2006.
- Hsieh-Yee, I. (2006, November). *Federated Searching: User Perceptions, System Design, and*

- Library Instructions*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter).
- Hsieh-Yee, I. (2006, November). *Building a Digital Teaching Commons to Enhance Teaching and Learning: The MERIC Experience and Challenges*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter)
- Hsieh-Yee, I. (2006, September). *Search Performance of Google Scholar and Academic Search Premier*. Paper presented at the ERIC Publishers Meeting, Washington, D.C.
- Hsieh-Yee, I., Zhang, S., and Rong Tang, R. (2006, June). *User Perceptions of a Federated Search System*. Poster presented at Joint Conference on Digital Libraries, Chapel Hill, North Carolina.
- Hsieh-Yee, I. and Zhang, S. (2006, June). *Preparing Users for Federated Search: Implications of a MetaLib User Perceptions Study*. Paper presented at the 2006 Ex Libris User Groups of North America Conference, Knoxville, Tennessee.
- Hsieh-Yee, I. (2006, January). *MERIC Organizations and Navigation*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2006, January). *Metadata and Cataloging Education: Recommended Competencies*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2005, November). *Digital Library Evaluation: Progress & Next Steps*. Presentation at the Annual Meeting of the American Society for Information Science & Technology, Charlotte, North Carolina.
- Hsieh-Yee, I. (2005, August). *Providing Access to Digital Content: Issues for DL Managers*. Presentation at MDK12 Digital Library Steering Committee Meeting, Columbia, Maryland.
- Hsieh-Yee, I. (2005, April). *Enhancing Teaching and Learning: The Role of School Library Media Specialists*. Presentation at Meeting of the Baltimore County Public School System School Media Specialists, Baltimore, Maryland.
- Hsieh-Yee, I. (2005, January). *Subject Access and Users: Insights & Inspirations from Marcia J. Bates*. Paper presented at the Historical Perspectives SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.
- Hsieh-Yee, I. (2005, January). *Electronic Resource Management: Practice, Employer Expectations, & CE Interests*. Paper presented at Technical Services Education SIG, 2005

Conference of the Association for Library and Information Science Education, Boston, Massachusetts.

Hsieh-Yee, I. (2004, October). *Library Professionals for the Digital Age: Competencies & Preparation*. Paper presented at Bibliographic Access Management Team meeting, Library of Congress, Washington, D.C.

Hsieh-Yee, I. (2004, January). *Cataloging and metadata expertise for the digital era*. Presented at Preparing 21<sup>st</sup> Century Cataloging and Metadata Professionals: A Workshop for Educators and Trainers, San Diego and sponsored by ALCTS, ALISE, LC, and OCLC.

Hsieh-Yee, I. (2004, January). *Educating catalogers for the digital era*. Paper presented at the Technical Services SIG, 2004 Conference of the Association for Library and Information Science Education, San Diego.

Hsieh-Yee, I. (2003, July). *Cataloging Education for the 21<sup>st</sup> Century*. A presentation at the Library of Congress, Washington, D.C.

Hsieh-Yee, I. (2002, January) *Metadata Education and Research Priorities: A Delphi Study of Metadata Experts*. Presentation at the 2002 Conference of the Association for Library and Information Science Education, New Orleans.

Hsieh-Yee, I. (2001, November). *A Delphi Study of Metadata: Preliminary Findings*. Poster session at the 2001 Annual Meeting of the American Society for Information Science & Technology, Washington, D.C.

Hsieh-Yee, I. (2001, June). *Resources on Asian American Children: Analysis of Retrieval by Search Engines and WorldCat*. Presentation at the National Conference on Asian Pacific American Librarians, San Francisco.

Hsieh-Yee, I. (2001, January). *Delphi Study on Metadata: Project Design*. Presentation at Research Awards Session, Association for Library & Information Science Education, Washington, D.C.

Hsieh-Yee, I. (2000, May). *Web Search Behavior Research: Progress and Implications*. Presentation at the Symposium on Evaluating Library and Information Science Research, University of Wisconsin-Madison, Madison, Wisconsin.

Hsieh-Yee, I. (2000, March). *ERIC User Services: Evaluation in a Decentralized Environment*. Presentation at the National ERIC Joint Directors/Technical Meeting, Arlington, Virginia.

Hsieh-Yee, I. (2000, January). *Enhancing Learning with Web Technology*. Presentation at Faculty Conversations, Catholic University of America, Washington, D.C.

- Hsieh-Yee, I. (2000, January). *From Surrogates to Objects: CUA's Approaches to Organizing Electronic Resources*. Paper presentation at the Annual Conference of the Association for Library and Information Science Education, San Antonio, Texas.
- Yee, P., and Hsieh-Yee, I. (1997, November). *Individual Differences in Search Behavior on the WWW*. A poster session presented at the 38th Annual Meeting of the Psychonomic Society, Philadelphia, Pennsylvania.
- Hsieh-Yee, I. (1997, April). *Research + Marketing + Preparation = Job!* Presented at the "Workshop on Resume and Interview Techniques," Special Libraries Association, Student Chapter, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Creating CyberCatalogers: Education and Training*. Presentation at ALA's Midwinter Meeting, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study*. Presented at the Conference of the Association for Library and Information Science Education, Washington, D.C.
- Hsieh-Yee, Ingrid. "Beginning Your Special Library/Information Center Career." Presented at SLA's "Career Day," Jan. 11, 1997, Catholic University of America.
- Hsieh-Yee, I. (1996, September). *The Roles of Library and Information Scientists in Managing Electronic Information*. Presentation at Hamilton College, Clinton, New York.
- Hsieh-Yee, I. (1996, May). *The Future of Cataloging as a Profession*. Presented at "The Cataloging Forum, Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (1994, October). *The Impact of the Internet on OPACs*. Presented at the Third Workshop on User Interfaces for OPACs, Library of Congress, Washington, D.C.

## Reports

- Hsieh-Yee, I., with Knowledge Management Competencies and Performance Action Group of the Federal Knowledge Management Initiative. "From Knowledge Management Competencies to Improved Organizational Performance." April 9, 2009.
- Hsieh-Yee, I., with Knowledge Practices Action Group of the Federal Knowledge Management Initiative. "KM Practice in Government Agencies: Findings and Recommendations." April 9, 2009.
- Hsieh-Yee, I. "Delphi Study on Metadata." 2001. Three quarterly reports submitted to the Association for Library and Information Science Education.

Hsieh-Yee, I. "College Students' Information Channels: Patterns of Use and Possible Factors in Channel Selection." 1995. Submitted to the Catholic University of America.

Hsieh-Yee, I. "The Information-Seeking Patterns of Scholars and Their Use of an Online Information System." 1994. Submitted to the Council on Library Resources.

## Book Reviews

Review of *The Measurement and Evaluation of Library Services*, by Sharon L. Baker and F. Wilfrid Lancaster. *Information Processing and Management* 30 (1994): 450-52.

Review of *Subject Access to Films and Videos*, by Sheila S. Intner and William E. Studwell; and *Cataloging Unpublished Nonprint Materials*, by Verna Urbanski with Bao Chu Chang and Bernard L. Karon. *Information Processing and Management* 30 (1994): 449-50.

Review of *Automated Information Retrieval in Libraries: A Management Handbook*, by Vicki Anders. *Journal of Library and Information Science* 19 (1993): 98-100.

Review of *Full Text Databases*, by Carol Tenopir and Jung Soon Ro. *Information Processing and Management* 28 (1992): 667-68.

Review of *Descriptive Cataloging for the AACR2R And USMARC: A How-to-Do It Workbook*, by Larry Millsap and Terry Ellen Ferl. *Information Processing and Management* 28 (1992): 809-11.

Review of *MARC Manual: Understanding and Using MARC Records*, by Deborah J. Byrne. *Information Processing and Management* 28 (1992): 537-38.

## Service

### Professional Associations and Societies

- Library of Congress. RDA Training Program for the Profession. Co-authored with Tim Carlton. 2013-2014.
- 2014 Digital Preservation Outreach & Education Survey. Contributed to the design of the survey, 2014.
- National Digital Stewardship Alliance. Outreach Committee. 2011-2014.
- National Digital Stewardship Residency Program. Advisory Group, 2012-2013.
- FEDLINK Health Information Technology Advisory Council, 2011-2015.
- 2012 Joint Conference on Digital Libraries. Program Planning Committee, Pre-Conference Proposals Review Committee, 2012
- Catholic Research Resources Alliance. Five-Year Strategic Plan Task Force, 2011-2012
- Institute of Museum and Library Services. Grant reviewer. 2004, 2005, 2010.

- Association for Library and Information Science Education.
  - \* ALISE Bodan Wynar Research Paper Award Committee, 2015, 2016, 2017
  - \* ALISE Eugene Garfield Dissertation Award Competition, Jury, 2013, 2014
  - \* ALISE Research Grant Competition Committee. Chair, 2012
  - \* Pratt-Severn Faculty Innovation Award. Chair, 2009, 2010
  - \* ALISE Doctoral Poster Jury, 2012
  - \* “Information Organization Competencies for the 21st Century” Discussion session leader. 2009 Conference of the Association for Library and Information Science Education.
  - \* Assisted Technical Services SIG Convener in organizing a program, “Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input” for the 2008 ALISE conference.
  - \* Association for Library Collections and Technical Services/Association for Library and Information Science Education (ALCTS/ALISE) Metadata Education and Research Information Center (MERIC) Advisory Board, Co-Chair (with Sherry Vellucci), 2005-2007. Chair, 2008-2009 (leading the effort to build MERIC, a repository and collaborative space for metadata educators, practitioners, and researchers)
  - \* Technical Services SIG, Convener, 2004-2005. Organized a program on “Electronic Resources Management: Current Practices, Employer Expectations, and Teaching Strategies” for the 2005 conference in Boston, Massachusetts.
  - \* Technical Services SIG, Convener, 2003-2004. Organized a program on “Organizing Information with Metadata: Desired Competencies and Teaching Innovations” for the 2004 conference.
  - \* Technical Services SIG, Convener, 1999-2000. Organized a program on "Teaching the Organization of Electronic Resources" for the 2000 conference.
  - \* Curriculum SIG, Co-convener (with Sibyl Moses), 1996-97. Organized a program on “Government Information Policy” for the 1997 conference.
  
- American Society for Information Science & Technology.
  - \* Reviewer, Conference program panel submissions and poster submissions, 2005, 2006, 2007, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017
  - \* Nomination Committee, 2009-2011
  - \* Information Science Education Special Interest Group. American Society for Information Science and Technology. Chair-Elect, 2007-2008. Chair 2008-2009.
  - \* Committee on Information Science Education. 1999-2006.
  - \* Committee on Information Science Education. Organizing Committee for an orientation program for students at ASIS annual meetings, 1999-2001
  - \* Committee on Information Science Education. Sub-committee on Student Welfare (focusing on issues related to master's education), 1998-2001
  - \* SIG ED. Organizing Committee for the "Seminar on Research and Career Development" for junior researchers. 1995-96 (chair), 1997-2001
  - \* ISI Doctoral Dissertation Proposal Scholarship Jury, 1997; 2001, 2002
  - \* Pratt-Severn Best Student Research Paper Award Jury. Chair. 1997
  - \* 1998 Midyear Meeting (referee of contributed papers), 1997

- \* Organizer and moderator of the ASIS Doctoral Forum and the Doctoral Research Seminar 1994-1995
- \* SIG Human Computer Interaction. Chair-Elect, Chair, 1993-1995
- \* Doctoral Forum Award Jury, 1995
- \* Best Student Paper Award Jury, 1995
- American Library Association.
  - \* Committee on Accreditation, External Review Panelist, 2009- (site visiting team 2013-2014; site visiting team 2016-2017)
  - \* Association for Library Collections and Technical Services Task Force on Competencies and Education for a Career in Cataloging, member, 2008-2009
  - \* Facilitator for “What They Don't Teach in Library School: Competencies, Education and Employer Expectations for a Career in Cataloging,” an Association for Library Collections and Technical Services Preconference, June 22, 2007 in Washington, D.C. Also a local liaison for bringing this program to the Catholic University of America.
  - \* Facilitator for a discussion on "Effect of Electronic Resources on Technical Services" at ALA's Midwinter Meeting held in Feb. 1997 in Washington, D.C.
  - \* International Relations Committee, Subcommittee Task Force for IFLA and China, 1994-1997
- Virginia Association of School Librarians. Scholarships and Awards Committee. 2010-2012
- Federal Knowledge Management Initiative, Knowledge Management Practices Action Group. Member. 2009 (leading the effort to build a knowledge management repository)
- Federal Knowledge Management Initiative, Knowledge Management Competencies & Learning Action Group. Member. 2009 (developing an action plan for helping government knowledge workers and government agencies to develop knowledge management competencies)
- National Center for Education Statistics. Technical Review Panel. 2008.
- External evaluator for a case of promotion to full professorship. University of Tennessee. 2008.
- National Information Standards Organization (NISO). Advisory Board, Revision of “IMLS Framework of Guidance for Building Good Digital Collections,” 2004, 2007.
- Library of Congress, Bibliographic Control of Web Resources: A Library of Congress Action Plan. Principal Investigator of Action Item 5.1, focusing on cataloging and metadata education for students and new librarians, 2002-2003. (worked with the Association for Library Collections and Technical Services, Education Task Force)
- Chinese American Librarians Association
  - \* Chinese American Librarians Association Outstanding Library Leadership Award in Memory of Dr. Margaret Chang Fung, Award Committee, 2016-2017
  - \* Achievement Award Jury, 2000-2001
  - \* CALA Goal 2000 Task Force, 1997
  - \* Scholarship Committee, 1995, 1996-1997 (chair)

- \* Board of Directors, 1994-1997
- \* Publication Committee, 1993-1995
- \* International Relations Committee, 1993-1996
- Sailor<sup>SM</sup> Assessment Advisory Group (An impact study of Sailor, Maryland's Public Information Network), 1995
- Editorial boards
  - Journal of Library & Information Science. Editorial Board, 2012-
  - Chinese American Librarians Association, *Occasional Papers Series*. Editorial Board, 2009-2016.
  - Library Quarterly*. Editorial Board, 2003-2008
  - Bulletin of the Medical Library Association*, 1994-97
  - Newsletter editor for the Chinese American Librarians Association, 1989-92
- Referee for the following journals
  - Information Processing and Management*
  - Journal of Digital Information*
  - Journal of Education for Library and Information Science*
  - Journal of Information Science*
  - Journal of Library & Information Science*
  - Journal of Library Metadata*
  - Journal of the American Society for Information Science & Technology*
  - Library and Information Science Research*
  - Library Quarterly*
- Expert reviewer, “Digital Library” course, Evaluation module, University of North Carolina, Chapel Hill, 2007-2008.
- Expert reviewer, “Information Organization” course, University of Michigan, Ann Arbor. 2007.

### **Catholic University of America**

- Academic Senate Committee on Committees and Rules, 2019 - 2022
- Academic Senate representative (for School of Arts & Sciences), 2017-2020
- School of Arts & Sciences, Committee on Appointments and Promotions, 2015-2019
- School of Arts & Sciences, Academic Council, 2015-2016.
- School of Arts & Sciences, Ordinary Professor Group, 2013-
- Doctoral Dissertation Defense Committee, Chair, Dept. of Psychology, 2016, 2017, 2018, 2019, 2020
- Doctoral Dissertation Defense Committee, Chair, Dept. of Education, 2014, 2015, 2017, 2018, 2019
- Doctoral Dissertation Defense Committee, Chair, National Catholic School of Social Services, 2019
- President’s Administrative Council, 2010-2012

- Deans' Council, 2010-2012
- Academic Leadership Group, 2010-2012
- Academic Senate, 2003-2012
- Academic Senate, Committee on Committees and Rules, 2009-2012
- Academic Senate, Committee on Appointments and Promotions, 2005-2008
- Graduate Board, 2010-2012
- CUA Scholarly Communication Project Team, Member (2007), Chair, 2008-2009
- Academic Senate Library Committee, Interim Chair (2007), Member, 2008-2012
- Doctoral Dissertation Defense Committee, Chair, School of Nursing, 2006, 2008
- Dean Search Committee, 1992-1994, 1998-1999, 2002-2003, 2006-2007
- Fulbright Review Panel, 2006
- Academic Senate Committee on Computing, 1995-2003
- CUA Service Learning Advisory Board, 2001-2002
- CUA Faculty Conversations on Enhancing Teaching and Learning through Technology, Planning Group, 1999-2001
- CUA Initiative on Technology and Teaching, 1998-2001

#### **Dept. of Library and Information Science**

- Admissions Committee, 2007-2009, Chair 2010-2012, Member 2013-2015, Member 2018-August 2021
- Curriculum Committee, 2020-21
- Scholarship & Awards Committee, 2020-21
- Comprehensive examination editor, 2020-21
- LIS Minor advisor, 2020-
- Symposium moderator, 2021
- Symposium, Colloquium, Lecture Series Committee, May 2018-May 2020 (Chair)
- Symposium and Colloquium Committee, fall 2016-May 2018
- Bridging the Spectrum Symposium session moderator, 2018, 2019, 2020, 2021
- Organization of Information Core Course Outcomes Assessment, 2019, 2020
- The Information Professions in Society Core Course Outcomes Assessment, 2019, 2020
- Community Services Librarianship, Course of Study Review and Revision, 2020
- Organization of Information, Course of Study Review and Revision, 2019
- Organization of Information, Competency and Course Offerings Review, 2018-2019
- Accreditation presentation, Chair, June 2015-August 2016
- Interim Co-Chair, June 2015-August 2016.
- Appointments and Promotions Committee, 1991-
- Blended/OWL Learning Committee, spring 2016-2018
- Scholarship and Awards Committee, fall 2016-
- Technology Committee, fall 2016-2017
- Comprehensive examination editor, 2016-2017, reader (every year since 1990)
- LIS Advisory Board, 2015-2016 (chair); fall 2016- May 2018 (member)

- Committee on Planning and Assessment, 2015-2016 (chair)
- Senior Faculty Committee, 2014-2016.
- Accreditation Steering Committee, 2014-2016 (Chair, 2015-2016 )
- Accreditation Students Standard Committee, co-chair, 2014-2016
- Accreditation Mission, Goals, and Objectives Standard Committee, co-chair, 2014-2016
- Accreditation Curriculum Standard, member 2014-2-16
- Accreditation Administration and Finance Standard, member 2014-2016
- Cultural Heritage Information Management Project (IMLS-funded), Co-PI, 2012-2015
- Cultural Heritage Information Management Forum (scheduled for June 2015), Co-Organizer, 2013-2015
- Health Information Technology Interim Review Committee, 2015 (chair)
- Health Sciences Librarianship Advisory Group, 2015- (chair)
- Comprehensive examination editors, 2013-2014, 2016-2017
- National Digital Stewardship Alliance liaison, 2011-2014
- Advisory Board, Chair 2010-2012
- Academic Honesty Committee, Chair, 2008-2012
- Blended Learning Committee, 2010-2012
- Colloquium Committee, 2010-2012
- Comprehensive Examination Administration, 2010-2012
- Cultural Heritage Information Management Advisory Committee, 2010-2012 (chair), 2013-
- Curriculum Committee, 1991-2003, 2007-2009, Chair 2010-2012, member 2013-
- Curriculum Subcommittee on Comprehensive Examination, Chair 2009-2012
- Health Information Technology Advisory Board, Chair 2010-2012. Member 2013-
- Health Sciences Advisory Committee, 2009, Chair 2010-2012. Member 2013-
- HIT Expert Forum, Chair 2012. Member 2013-
- Health Information Technology Student Group Advisor, 2011-2012
- State Council for Higher Education of Virginia, SLIS Representative, 2010-2012
- Symposium Planning Committee, 2010-2012
- Website Management Team, Chair, 2010-2012
- Urban School Librarianship Project (IMLS-Funded), PI, 2007-2011 (chair, 2010-11)
- Failing Grades Committee, 1995-1997 (chair), 2000-2001 (chair), 2004-2005 (chair), 2007 (chair)-2011
- Faculty Search Committee, 1994-1998, 2002-2004, 2006 (chair), Fall 2007-2009, Chair fall 2009-2012
- Recruitment Committee, Chair 2010-2012
- Strategic Planning Committee, Chair 2010-2012
- Technology Committee, 2010-2012
- Accreditation Advisory Committee, 2007-2009
- Accreditation Coordinating Committee, 2007-2009
- Accreditation Steering Committee, 2007-2009
- SLIS Advisory Group, 2007-2009
- Accreditation Curriculum Standard Committee, Co-chair, 2007-2009

- Accreditation Faculty Standard Committee, Co-chair, 2007-2009
- LSC 551 Information Organization Review Team, Co-chair, 2008-2009, 2015-2016.
- Curriculum Subcommittee on Portfolios, 2009
- LSC 555 Information Systems in Libraries and Information Centers Review Team, contributor, 2008-2009
- Redesign of LSC 730 Use and Users of Libraries and Information. 2009-
- Development of a metadata institute that was taught as LSC 715 Organization of Internet Resources in 2008. The institute is being revised and will be offered in 2010 under a new course title.
- Development of lesson plans, assignments, and evaluation rubrics for LSC 606, Cataloging and Classification, for the School's NCATE accreditation. 2008
- Howard and Mathilde Rovelstad Scholarship Committee, Chair, 2004-2007
- Assistant Dean Search Committee, Chair, Fall 2007
- Liaison to the Association for Library Collections and Technical Services to bring its preconference program, Cataloging Education and Employer Expectations, to CUA during the 2007 American Library Association Annual Meeting in Washington, D.C.
- Organizer of the colloquium presentation and reception for Tamar Sadeh of Ex Libris on PRIMO June 2007
- Practicum review and design (work with potential supervisors, such as the American Indian Museum internship description revision) 2006-
- Comprehensive examinations (edits, proctoring, and grading), 1990-
- SLIS Web site redesign: Comments and suggestions. Fall 2007
- Conducted surveys of current students and alumni in preparation for the 2005 re-accreditation, 2004-2005
- Student advisement, 1990-
- Technology Committee, 1992-1999 (chair, 1996-1998), 2002-2003 (member)
- Colloquia Committee 1997-1999, 2002-2003.
- Advisor of the CUA Student Chapter of the American Society for Information Science and Technology, 2002-2003
- Visiting Professor Search Committee, 1999, 2000, 2001
- Leader, Participation in the CORC experiment, 1999-2000
- Advisor of the Special Libraries Association Student Chapter, 1993-1999; the group was recognized for outstanding leadership by SLA in 1999.
- COA planning Committee, Task Force on Electronic Presentation of SLIS Reports (team leader) 1997-1998
- COA Planning Committee, Subcommittee on Technology 1996-1998
- NLM practicum coordinator, 1997-1998
- Computer Literacy Workshops: Assisted with the development and evaluation of the workshops, 1996-1998
- Leader, Participation in the InterCat project, 1995-1997